

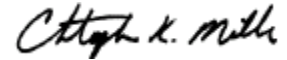
REQUEST FOR COUNCIL ACTION

Date: April 26, 2010
Item No.: 12.e

Department Approval



Acting City Manager Approval



Item Description: Automated Meter Reading (AMR) Authorization

BACKGROUND

At the March 29, 2010 Council meeting, staff presented information on the differences between the various AMR systems. Staff indicated that goals and objectives have been evaluated and that we are confident now is the right time for a move to AMR. Although today's basic water meter is still a simple mechanical device with the purpose of measuring amount of water used, reading and collecting data continues to be a labor-intensive and costly process. The associated labor savings are well-recognized within the water industry and form the core of business justifications for AMR. The benefits of AMR go far beyond gains in efficiency. AMR technologies not only allow us to replace manual meter reading, but they are designed to be an effective approach in reducing operating costs, increasing cash flow, enhancing customer service, and mitigating risk. These are benefits to both the City and the water customer and only further justify making the informed decision to move to an AMR fixed-base system.

DISCUSSION

Implementing a change from manual meter reading to an AMR system is the next logical step for the future of metering in the City of Roseville. Staff diligently compared the two vendors that offer a fixed based system with a nutating disk meter that our system requires. Our current inventory of meters is aging, with over 35% over 20 years old. Many of them are in excess of 30 years of age. American Waterworks Association recommends an average useful meter life of 20 years. Accuracy diminishes as meters age. The industry standard is a .33 percent reduction in accuracy per year of meter life based on average consumption. Resources for our meter replacement program needs to increase to meet the demand to update our aging meters. As meters are updated, we need to obtain access from the water customer, thus minimal additional installation costs will be incurred.

The following table depicts our proposed annual implementation plan and associated costs.

Phase I: 2010 – 2012 Startup, all commercial, and some residential installs

2010 - AMR Startup Costs	Quantity	Per Unit	Total Cost
Cost for DCU's (3 w/ one free)	2	\$12,500	\$25,000
Data Backhaul	3	\$420	\$1,260
FCC License Fee	1	\$300	\$300
No Charge First 3 Years for the following:			

Annual DCU Maintenance	0	\$3,000	\$0
Annual Software Maintenance	0	\$900	\$0
Total			\$26,560

26 *Vendor offer – 400 register & radio installs \$20,000 value

2010 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Commercial Radios & Meters Installed	304	\$40,000	\$23,000
Residential radios & Meters Installed	260	\$18,900	\$41,400
Total		\$58,900	\$37,506

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2011 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Commercial Radios & 1.5” Meters Installed	225	\$20,000	\$66,000
Commercial Radios & 2” Disc Meters Installed	108	\$9,600	\$40,700
Residential Radios 5/8” Meters Installed	165	\$11,900	\$26,800
Total		\$41,500	\$133,500

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2012 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Commercial Radios & 2” Compound Meters	40	\$7,100	\$43,250
Commercial Radios & 3” Compound Meters	10	\$1,740	\$15,990
Commercial Radios & 4” Compound	5	\$870	\$10,790
Commercial Radios & Heads	333	\$51,250	N/A
Residential radios 5/8” Meters	290	\$23,000	\$46,000
Total		\$83,960	\$116,029

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31 **Phase II: 2013 – 2016 Finish residential installs**

2013 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Residential Radios 5/8” Meters Installed	2115	\$186,000	\$158,660
Backhaul, DCU & Software Maintenance			\$5,340
Total		\$186,000	\$164,000

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2014 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Residential Radios 5/8” Meters Installed	2115	\$186,000	\$158,660
Backhaul, DCU & Software Maintenance			\$5,340

Total		\$186,000	\$164,000
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2015 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Residential Radios 5/8" Meters Installed	2115	\$186,000	\$158,660
Backhaul, DCU & Software Maintenance			\$5,340
Total		\$186,000	\$164,000

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2016 - AMR & Meter Costs	Quantity	AMR Costs	Meter Costs
Residential Radios 5/8" Meters Installed	2115	\$186,000	\$158,660
Backhaul, DCU & Software Maintenance			\$5,340
Total		\$186,000	\$164,000

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38 Phase one of implementation will include the installation of ADE (Absolute Digital Encoder)
39 heads and R450 radios on all existing Badger commercial meters within 2-3 years. Some of
40 these meters are more than 20 years old and will need to be replaced and would have been
41 regardless of whether we automate meter reading. These older meters will be replaced with new
42 meters together with R450 radios. Also in this phase, residential radios and meters will be
43 installed for some of the more difficult to read meters.

44 Phase two of implementation will focus more on the residential meters. Remaining aging meters
45 will be replaced with Neptune meters and R450 heads, and the rest will get an ADE head (on
46 existing Badger meters) and a radio.

47 The City will experience immediate benefit of obtaining reads remotely so that monthly billings
48 could be processed for more consistent cash flow. With a fixed based system, we will be able to
49 determine true consumption to better identify our Non-Revenue Water (NRW) or loss.

50 Additionally, indirect benefits such as eliminating estimated reads or misread information which
51 will result in less calls and time spent on billing disputes, thus improving customer satisfaction.

52 **Policy Objective**

53 To provide efficient, accurate metering and billing for water use and to provide excellent
54 customer service to all utility customers.

55 **Financial Impacts**

56 Currently we are expending approximately .75 FTE staff time and additional vehicle costs
57 reading water meters. During implementation, these resources will gradually be redirected to
58 installation of AMR and meter replacement. After this program is implemented the resources
59 will be allocated to other utility areas, such increasing maintenance needs for gate valves,
60 watermains, hydrants and right of way management.

As mentioned earlier, the two vendors that can provide a fixed-based system compatible with nutating disc meter technology, Badger and Neptune were researched and provided quotations. The following is a comparison of the costs of the two systems components:

Vendor Comparison – Meter Costs

Meter/Radio/Head	Badger/Galaxy	Neptune/Ecoder/R450
20 GPM 5/8"	\$161.50	\$161.40
¾"	\$199.00	\$183.40
1"	\$265.00	\$234.15

Startup costs were also compared. Startup costs include the cost for the Data Collection Unit's, data backhaul, FCC license fee, vendor services, and cost of software for the first year. See below for startup cost comparison:

Vendor Startup Cost Comparison

	Badger/Galaxy			Neptune/R450		
	Qu	Per Unit	Total	Qu	Per Unit	Total
Cost for DCU's	2 (1 free)	\$5,700	\$11,400	2 (1 free)	\$12,500	\$25,000
Data Backhaul (annual)	Included			3	\$420	\$1,260
FCC License Fee	1	\$300	\$300	1	\$300	\$300
Vendor offer - 400 register & radio installs				400	\$-50	\$-20,000
Vendor offer 75 radio installs	75	\$-138	\$-10,350			
Cost of Software	1	\$10,645	\$10,645	1	\$0	\$0
Total			\$11,995			\$6,560

Water Customer Impact

The impact to water rates would be an increase of 1.5 to 2.5% depending on additional revenue realized due to accuracy increase. A current residential usage charge of \$35.10 would increase to \$35.98 for an additional quarterly amount of \$.88, or \$3.52 a year. This increase would provide leak detection, which could save the customer hundreds of dollars by catching a leak immediately as well as extensive consumption data to help with conservation efforts. Commercial customers will see up to an increase of 3.5%. They would get the same advantages as the residential customer, and in many cases detecting leaks early for large water users could mean the difference between thousands of dollars. Early leak detection is a great value to the customer. The City will be able to provide a greater service to the customer by making available detailed water usage information that will assist in budget preparation and conservation.

Total project funding request for the next 7 years will be approximately \$1,750,000. Current 2011 approved budget contains \$160,000 for this meter replacement and AMR implementation.

85 Additional funds, \$90,000 annually, are proposed to come from a combination of the water rate
86 increase and added revenue from additional water recorded as usage that will be realized as new
87 meters are installed. Exact dollar amounts for this added revenue are unknown due to lack of
88 data; however other cities have seen substantial increases in revenue after converting to an AMR
89 system and installing new meters, some as much as 50%.

90 **Staff Recommendation**

91 Staff recommends implementing AMR using the Neptune fixed-based system. This will ensure
92 the City receives the highest quality product with the latest technology to fit our goals and
93 objectives for the lowest cost.

94 **Requested Council Action**

95 Motion to authorize implementation plan for a Neptune fixed-base, two-way AMR system.

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