

COUNCIL WORKSHOP ITEM

ITEM: Automated Meter Reading Project
DATE: March 13, 2001
PREPARED BY: Laura Wainwright, Public Works Technician
PURPOSE: Over the past several years, the Village has been working towards the implementation of an AMR system for Water Metering. Through research, surveying and site visits, the AMR committee has reached the end of this stage of work. The following is a summary of the information obtained as well as the committee's recommendation on the direction best suited for the Village of Downers Grove and its residents

DISCUSSION:

Our Current System

The Village of Downers Grove has been providing water to its residents since 1894, and it is believed that metering of water began around the turn of the century. Between 1958 and 1960, the Village began installing a visual remote reading system utilizing a pulse-generated signal to the remote. We currently have approximately 15,344 meters in service. With the advances being made in communications, it is becoming increasingly difficult to find vendors to provide service and support on this system. The majority of vendors have been focusing their research, development and production time on newer, more advanced systems.

Prior to 1990, the Village maintained a staff of three (3) part-time meter readers who worked 6.5 hours per day for 15 days each month. The billing cycle at that time was quarterly, with the town divided into three sections. In October 1990, the Village contracted with Northern Illinois Gas to handle our readings, which allowed us to ability to go to a bi-monthly billing cycle. This service has been renewed every year since, however, it has come to our attention that NI Gas is in the process of phasing out this service. Although the Village has not received written notification yet, other towns have been notified that their contracts will not be renewed. If this is in fact the case, the Village will need to find an alternative solution to meter reading by October 2001.

Basic Water Meter Connection

When discussing AMR, it is very easy to overlook the most significant piece: the water meter. It is important to understand the components that make up this part of the connection.

- ◆ Housing (also referred to as the pressure casing or main case) – main body of meter
- ◆ Measuring chamber – allows water to flow in and out of meter
- ◆ Register – keeps track of all water that flows through the meter
 - Pulse (nutating disc) –electro-mechanically produce an electric pulse for each unit of water (example - 1,000 gallon, 100 cubic ft). The pulse is transmitted over a two-wire conductor cable to the remote readout module to advance the digits on the module.
 - True encoder (oscillating piston) – encoder registers are access through a remotely mounted interface module. Power is transmitted from the remote to the register and provides a real-time reading from the registers odometer wheels (example - 1 gallon, 10 gallon, 1 cubic foot, etc.).
Many vendors have made modifications to the register to improve the reading capabilities, but these are the general categories as outlined by the A.W.W.A.

The AMR Solution

What is AMR?

AMR (automated meter reading) is the remote collection of consumption data from meters at the customer's premises to a remote central location using some form of communication medium (including but not limited to: telephone; power line carrier; cable TV; and radio frequency). Under a broader definition of AMR used by many companies, several other methods of meter reading are considered sub-forms of AMR. These forms include manual read (our current form of reading) and touch read. The latter are loosely termed AMR because they are not truly "automated".

The American Water Works Association (AWWA) Research Foundation noted in a 1992 report that the process of meter reading was evolving into a system. A system is a series of related components that, through their interaction, form a complex and productive whole. These systems include the following components or pieces:

- ◆ Water meter and register
- ◆ AMR interface device
- ◆ Meter reading software
- ◆ Meter reading hardware
- ◆ Training – hardware and software
- ◆ Service and support

Each of these components is important to the overall success of a complete AMR system, and all will be taken into consideration during the RFP evaluation process. For now, our main objective is selecting which communication medium would be most beneficial for the Village. In the water utility industry, the only communication mediums currently in use are touch, telephone and radio frequency. Following is a more detailed account of the options available and an idea of the benefits and drawbacks to each.

Touch Based AMR

Because the AMR industry in general does not view a touch read system as an "automated" way to read meters, there is no conclusive statistical analysis of the foothold this has in the industry.

Touch read systems have come a long way since they were first designed as an enhancement to the visual read system. Today's touch systems can either be installed on state of the art meters, or can be retro fitted to work on the older pulse generator meters. Touch systems work in generally the same manner; they remain idle until an electronic reading gun or wand is placed on the touch pad. A signal gets sent to the register, and a reading is taken in whatever manner is called for by the meter configuration. The register then returns the reading to the touch device and the reading gun or wand.

This form of meter reading has been on the market for at least 20 years. Below are some highlights of a touch system that have been proven over time.

Pros –

- Very affordable
- Eliminates reading and billing errors
- Increase the cash flow with fast read-to-bill turnaround
- No battery to be changed out

Cons –

- No on-demand reads
- Requires meter reading staff
- Readings cannot be automated – only data can once stored in handheld device
- Limited data collected

Telephone Based AMR

Type of Telephone –

- ◆ Outbound – Central office initiates a call to the meter, which responds and transmits the meter information to the central office.
- ◆ Inbound – (standard telephone option currently being deployed) AMR device calls the central office at a prescheduled time.
- ◆ U.T.T. – Utility Telemetry Trunk – Central office initiates call to meter without ringing the phone line. The meter responds with reading information.

All though all three forms of telephone have their own pros and cons, below are some general observations:

Pros –

- Requires no telco involvement except for 800 numbers (Inbound)
- Increase the cash flow with fast read-to-bill turnaround
- On-demand read capability (Outbound and U.T.T.)
- Call out information for detection of tampering, outage, leak detection (all)
- Usage profiling (all)
- No battery required in most cases (all)

Cons –

- Requires telco involvement (Outbound and U.T.T.)
- Telephone number database administration (fee for service) (Outbound and U.T.T.)
- Requires active telephone service (all)
- High installation cost due to “hard wiring” remote and meter to the telephone line (all)
- In most cases requires 5 to 7 year visit for battery change-out (all)
- No on-demand reads (Inbound)
- Data confidentiality concerns by the customer (all)

Over the last three years, industry trends have shown a decrease in shipments of telephone based AMR units. Total annual shipments for telephone went from 362,104 in 1997 down to 125,847 in 1999ⁱ. This decline reflects not only the impact of some of the inherent issues with telephone technology, but also the advancement in other AMR technologies since the early 1990's.

R.F. (radio frequency) AMR

Radio frequency communication as we know it today is based on an idea patented by actress Hedy Lamarr and composer George Antheil in August of 1942. Their “Secrete Communications System” (frequency hopping) was ahead of its time, making use of several key digital concepts well before the invention of digital electronics. The patent was handed over to the U.S. Navy to be used in WWII as a radio guidance device for U.S. torpedoes. They believed that the Navy would implement it right away to stop Hitler, but the Navy declared the system unfeasible and shelved the patent. The patent expired in 1959, but the military kept the concept of “frequency hopping” under wraps. In the 1960's there were changes made to the original patent, and the updated version became know as “spread spectrum technology”. In 1981, this technology was declassified and a new generation of communications was opened to the general public. It wasn't until the 1990's that the true capabilities of this technology were realized. R.F. can be generalized when referring to the system highlights. Below is a listing of the basic pros and cons to selecting radio as a communication medium:

Pros –

- Eliminates missed or inaccurate read
- Competitively priced for densely populated areas
- Has had the most extensive installation history for residential meters (all utilities)
- Significant reduction in meter reading staff required

- Increased data collection capabilities – leak detection, tamper detection, etc.
- On-demand reads (fixed point only)
- Increase the cash flow with fast read-to-bill turnaround

Cons –

- Battery powered units require change-outs every 7 to 10 years (average warranty – some can actually last past warranty period)
- Private network option requires purchase of infrastructure (collectors, towers, etc.)
- “Shadowing” causes inaccessible reads (tree growth, new construction, etc. block signal)
- Predominately one-way communication (two-way has been emerging)
- Requires in-house expertise

Total annual shipments for R.F. for 1997 were 3,945,346; 3,510,811 in 1998; and 4,085,480 in 1999¹. Figures for 2000 are projected much higher because many utilities held off on AMR due to Y2K concerns.

Spread spectrum is the basic principle behind the many forms of R.F. communications. Since this is the most varied category, below we have broken down the most popular systems available using this technology.

Radio (handheld)

There are many potential benefits to a handheld radio solution over the touch pad, the most obvious is not having to walk up and make direct contact with the remote. This allows the meter reading staff to either walk down the sidewalk or slowly drive down the street. In either scenario, the handheld device sends a signal to “wake up” the remote, which in turn communicates with the register to obtain the exact meter reading from the registers odometer, and the signal is sent back to the handheld through the remote. This entire process usually takes place within a 2 to 5 second period. Depending on the number of readers, the Village’s meters could be read within 2 weeks or less. These systems were not designed to be used as a drive by unit. But, if needed, a special antenna can be purchased to boost the signal distance for the handheld.

Radio (mobile)

A mobile R.F. solution offers many of the benefits of the handheld, but with some improvements: faster reading capability, few meter readers needed, etc. With mobile R.F., it would take the Village no more than 2 to 3 days (barring equipment breakdown, emergency operations, etc.) to completely read all meters in service. Mobile units also give meter readers the ability to obtain readings anywhere, anytime, any weather conditions. With touch and handheld, the meter readers would need to be allotted enough time to handle their readings under any circumstances, and that can mean more than one billing cycle.

Radio (fixed-point network)

A fixed-point network is the newest offering in the area of radio frequency technology for the water utility industry. There is more involved in the actual deployment of a fixed-point network, but the benefits make the extra investment worth considering.

A central computer would control the fixed network. This central computer would be programmed to call or receive a call from collector points at a specific time every day. The collector communicates with the remote device, obtaining 2 or more readings per meter per day, as well as programming the remote to report readings at different intervals. The collector stores this data and downloads this information to the central computer at the designated time daily. By being able to receive readings on a daily basis, the Village can utilize the data to provide customers with a usage profile and also to more accurately monitor low or high usage, zero consumption, leak detection, and tamper detection on an individual and village-wide scale. The key is the ability to obtain the most data possible about what is actually happening with meters in service. Most fixed-point network vendors have designed their programs as web-based, which means that it can be obtained from any computer on our network through a normal web browser. Most have also designed several management utilities to help monitor the entire system.

Hybrid AMR

The term hybrid refers to any system that uses more than one given communications medium throughout their system. According to our survey results, 19% of the municipalities with AMR have more than one type of system in place, some even using different vendors for each type of architecture. The majority are currently in the process of upgrading from one system to another.

Implementation and Cost

To assist in preparing the AMR deployment schedule and budget figures, we contact Badger Meter to conduct a Life Cycle Cost Model. This model takes into account data provided by the Village, as well as industry standards and published data from many vendors. We are proposing a 5-year AMR deployment with the following installation totals:

2001/02 -	30 % (4,603 meters)
2002/03 -	20 % (3,068 meters)
2003/04 -	20 % (3,068 meters)
2004/05 -	20 % (3,068 meters)
2005/06 -	10 % (1,537 meters plus any loose ends)

Included in this packet is the more detailed outline of their analysis. Below you will find a breakdown of the overall project costs and pay-back periods:

System	Total Project Cost	Present Value of Project Investment	Project Pay-Back (in yrs)
Badger/Itron - mobile radio	\$3,412,086	\$3,163,379	5.2
Schlumberger/Hexagram – fixed point network	\$3,740,958	\$3,469,398	5.6
Badger/Hexagram – fixed point network	\$3,949,719	\$3,659,955	5.7
Sensus – mobile radio	\$4,292,904	\$3,972,485	6.2

These figures are representative of the pricing we would expect in response to our RFP. The only major factor that could change these figures would be the installation costs, which were based on industry standards.

Communication will be one of the driving factors in the success or failure of a complete rollout of an AMR system. We are in the process of designing the various publications that will be sent to all customers, hopefully addressing ahead of time any questions or concerns they may have. Work will also need to be done to organize specific geographic sections of town for change-out and to notify customers when the contractor will be in their area. It will also be critical that the Village has an open line of communication with the vendor and contractor. There are many cases where the contractor will encounter difficulties during a change-out, and we will need to work with all those involved to make sure issues are resolved in a timely manner.

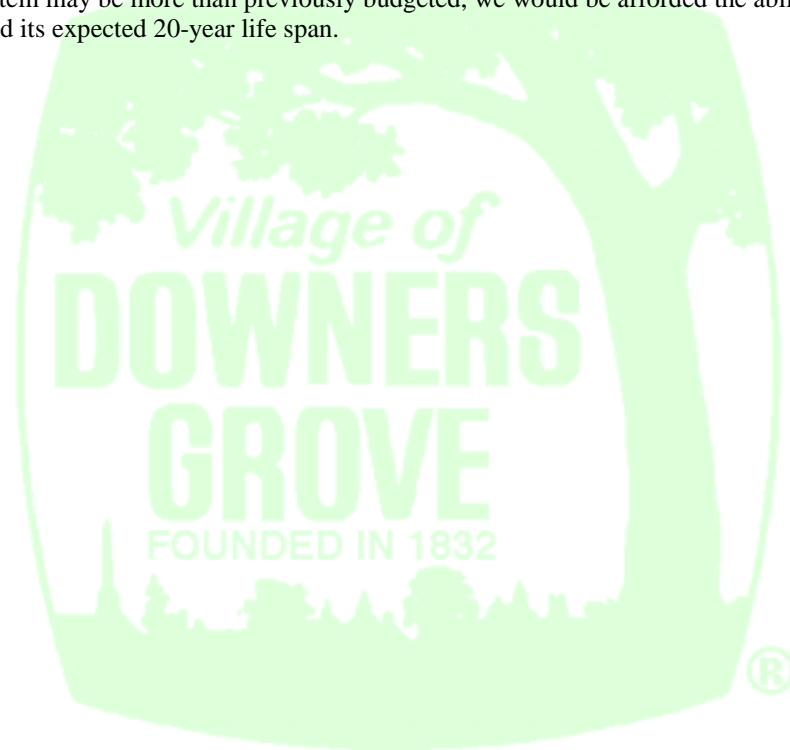
ATTACHMENTS

1. AMR System Schematics
2. AMR Survey Questionnaire
3. AMR Survey Results – No AMR
4. AMR Survey Results – With AMR
5. Life Cycle Cost Model Results
6. Selection Process, Evaluation Criteria and Compliance for RFP
7. RFP Evaluation Form
8. RFP Scoring Criteria

RECOMMENDATION

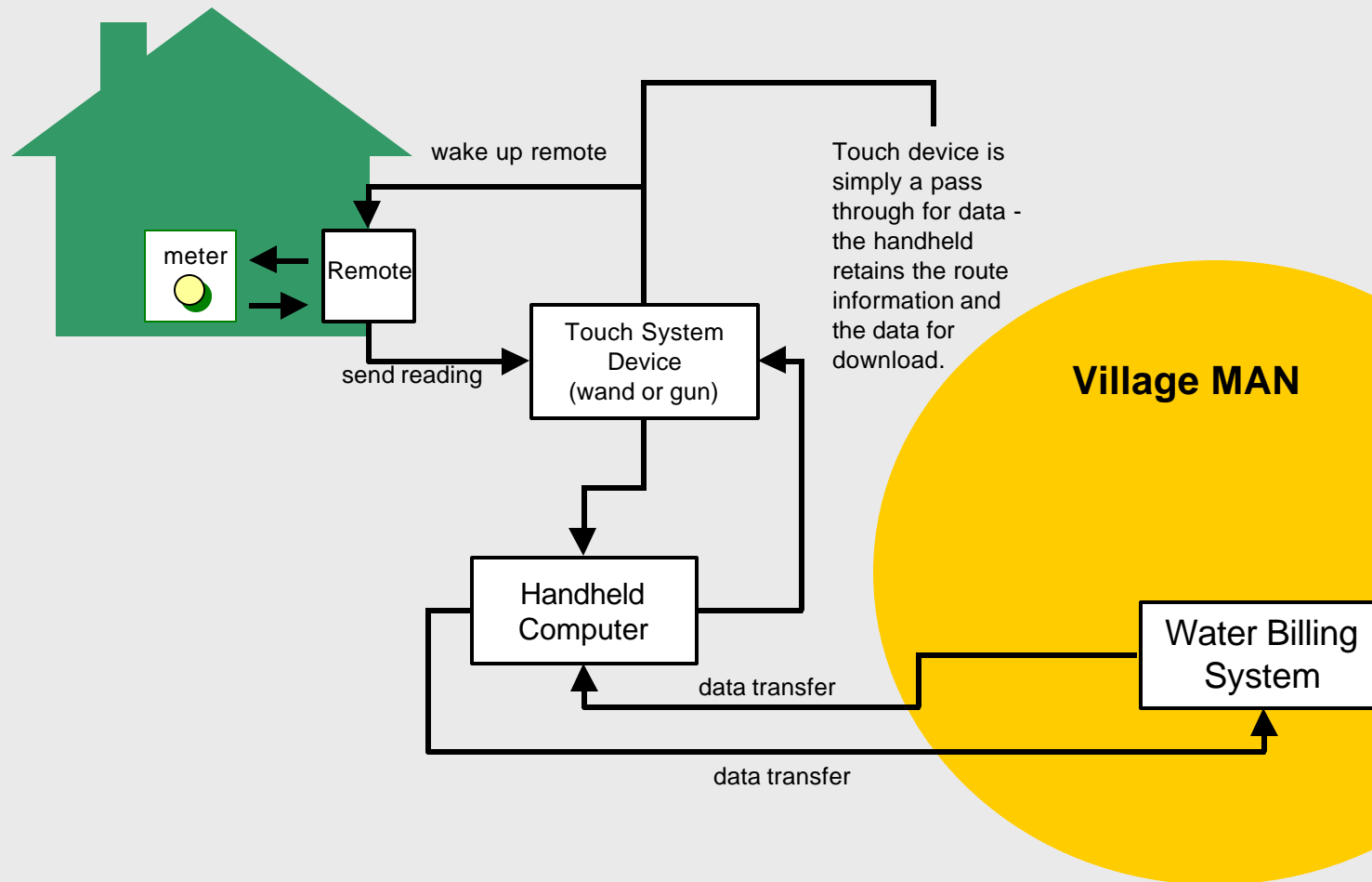
Since Downers Grove began providing water to residents, we have made very few changes to the type of equipment being placed in service. For many years we have shelved the need to improve our system in anticipation of a complete upgrade. Current conditions require that a change is made, and we have taken these past 10 months to do our best to develop a solution for all our concerns.

We have carefully examined the technologies available, studied our survey results, initiated many site visits, and have considered what features we are looking for in an AMR system. It would be the recommendation of this committee that the Village pursue the purchase and implementation of a Fixed-Point Network AMR system. Although the initial costs for this system may be more than previously budgeted, we would be afforded the ability to grow into a system that will withstand its expected 20-year life span.



ⁱ *The Scott Report on AMR Deployments*, Fourth Edition, May 2000, Howard A. Scott, Ph.D., Cognyst Consulting, L.L.S., Pequannock, NJ 07440

Touch Read System



Touch Read Highlights

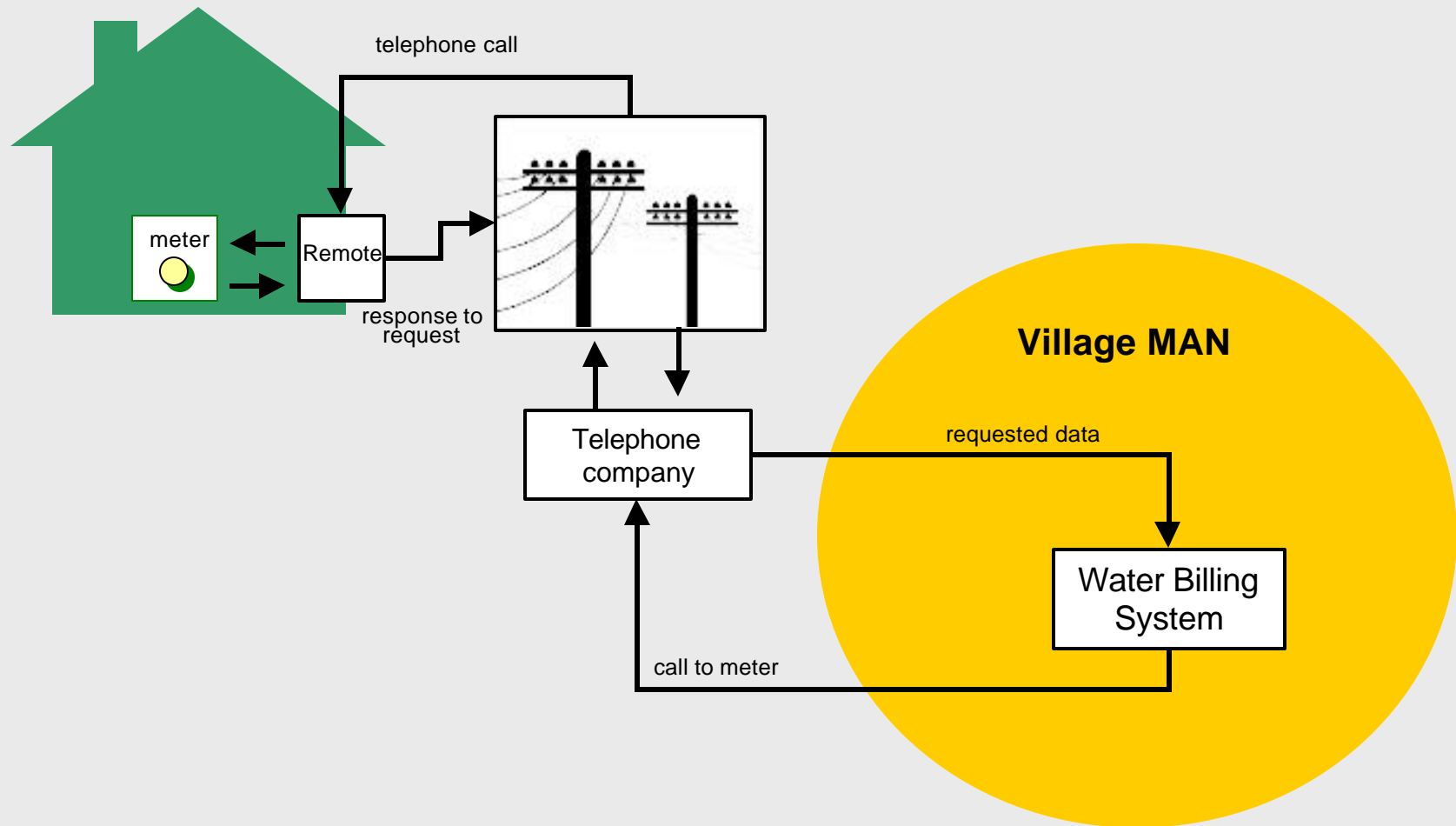
Pros :

- Very affordable
- Eliminates reading and billing errors due
- Increase the cash flow with faster read-to-bill turnaround time
- No battery to be changed out

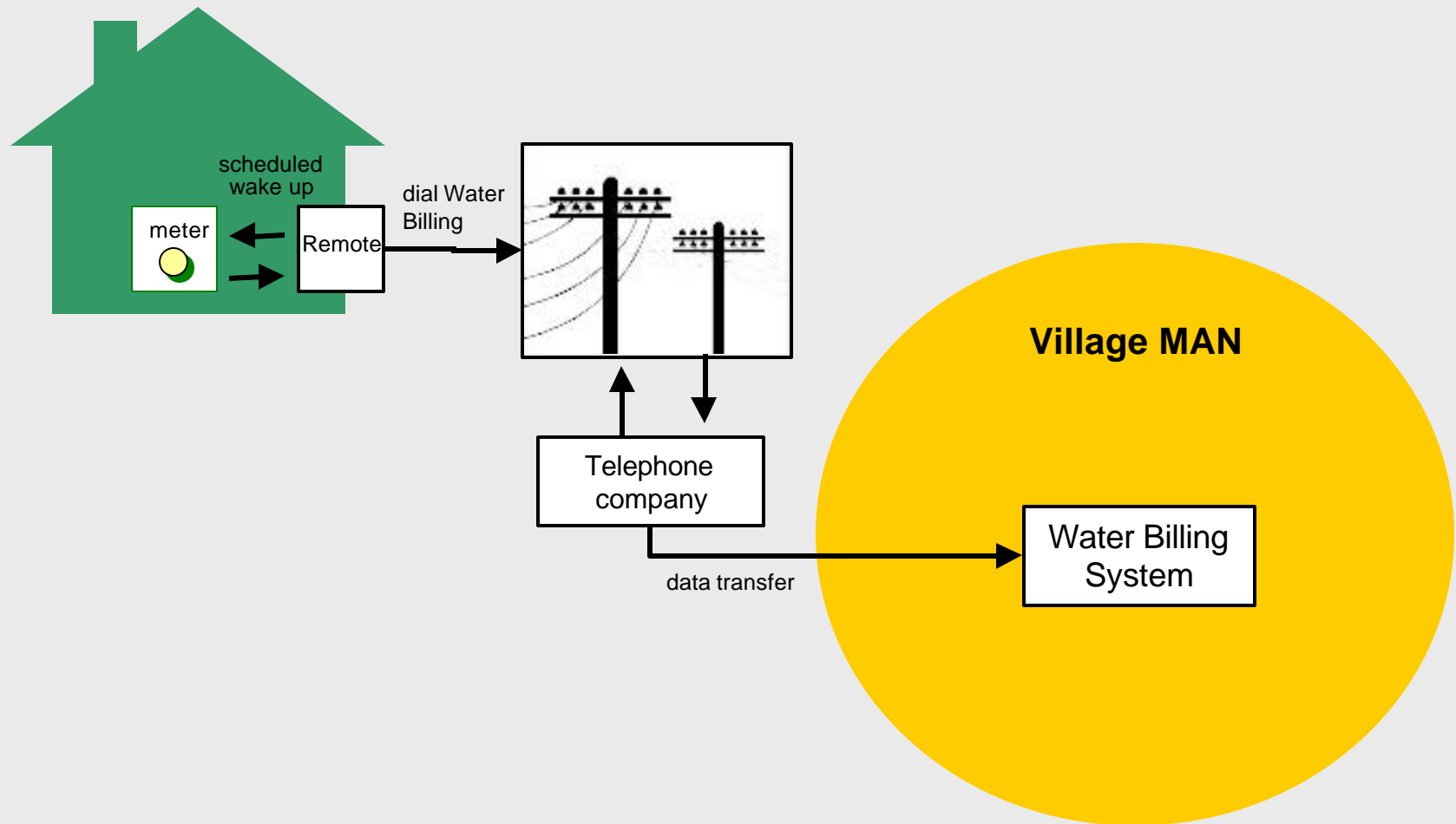
Cons :

- No on-demand reads
- Requires meter reading staff
- Reading cannot be automated - only data can be once stored in handheld device
- Limited data collection

Telephone - Outbound



Telephone - Inbound



Telephone System Highlights

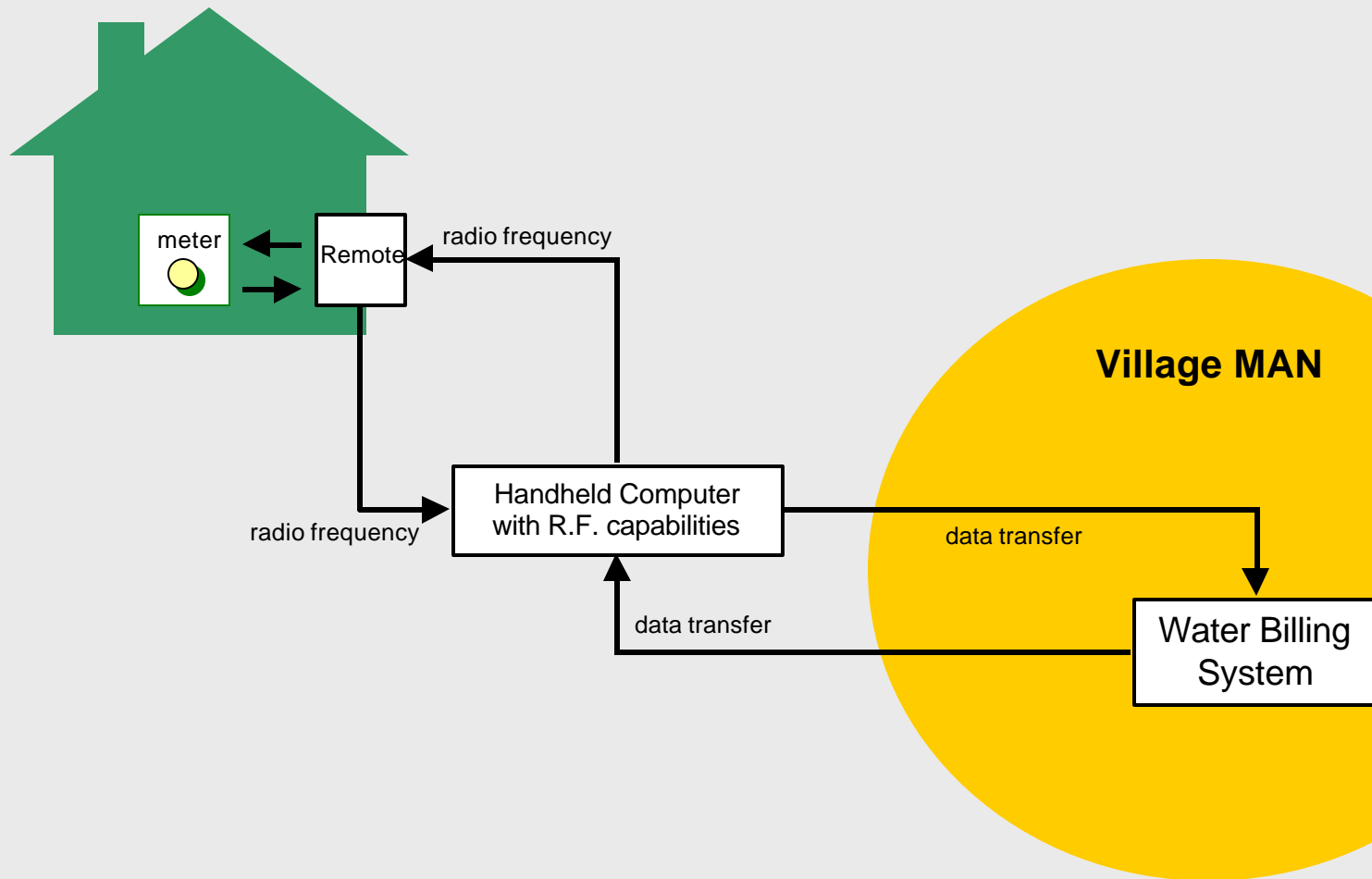
Pros :

- Increases the cash flow with fast read-to-bill turnaround (both)
- Callout information for detection of tampering, leak detection, etc. (both)
- Usage profiling (both)
- On-demand read capabilities (outbound)
- Requires no telco involvement except for 1-800 numbers (inbound)

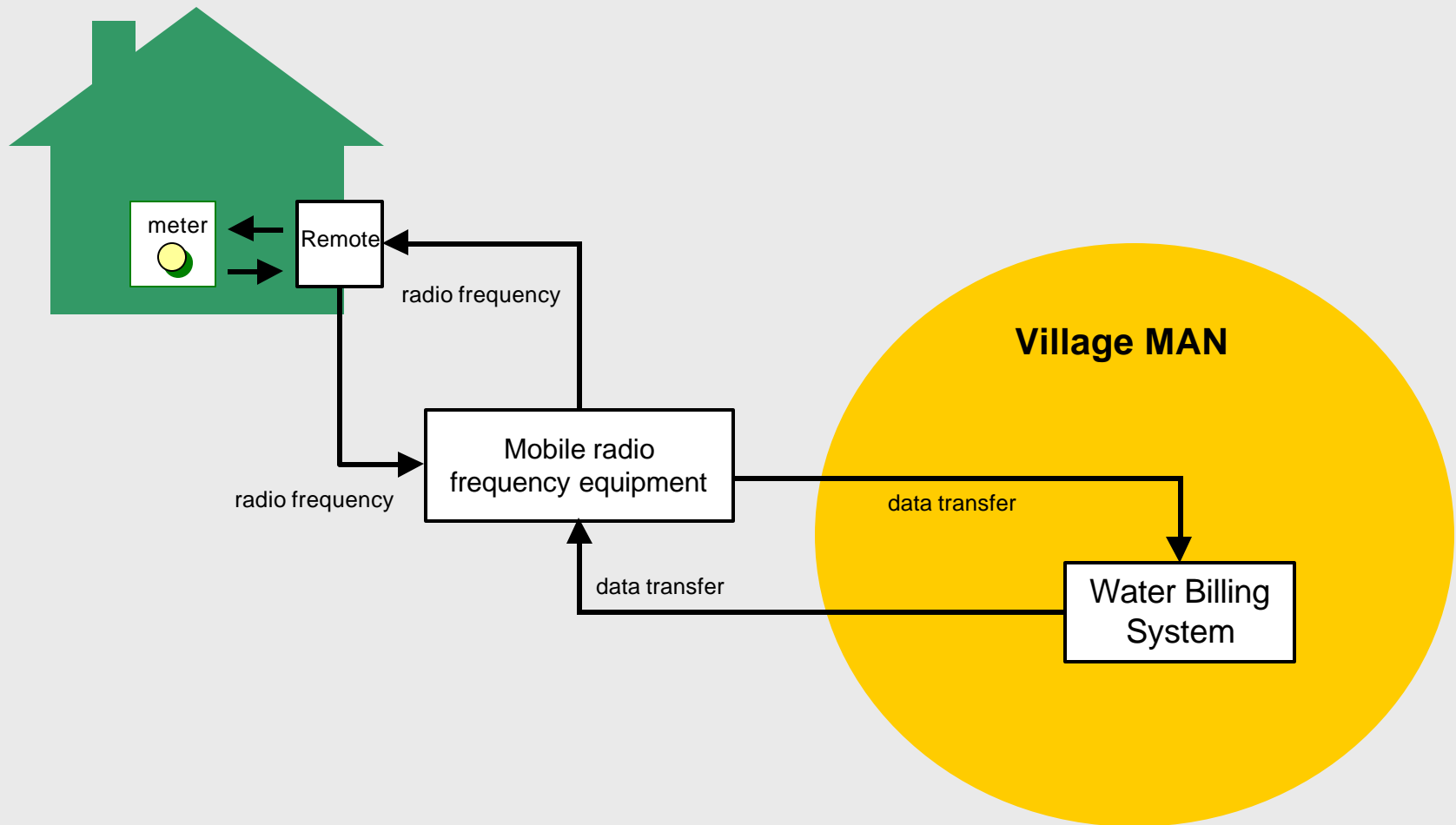
Cons :

- Requires telco involvement (outbound)
- Telephone number database administration - fee for service (outbound)
- High installation cost due to “hard wiring” remote and meter to phone line (both)
- Requires customer to have active telephone service (both)
- In most cases requires 5 to 7 year visits for battery change out (both)
- Data confidentiality concerns by customers (both)

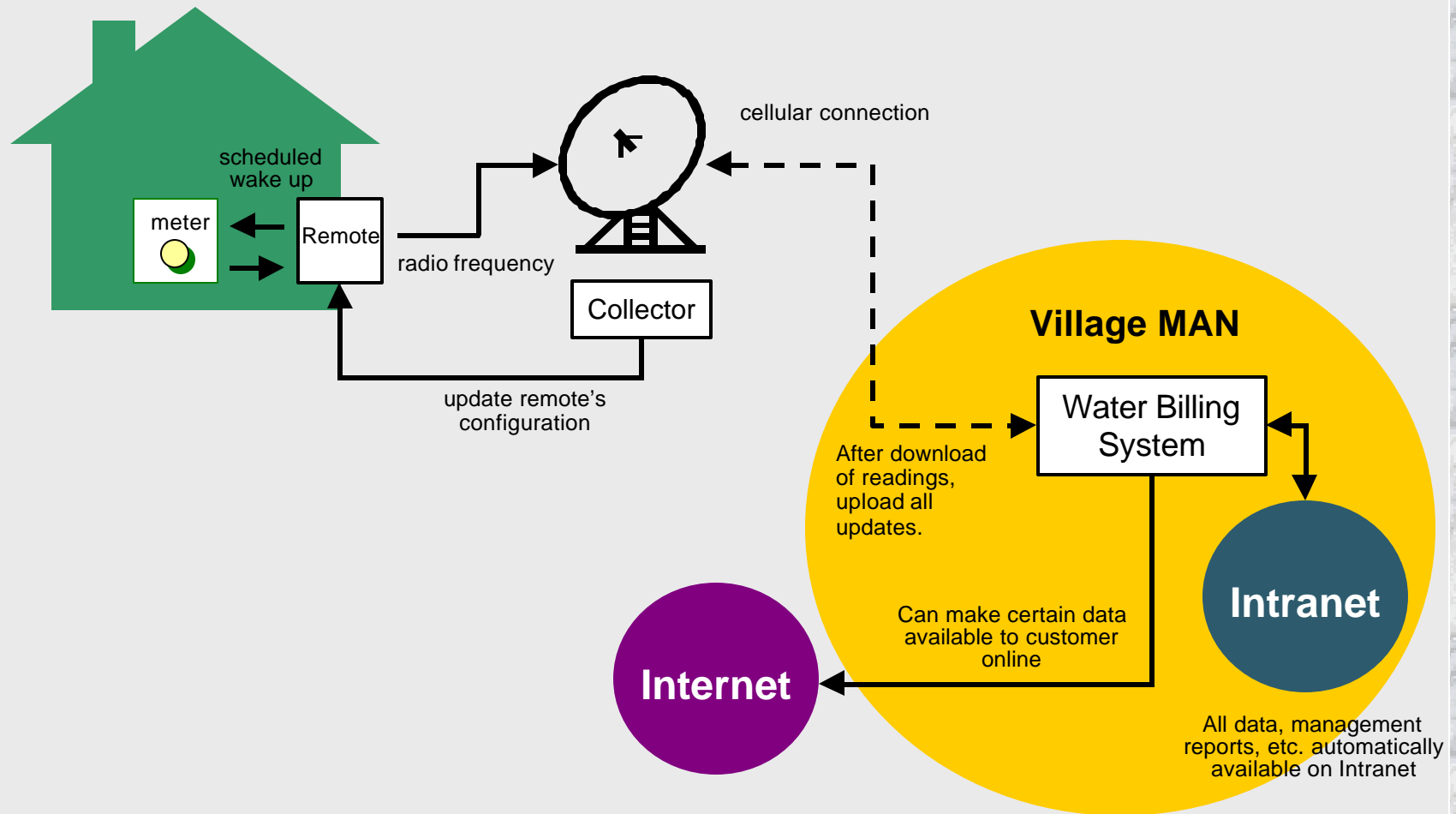
Radio Frequency - Handheld



Radio Frequency - Mobile



Radio Frequency - Fixed Point Network



Radio Frequency System Highlights

Pros :

- Eliminates missed or inaccurate reads
- Competitively priced for densely populated areas
- R.F. technology has had the most extensive installation history for residential meters
- Significant reduction in meter reading staff required
- Increased data collection capabilities - leak detection, tamper detection, low battery, etc.

Cons :

- Battery powered units require change outs every 7 to 10 years
- Private network option requires purchase of infrastructure (collectors, towers, etc.)
- “Shadowing” causes inaccessible reads (tree growth, new construction, etc., can block signal)
- Requires in-house expertise

Hybrid AMR Systems

An AMR deployment using more than one given medium of communication throughout the system.

Reasons for a Hybrid AMR System to be in use:

- Deployment not completed
- “Black hole” where a signal cannot be obtained
- Limited funding available for AMR deployment project

Village of Downers Grove – AMR Questionnaire

Reference City: _____ Contact: _____

Phone: _____ Fax: _____ E-Mail: _____

of Meters: Residential _____ Commercial _____ Other _____

AMR System: Telephone read system Manufacturer _____
 Touch style system Manufacturer _____
 Handheld Radio Frequency Manufacturer _____
 Vehicle Radio Frequency Manufacturer _____
 No AMR System installed (if no, please check box and see last page!)

When did you start installing: Telephone _____ Touch _____ Radio _____

Where is radio frequency device installed: Inside Outside Both

Who installed your system: Utility Personnel Contractor Both

(extremely difficult) **Please Circle One** (very easy)

System Performance: _____
 5 4 3 2 1

Ease of Installation: _____
 5 4 3 2 1

Ease of Use: _____
 5 4 3 2 1

Average Distance (radio): Handheld _____ Vehicle _____

Service and Support: Excellent Very Good Good Fair Poor

Overall System Performance: Excellent Very Good Good Fair Poor

Top 3 benefits derived from installation of AMR system:

- ❖ _____
- ❖ _____
- ❖ _____

Reason(s) system was purchased from your supplier (please check all that apply):

- Price Ease of Use Experience with similar systems
- Performance References Level of local service/support
- Flexibility Other _____

Additional Information –

1. Did the contractor do all the work (i.e. letters, appointment scheduling, replacement work, etc.)?

2. How did the contractor get the information to you? (written or electronic format)

3. Did you make any changes to your code/ordinance to allow for this project? Could we obtain a copy of your existing code/ordinance? (Fax # 630-434-5495)

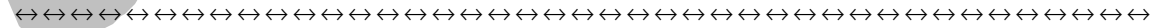
4. Could we get a copy of your RFP and contract, along with any letters or notices sent to residents? (Fax # 630-434-5495)

5. What sort of customer service problems did you deal with in conjunction with this project? Was the overall “Public Relations” more or less than expected?

6. How did you publicize the project before, during and after work began? What forms of media, if any, did you use to notify residents during the different phases?

7. In hindsight, what (if anything) would you do different?

8. Any additional suggestions or advice you would like to pass along to us (like any documentation provided to you Board/Council that helped get your project passed)?



Would you like a copy of the results of this survey?

Yes _____

No _____

Please fax your completed survey to:

The Village of Downers Grove
Public Works Department
Attn: Laura Wainwright
(630) 434-5495

Village of Downers Grove
AMR Survey Results - Municipalities with no AMR

Municipality	Residential	Commercial	Other	Copy of Results	Miscellaneous Comments
Arlington Heights	19220	1421		yes	We are planning to do the same thing in another two years when our Lake Michigan water bonds are paid off.
Barrington	3485	393	192	yes	Are in the process of selecting an AMR system - leaning towards the handheld radio frequency system from Badger. Also considering touch pad.
Bartlett	11401	231	4	yes	We are moving in this direction, also, just not there yet.
Batavia	7000	800		yes	We are considering this same thing.
Bloomington	6108	822		yes	
Blue Island	4600	600		yes	
Brookfield				no	
Chicago	110000	49000		yes	
Collinsville	10000			yes	
Des Plaines	14569	1073	506	no	
Dixon	5000	500		no	
East Moline	6200	125	30	yes	
Elmwood Park			6000	yes	
Forsyth	1400	200		yes	
Galena				yes	We are currently in the process of looking at touch read and radio read systems. We would be interested in receiving the results of your survey.
Highland Park	9000	1000		yes	Interested in doing this ourselves.
Indian Head Park	74			no	
Johnsburg	55			no	
Lake Bluff	1862	107	32	no	In the process of purchasing Sensus (did not specify radio or touch)
Lake County Public Works				yes	
Lake Forest	5950	380	15	yes	
Lincolnshire	1700	200		yes	
Lisle	4500	850		yes	
Mattoon	7046	965		yes	
Northbrook	11656	100		yes	
Northfield	1856	132	17	yes	
O'Fallon				yes	Completed study on meter reading and chose to go radio. Then project stalled.
Palatine	15133	2365		yes	
Park Ridge	11039	1200		yes	
Peoria				yes	No utilities.
Prospect Heights	330	2	3	yes	Potentially expanding the system by 10x over the next 5 years.
Schaumburg	25000	2500		yes	
Sleepy Hollow	958			yes	Currently, NiGas reads meters for usage.
South Chicago Heights				no	
South Elgin				no	
St. Charles				yes	
Sterling				no	American Water Co. reads water meters and sends information for us to bill sewer.
Wadsworth				no	
Waukegan	17414	1323		yes	AMR - 2001 objective
Wilmette	9000	600		yes	
Wooddale	3920	540		no	

Village of Downers Grove
AMR Survey Results

Municipality	User Type				Reading System Type						Installation Details						
	Residential	Commercial	Other	Telephone	Touch	Handheld	Vehicle	None	Start Date - Telephone	Start Date - Touch	Start Date - Handheld	Start Date - Vehicle	Manufacturer - Telephone	Manufacturer - Touch	Manufacturer - Radio	Remote	
Andover	7690	400	870	no	yes	no	no	no		1991/92				Datamatic			outside
Belleville	3900	1900	200	yes	no	no	no	no	12/1990				Rockwell				inside
Berkley	1680	110		no	no	yes	no	no			1998					Schlumberger	both
Buffalo Grove	10653	769		no	yes	no	no	no		1991				Rockwell/Sensus			
Carbondale	6500	300		no	yes	no	no	no		1998				Sensus			
Carol Stream	100000			no	no	yes	no	no			Summer 1998					Iron/Badger	inside
Cleeland Hills	2700			yes	no	no	yes	no	1992		2000		Schlumberger			Sensus	both
Country Club Hills	5700	160		no	yes	no	no	no		3/1/1990				Sensus			
Country side	1320	180		no	yes	no	no	no		6/1998				Sensus			
Darien (MD)	120000	60000	2000	no	yes	yes	no	no		1985	1997			Iron	Hexagram	both	

Attachment #4

Village of Downers Grove
AMR Survey Results

Municipality	User Type			Reading System Type				Installation Details									
	Residential	Commercial	Other	Telephone	Touch	Handheld	Vehicle	None	Start Date - Telephone	Start Date - Touch	Start Date - Handheld	Start Date - Vehicle	Manufacturer - Telephone	Manufacturer - Touch	Manufacturer - Radio	Remote	
Edwardsville	7500			no	yes	no	no	no		1997				Logicon			
Elk Grove	13000	1800		no	yes	no	no	no		7/1/99				Sensus			
Elmhurst	14500	275		no	yes	no	no	no		5/1/982				Schlumberger			
Evanston	13188	940	155	no	yes	no	no	no			8/14/00			Schlumberger	Hexagram (fixed)		outside
Evergreen Park	7000			no	yes	no	no	no		1985				Sensus			
Fox River Grove	1400	3	74	no	yes	yes	no	no		2/1/997	8/1/999			Schlumberger	Schlumberger		outside
Frankfort				no	yes	yes	no	no		1991	1999			Sensus	Sensus		outside
Glendale Heights	7800	500		no	no	no	yes	no			9/2/000				Sensus		inside
Grayslake	5570	150		no	yes	yes	yes	no		1/988	1/994			Sensus	Sensus		both
Quincy			8708	no	yes	no	no	no		1993				Sensus			

Village of Downers Grove
AMR Survey Results

Municipality	User Type			Reading System Type						Installation Details						
	Residential	Commercial	Other	Telephone	Touch	Handheld	Vehicle	None	Start Date - Telephone	Start Date - Touch	Start Date - Handheld	Start Date - Vehicle	Manufacturer - Telephone	Manufacturer - Touch	Manufacturer - Radio	Remote
Downers Grove	10000	400		no	yes	yes	no	no		6/1999				Neptune	Neptune	outside
Downers Grove	4500	100		no	yes	no	no	no		1989				Sensus		
Downers Grove																
Downers Grove	5000	300		no	yes	no	no	no		1995				Sensus		
Downers Grove	13000	1000		no	yes	no	no	no		1992				Schlumberger		
Downers Grove	6124	320		no	yes	no	no	no		1995				Sensus		outside
Downers Grove	3958	218		no	yes	yes	no	no		6/1999	5/2000			Sensus	Sensus	both
Downers Grove	5800	400		no	yes	no	no	no						Sensus		
Downers Grove	6200	650	25	no	yes	no	no	no		1990				Sensus		
Downers Grove	11010	1084	370	no	yes	no	no	no		1986				Sensus (Invensys)		
Downers Grove	2770	234		no	yes	no	no	no		1993				Schlumberger		
Downers Grove	4500	500		no	yes	no	no	no						Schlumberger - Neptune		outside

Village of Downers Grove
AMR Survey Results

Municipality	User Type			Reading System Type						Installation Details							
	Residential	Commercial	Other	Telephone	Torch	Handheld	Vehicle	None	Start Date - Telephone	Start Date - Torch	Start Date - Handheld	Start Date - Vehicle	Manufacturer - Telephone	Manufacturer - Torch	Manufacturer - Radio	Remote	
Madison	16000	1600		no	yes	no	no	no		1987				Schlumberger			
Morton Grove	7221	544		no	yes	no	no	no		1988/89				Sensus			
Naperville	1000			no	no	yes	no	no			8/1998				Iron		both
New Lenox				yes	yes	no	no	no	1993	1988			not given	Sensus			
Northbrook	7700	1000			yes	no	no	no									
Northbrook	11832	995		no	no	no	no	no									
North Aurora	3800	200		no	yes	yes	no	no		1980	3/2000			Schlumberger	Schlumberger		outside
Old Bridge	4800	400		no	yes	no	no	no		1996							outside
Old Park	4000	1300		yes	no	no	no	no	1991					Sensus & Schlumberger			inside
Old Park	20384	1224	151	no	yes	yes	no	no		9/1996	9/1996			Sensus	Sensus		both
Old Park	8749	221		no	yes	no	no	no		1990				Sensus			outside

Village of Downers Grove
AMR Survey Results

Municipality	User Type			Reading System Type						Installation Details						Remote
	Residential	Commercial	Other	Telephone	Touch	Handheld	Vehicle	None	Start Date - Telephone	Start Date - Touch	Start Date - Handheld	Start Date - Vehicle	Manufacturer - Telephone	Manufacturer - Touch	Manufacturer - Radio	
	4250	250		no	yes	yes	no	no			1999			Sensus	Sensus	inside
	3033	216		no	yes	yes	no	no		1988	1994			Sensus	Sensus	inside
	3027	271	23	no	yes	yes	no	no		1997	1997			Sensus	Sensus	outside
	5850	331	418	no	yes	no	no	no		1990				Sensus		
	7601	317		yes	no	no	no	no	1991				Badger			inside
	2250	150		no	yes	yes	no	no		1993	4/2000			Sensus	Sensus	inside
South Elmhurst	7600	300		no	no	no	yes	no			1997				Ilion	inside
South Elmhurst				no	yes	no	no	no		1995				Sensus		
South Elmhurst	15800			no	yes	no	no	no		1988				Sensus (a.k.a. Rockwell)		
South Elmhurst	6350	585		no	no	yes	no	no	1995	1995	1998			Sensus	Sensus	outside

Village of Downers Grove
AMR Survey Results

Municipality	User Type			Reading System Type						Installation Details							
	Residential	Commercial	Other	Telephone	Touch	Handheld	Vehicle	None	Start Date - Telephone	Start Date - Touch	Start Date - Handheld	Start Date - Vehicle	Manufacturer - Telephone	Manufacturer - Touch	Manufacturer - Radio	Remote	
Waukegan	196			no	no	no	no	no									outside
West Dundee	1526	204		no	yes	yes	no	no		1990	1996			Sensus	Sensus		both
Western Springs	4300			no	yes	no	no	no		1/1/1996				Sensus			
Westmont	5200	1100		no	yes	yes	yes	no		1992	1998			Sensus	Sensus		inside
Wheaton	15308	601		no	no	yes	yes	no			6/1/1998				Badger/Itron		inside
Wheeling	5500	1100		no	no	yes	no	no			1998				Badger		inside
Willowbrook	1800	200		no	no	no	no	no									
Winnetka				no	yes	no	no	no						Dynamatic			
Woodstock	5807	451		no	yes	yes	no	no		1998	2000			Schlumberger	Schlumberger		outside

Village of Downers Grove
AMR Survey Results

Municipality	Installation Details			System Highlights				System Performance		
	Installed by Utility Personnel	Installed by Contractor	Installed by Both	System Performance	Ease of Installation	Ease of Use	Average Distance - Landfill		Average Distance - Vehicle	Service & Support
Argosion	no	no	yes	easy	easy	easy			very good	very good
Downers Grove	no	yes	no	very easy	very easy	very easy			excellent	excellent
Elmhurst	yes	no	no	very easy	easy	very easy	5000 ft.		excellent	excellent
Elmhurst Grove	yes	no	no	very easy	easy	very easy			excellent	excellent
Harwood	yes	no	no	easy	very easy	very easy				
Harwood Hills	yes	no	no	easy	very easy	very easy	front of house		very good	very good
Harwood Hills	no	yes	no							
Country Club Hills	yes	no	no	extremely difficult	extremely difficult	extremely difficult			very good	excellent
Country Club Hills	yes	no	no							
Country Club Hills	yes	no	no	easy	easy	easy			very good	very good
Country Club Hills	yes	no	no	very easy	easy	very easy	50 ft.	lower=1 mile	very good	excellent

Village of Downers Grove
AMR Survey Results

Municipality	Installation Details			System Highlights						
	Installed by Utility Personnel	Installed by Contractor	Installed by Both	System Performance	Ease of Installation	Ease of Use	Average Distance - Handfield	Average Distance - Vehicle	Service & Support	System Performance
Edwardsville	yes	no	no	difficult	difficult				good	good
Elk Grove	yes	no	no	easy	very easy	very easy			very good	very good
Elmhurst	yes	no	no	very easy	very easy	easy			very good	very good
Evanston	no	no	yes							
Evergreen Park	yes	no	no	very easy	very easy	very easy			very good	very good
Fox River Grove	no	yes	no	moderate	moderate	moderate			good	fair
Frankfort	yes	no	no	very easy	very easy	very easy	100 + ft.		excellent	excellent
Grendale Heights	no	yes	no					1700 ft.		
Graylake	no	no	yes	moderate	easy	easy	500 ft.	2500 ft.	very good	very good
Quincy	yes	no	no	very easy	very easy	very easy			good	very good

Village of Downers Grove
AMR Survey Results

Municipality	Installation Details				System Highlights					
	Installed by Utility Personnel	Installed by Contractor	Installed by Bath	System Performance	Ease of Installation	Ease of Use	Average Distance - Handheld	Average Distance - Vehicle	Service & Support	System Performance
Downers Grove Park	yes	no	no	easy	easy	easy	200-300 ft.		very good	very good
Frank Cross	yes	no	no	easy	moderate	easy			good	good
Franklin	yes	no	no	easy	easy	easy	20 ft.		good	good
Northland Estates	no	no	yes	easy	extremely difficult	easy			very good	very good
Hopkewood	yes	no	no	very easy	very easy	very easy			very good	very good
McOrange Park	no	no	yes	easy	very easy	very easy	225 ft.		too soon to tell	very good
Lake Zurich	yes	no	no	very easy	easy	very easy			very good	very good
Libertyville	yes	no	no	easy	moderate	easy			very good	very good
Loupard	no	yes	no	very easy	easy	very easy			very good	very good
L. Johns	no	yes	no	easy	easy	easy			very good	very good
Montana	yes	no	no	difficult	very easy	difficult	3 to 5 ft.		very good	fair

Village of Downers Grove
AMR Survey Results

Municipality	Installation Details			System Highlights						
	Installed by Utility Personnel	Installed by Contractor	Installed by Both	System Performance	Ease of Installation	Ease of Use	Average Distance - Handfield	Average Distance - Vehicle	Service & Support	System Performance
Madison	no	no	yes	easy	difficult	easy			excellent	good
Morton Grove	yes	no	no	easy	easy	easy			very good	good
Naperville	yes	no	no	very easy	very easy	very easy	depends		excellent	excellent
New Lenox	no	no	yes	very easy	easy	very easy			excellent	very good
Normal	no	no	no		moderate	moderate			good	good
North Aurora	no	no	yes	easy	easy	easy	600 ft.		excellent	very good
Orland Park	yes	no	no	very easy	very easy	very easy			excellent	excellent
Oswego	no	yes	no	moderate	moderate	moderate			very good	very good
Quincy	yes	no	no	easy	easy	easy	50 + ft.		good	good
St. Charles	no	yes	no	very easy	moderate	very easy			fair	very good

Village of Downers Grove
AMR Survey Results

Municipality	Installation Details			System Highlights						
	Installed by Utility Personnel	Installed by Contractor	Installed by Bath	System Performance	Ease of Installation	Ease of Use	Average Distance - Handheld	Average Distance - Vehicle	Service & Support	System Performance
Plainfield	yes	no	no	easy	moderate	difficult	250 ft.		very good	very good
Richardson Park	yes	no	no	very easy	very easy	very easy			excellent	excellent
Rock Hill	yes	no	no	moderate	easy	easy	200 ft.		excellent	very good
Rolling Meadows	yes	no	no						good	good
Roselle	yes	no	no	very easy	easy	very easy			excellent	excellent
Shorewood	yes	no	no	easy	easy	easy	50 to 60 ft.	n/a	very good	very good
South Holland	no	no	yes	very easy	very easy	very easy	300 ft.	1/4 mile	excellent	excellent
Super Grove	no	no	yes	very easy	easy	very easy			excellent	good
Steger Park	yes	no	no	easy	easy	easy			very good	very good
Whitely Park	no	no	no	moderate	moderate	moderate	100 yards		very good	good

Village of Downers Grove
AMR Survey Results

Municipality	Installation Details			System Highlights						
	Installed by Utility Personnel	Installed by Contractor	Installed by Both	System Performance	Ease of Installation	Ease of Use	Average Distance - Handheld	Average Distance - Vehicle	Service & Support	System Performance
Wheaton	no	no	yes	very easy	very easy	very easy			excellent	very good
West Dundee - 3/2	no	no	yes	very easy	very easy	very easy	30 ft. or more		excellent	excellent
Western Springs, IL	no	no	yes	easy	moderate	easy			good	good
Westmont	no	no	yes	very easy	very easy	very easy	2500 ft	1.5 miles	very good	very good
Wheaton	yes	no	no	moderate	difficult	moderate	100 ft.	500 + ft.	good	good
Wheeling	yes	no	no	easy	easy	easy	20 ft.		excellent	very good
Willowbrook	no	no	no							
Winnetka	no	no	no	moderate	moderate	easy			very good	very good
Woodstock	yes	no	no	very easy	very easy	very easy			excellent	excellent

Village of Downers Grove
AMR Survey Results

System Highlights				
Municipality	Benefits to AMR	Reason Purchased from Vendor	Did contractor do all the work?	How did the contractor relay data?
Downers Grove	Being able to read meter any time Get actual read, not an approximation Don't have to bother the homeowner	price, flexibility, ease of use		
Elmhurst	accurate faster staff reduction	experience with similar systems	Yes	Written
Elmhurst	Complete read of approximately 1,800 meters in 5 hours Billing process start to finish approximately 12 man hours 100% reads	ease of use, level of local service/support, flexibility	No	n/a
Elmhurst	faster uploads/downloads ease of use on street by Public Works personnel nearly no errors - errors check more precise - accountability	ease of use, performance, flexibility, more accomplished with fewer personnel	No - village staff performed all work on part of original conversion. Staff installs meters in new construction or as part of any remodeling/renovation efforts.	n/a
Carbondale	easier reading accurate readings less rereads	price, did a rebuild/change out	No contractor	No contractor
Carbondale	actual reading of inside meter don't have to enter property to get readings can do "on demand" reads for finals/perceived problem accounts	was able to be installed on our current Badger meters	Being installed by public works personnel	n/a
Clarendon Hills				
Clarendon Hills	performance (read 99%) ease of installation and maintenance ease of billing	price, ease of use, performance	Yes	Written
Country Side	accuracy fewer man hours no lock outs	ease of use, performance, meters in system	No	
Downers Grove	zero estimates daily reads low cost reads	experience with similar systems, performance, flexibility	Yes	Both

Village of Downers Grove
AMR Survey Results

Municipality	Benefits to AMR	Reason Purchased from Vendor	System Highlights	
			Did contractor do all the work?	How did the contractor relay data?
Edwardsville	less operator input error can read routes faster automated download for more accurate billing	price, ease of use, performance, references, flexibility	No - installation of meters was accomplished by in-house personnel	n/a
Eik Grove	read meter directly when the full conversion takes place, it will be easier for billing less reader error	switched meter style to only ECR	No	None
Elmhurst	bill more frequently 100% accuracy readings eliminates estimated readings	price, ease of use, performance, flexibility		
Evanston	Daily meter readings (consumption monitoring) No drive or touch necessary No estimates	Performance	Is contracted to do all work - City sent out introductory letter	Will be electronic
Evergreen Park		price, ease of use, performance, level of local service/support, flexibility		
Fox River Grove	improves efficiency	ease of use, references, level of local service/support	Yes - all we provided was a list of addresses, names and phone numbers (if available)	On a weekly report (written)
Frankfort	speed of meter reading	ease of use, experience with similar systems, performance, references, level of local service/support, flexibility	All Village personnel did replacement work	n/a
Glendale Heights	accurate read no need for interior access avoid errors and estimates	price, ease of use, performance, level of local service/support, long time experience with Sensus. Most get involved in the difficult ones. Important, meters and system are one company.	Contractor will do approximately 98% of work. We will get involved in the difficult ones.	
Graylake	faster reads - touch = 60 per hour / drive by radio = 850 per hour able to change billing from bi-monthly to monthly less time off from reading in bad weather	performance, most advanced when we were ready to make a change	Yes	Written format
Gurnee	less reading mistakes faster meter reading less customer complaints	ease of use, performance, level of local service/support	Work done in-house	n/a

Village of Downers Grove
AMR Survey Results

Municipality		System Highlights			
Benefits to AMR	Reason Purchased from Vendor	Did contractor do all the work?	How did the contractor relay data?		
<p>Edward Park radio reduces time it takes to read meters touch reading gives reading right away do not have to wait for resident to send in reading</p>	<p>ease of use, experience with similar systems, performance</p>	<p>The Village did all the work with sending out letters, scheduling and doing the actual replacement</p>	<p>n/a</p>		
<p>Fuller less human error less time for reading meters less time for billing accounts</p>	<p>price, ease of use, performance, flexibility</p>		<p>Written</p>		
<p>Hinsdale speed of readings accuracy of readings</p>	<p>price, ease of use, performance</p>	<p>n/a</p>	<p>Written</p>		
<p>Hoffman Estates do not have to get into house to read / make appointment</p>	<p>experience with similar systems, references, level of local service/support</p>	<p>For new construction, contractor installs meter & accessories. The Water Division personnel replace & repair existing meters.</p>	<p>Through construction permits and phone calls</p>		
<p>Homewood auto download of meter reading no more miss reads all around faster system</p>	<p>level of local service/support, village standardized to Sensus meters</p>	<p>All work done in house</p>	<p>n/a</p>		
<p>Leavenworth Park Time saved reading meters Accuracy of readings Time saved for data entry</p>	<p>performand, flexibility, references, level of local service/support</p>	<p>Finance Department prepared letters Public Works Department scheduled appointments Contractor did majority of replacement work</p>	<p>In writing</p>		
<p>Lake Zurich cash flow for village reduce high bill calls, stopped meters monthly bill to residents</p>	<p>price, ease of use</p>				
<p>Liverlyville accuracy time savings - both in reading meters and keying in readings</p>	<p>price, ease of use, experience with similar systems, performance, references, level of local service/support, flexibility, always used Sensus products.</p>	<p>n/a</p>	<p>n/a</p>		
<p>Lisle no need to bother homeowners</p>	<p>had sensus meters in the system</p>		<p>I'm sure it was written</p>		
<p>Lyons</p>	<p>price, ease of use, level of local service/support</p>	<p>90% contractor - 10% by Village</p>	<p>Written - but this was 7 or 8 years ago</p>		
<p>Madison</p>	<p>experience with similar systems</p>	<p>No - we did the installation of meters and scheduling of appointments</p>	<p>n/a</p>		

Village of Downers Grove
AMR Survey Results

Municipality		Benefits to AMR	Reason Purchased from Vendor	System Highlights	Did contractor do all the work?	How did the contractor relay data?
		more reads per day less customer hassle no longer need to set up appointments for final reads	price, references, flexibility		With city employee help	Both and copy and electronic
		less chance for human error no need for resident to be home to read meter less time at each house - quicker read time	ease of use, performance, references		No - all work done in-house	n/a
		accuracy speed no return trips	ease of use, performance, level of local service/support, flexibility		n/a	n/a
		less labor intensive once meter is programmed accuracy human error eliminated	price, experience with similar systems, performance, references		No - residents get letter from Village to set up appointment for programming meter. Public Works programs meter after contractor (builder) installs meter prior to obtaining final occupancy. All replacement work is done by Public Works.	Written
		no writing or data entry errors faster readings	ease of use, level of local service/support, meter manufacturer		Too long ago	Written
		time to read meters compatibility with present system ability to be flexible with billing system	price, ease of use, experience with similar systems, performance, references, level of local service/support, flexibility		Yes - the contractor is supposed to do all scheduling, etc	Written
		no inside/outside differences no need to get in house for final reads	ease of use, performance, flexibility		No, all in-house	No, all in-house
		monthly reading & billing return of investment in 3 years excellent customer service tool	price, ease of use, performance, references, level of local service/support, flexibility		Yes - Village staff got involved on difficult situations	Written meter cards
		quicker read time for meter readers outside installation reduced billing cycle from quarterly to bi-monthly reduced the number of estimated readings improved customer service	ease of use, performance, references, level of local service/support, flexibility price, performance		All work done by Public Works Yes	In-house work orders Written

Village of Downers Grove
AMR Survey Results

System Highlights			
Municipality	Benefits to AMR	Reason Purchased from Vendor	How did the contractor relay data?
Downers Grove	Cuts down on meter reading time	ease of use, level of local service/support	Used in-house work orders
Rolling Meadows	efficiency efficiency easy access time saving	ease of use, performance, level of local service/support, flexibility price, ease of use, experience with similar systems, performance, flexibility experience with similar systems	n/a n/a
Roselle	ability to bill monthly and read @ \$.08 per meter read allowed us to lower our water rate \$.40 over last 2 years allows us to compare water consumed and billed vs. water treated at wastewater plants - Inflow and Infiltration study	price, ease of use, level of local service/support, performance, is the best system for Roselle - improved customer service.	n/a
Stegerwood	time-saving no problem with dogs, locked fences, etc. 100% accurate read	price, ease of use, experience with similar systems	n/a
South Holland	We were billing bi-monthly. Now we bill every month. Our overdue bills are much less now than before the system was installed. We reduced our reading personnel by 1-1/2 people	Performance, flexibility, level of local service/support, ease of use	We received the customer information both in writing and on a computer diskette.
Super Grove	more accurate meter reads customer convenience (no need for customer to read meter) no need to enter house	ease of use, performance experience with similar systems, references, level of local service/support	Written n/a
University Park	no meter readers read from outside home new meters / accurate accounting	performance	Contractor scheduled appointments, replaced meters and transferred data for new meter information

Village of Downers Grove
AMR Survey Results

Municipality		Benefits to AMR	Reason Purchased from Vendor	System Highlights	Did contractor do all the work?	How did the contractor relay data?
Warrenville		data obtained - 2 readings per day per meter reduces personnel costs eliminates personnel entering private property	price, ease of use, performance	No - the radio transmitters were installed on meter with an age of 2 years. The meter was not changed and the transmitter was located on the outside of the building.	n/a	
West Dundee		accurate readings - no estimates less human error customer satisfaction - no estimates	performance, references, level of local service/support	Developer's contractor installed touchradio per ordinance. Sensus provided training to the contractor. Contractor was exceptionally pleased with radio system as it was much easier to install than telephone reading devices. Very positive reception from contractor.		
Western Springs		case accurate readings no human errors	price, experience with similar systems, performance, references	Yes	Both - written for work performed, electronic to penantation	
Westmont		quickness of meter reading the ability to do water billing easier the flexibility of reading meters (touch, phone, radio)	ease of use, experience with similar systems, performance, level of local service/support, flexibility			
Wheaton		eliminated estimated reads and billing eliminated problems with read-outs, differences in and out improved efficiency	price, flexibility	No, all work is being done in-house.	n/a	
Wheeling		no more discrepancy between inside and outside readings less ability to tamper with meters faster readings	experience with supplier - old system	None		
Willowbrook						
Wright		reduced reading errors in the field eliminated manual entry of readings obtained in the field	ease of use, performance	The Village had been installing touch pad devices for several years. This was an upgraded piece of equipment.	n/a	
Woodstock		reading done faster, still in process of conversion	performance, references	We are in the very first stage of putting together a bid to do a major portion of our accounts. All the updates so far to date have been done in-house as stopped or leaking or places we can never get an inside reading when we get in, are done.		

Village of Downers Grove
AMR Survey Results

Municipality	System Highlights			
	Changes to coliformance for project?	RFP/Contract	Customer Service Problems	How were residents notified of project?
Downers Grove	Sent copy of bid and ordinance	no		Sent a letter to effected areas each year (included letter to residents)
Downers Grove	Yes (copy attached)	no	People were excited about project and very supportive	Newspaper, cable and newsletter
Downers Grove	No	no	Several comments concerning placement of transmitters overall 5/6 out of 1,800.	Residents informed thru local newsletter and handouts as we entered their area
Downers Grove	No changes were required. The system replaced a 100% paper driven system.	no	Public relations were great in that system quality improved and each reading became an "inside" reading. The annual struggle of meter reading coordination went away - only one meter - no adjustments, no intrusion into homes, etc.	Newsletter, billing message, flyers in areas where conversion was to take place, phone calls to schedule appointments.
Carbondale	No	no	None	n/a
Carbondale	No	no	Scheduling of changeouts - difficulty getting into certain residences	No general publicity - public works targeted areas with hang tags and mailings
Carbondale	No change necessary	no	The two main customer service problems were leaks and customers keeping appointments. After completion, high water bill complaints. For the size of the project, the overall public relations were less than you would expect.	We publicized our project with updates in our city news letter. Residents were also notified by direct mail.
Country side	No	no	Regular meter change out program - less then expected	Newsletter "only"
Downers Grove		no	None - Good cooperation	Hand notice on door

Village of Downers Grove
AMR Survey Results

System Highlights

Municipality	Changes to code/ordinance for project?	RFP/Contract	Customer Service Problems	How were residents notified of project?
Edwardsville	No	yes	"Public Relations" consisted of explaining to our city council the positive benefits of the system and the local press coverage of these meetings.	n/a
Elk Grove	No	no	None	Did not
Elmhurst	Yes, we updated the ordinance. Copy of ordinance is attached.	no	Today, husband and wife both work. Had to have employees work different work weeks and staggered starting times to accommodate customer's schedules.	Article in local newspaper, 1st class mail letters to customers, personal phone calls from secretary, and hanger cards on door knobs.
Evanston	No	yes	Too soon to tell	So far have advertised in city newsletter and sent out notices to first area of installation
Evergreen Park	No	no	Less than expected	Local newspapers, board meetings, village hall literature
Fox River Grove	No	yes	The overall public relations were good, only a few cases of unhappy customers	Newsletter, newspaper articles
Frankfort	Yes - contract to obtain copy	no	Less then expected	A mailing is sent to homeowners with older meters
Glenlake Heights	No changes to ordinance yet. Can obtain current copy if yes necessary.		To be determined	We are sending letters, using cable tv access, and the Village newsletter
Graylake	No changes were made	no	Skeptical of contractor - wanted to confirm authorization through phone call	Newsletter, hand delivered notices, phone calls, water bill notices
Gurnee	No	no	We have to be persistent to gain access to homes.	Village newsletter, billing staffers

Village of Downers Grove
AMR Survey Results

Municipality	System Highlights			
	Changes to code/ordinance for project?	RFP/Contract	Customer Service Problems	How were residents notified of project?
Downers Park	We have had the same ordinance since we first started putting meters in homes. We have always had remote reading devices on homes.	no	Water meters located behind hot water tanks and/or furnaces. Also, getting residents to let us into their homes to do the work.	We picked an area to work in and sent out letters to the residents there.
Elmhurst		no	Non-calibrated outside "read-a-matics" caused high water bills at first billing with new system. Other "public relations" were as expected.	We used Village newsletters and other forms of mailings, postings at the Village Hall, Board meetings, and local cable access channel.
Elmhurst	No changes	no	None	Individual letters to homeowners
Elmhurst Estates	Our existing code specifies for touch read and no need for change	no	Difficulty in making appointments	We send letters to residents and contractors.
Harwood	No	yes	Minor scheduling problems with some customers	None
LaGrange Park	No changes	no	No problems to speak of	No media - Contacted property owners individually
LaGrange Zurich	All new construction required to run conduit from meter to outside wall for touch pad, also all touch pads installed left side or right side of building 5 ft from front corner, 3 ft above foundation	no	Less than expected	Our newsletter to all residents which is quarterly and direct mail letter to residents to set-up appointments
Libertyville	No	no	No problems	All new construction has touch pad - Left doorknob cards to encourage change-out of old meters
Lyons	Attached	no		
Lyons	This information is not in my hands	no	The residents worked very well with the contractor - better than if the Village was handling this task. Out of 3,004 accounts, there were maybe 20 to 25 customers that were a problem.	Village newsletter - the rest was up to the contractor
McKean	n/a	no	n/a	Channel 6 - only changing out meters when broken and by appointment

Municipalities with AMR

Village of Downers Grove
AMR Survey Results

Municipality	System Highlights			
	Changes to code/ordinance for project?	RFP/Contract	Customer Service Problems	How were residents notified of project?
Moline	No	no	Getting into the customer's home to install wire and exchange the meter. Many customers had concerns about hanging the outside device on their homes.	Door knob cards and newspaper ads
Morton Grove	attached	yes	Very few issues with residents	Newsletters, letters to affected addresses, memo on water bills
Naperville	No changes	no	No problems	Letters
New Lenox	Yes (see attached)	no	None	Letters were sent to new homeowners. Any old meters changed over would be informed via phone or mail
Normal	No	no	Too long ago	
North Aurora	No	yes	Conversion from touch read to radio to start mid-august. Letters are being sent to residents that are being changed to inform them of the coming change.	Letters being sent to affected area.
Oak Brook	No	no	No real problems yet - project is about 80% complete. Problem accounts or difficult access still remain.	None - just mailing to meter we wanted to change
Oak Park	Yes - we changed the code to fit around the new system. I no longer work for the town. You would need to contact them for a copy.	no	Missed appointments, minor water leaks, minor phone problems	Letters sent to all customers, water bills, newspapers
Olympia Heights	Installation code changed.	no	Public very accommodating. Complaints from people about having a radio device in their house.	Community newsletter, letters to homeowners.
Park Forest	No changes in ordinance	no	Customers unhappy with location of installed components. Customers who refused access or refused to allow installation.	Hand delivered letters to residents. Press releases to media.

Village of Downers Grove
AMR Survey Results

System Highlights				
Municipality	Changes to code/ordinance for project?	RFP/Contract	Customer Service Problems	How were residents notified of project?
Downers Grove	No changes	no	It takes some time for the public to call for an appointment	Didn't notify residents, just sent out letters
Downers Grove	n/a	no	n/a	n/a
Frank Park	Yes - meters need to be accessible ordinance 82-1345 (see attached)	no	Did not experience problems with customers during installation process	City news letter which is inserted along with monthly customer bill
Falling Meadows	No	no	N/A	Sent letters for residents to call Public Works to schedule appointment for meter to be changed. Also city new letter.
Forest	Yes - we changed our building code requiring wiring for telephone telemetry in new construction. We also changed our meter fee for new construction.	no	Recovering payment for unbilled meter discrepancies from old generator/remote outside register system. Refusal to allow access to customer's phone line - see attached correspondence. Overall, above what I expected.	Village newsletter, form letters
Shorewood	Changed the fees for a water meter for a new house from no \$155 to \$300	no	No problems	None
South Holland	No changes were necessary to any of the ordinances or city codes.	yes	There were no unusual customer service problems from this project. We did a great deal of PR, including newspaper articles, letters to the residences, fliers and a detailed drawing of a water meter explaining how it worked, including how the resident could determine himself if he had a leak in the home.	Newspaper, letters and home delivered fliers.
Sugar Grove		no	None except some residents are not scheduling appointments (at this time, we have no ordinance to force the issue).	sent letters
University Park	No	no	Some problems with schedules. Some problems with old plumbing breaking.	
Village Park	Yes - added \$5.00 / read fee for residents who refused phone connection	no	Overall, okay. There was quite a bit of confusion about the system, a supply problem, and a change of contractor that complicated things.	Newspaper, televised Village Board meetings

Village of Downers Grove
AMR Survey Results

Municipality	System Highlights			
	Changes to code/ordinance for project?	RFP/Contract	Customer Service Problems	How were residents notified of project?
Warrenville	No	no	n/a	n/a
West Dundee	Yes	no	Positive experience	
Western Springs	No	no	Scheduling appointments. Fear of the unknown - residents did not like the intrusion. Public relations was not an overall problem.	Letters, newsletter, billing notification
Westmont		no		
Wheaton	No	no	The normal problem of finding people home during our working hours (M-F 8am to 4:30 pm) so the meters could be replaced.	City newsletter
Wheeling	No changes to code - code on website (www.vi.wheeling.il.us)	no	Usual difficulty in obtaining access to some customers to change meters. New meters more accurate than some older meters, so higher usage was detected.	Brief notices in newsletter
Willitsbrook		no		
Winnetka	No	yes	n/a	n/a
Woodstock		no		

Village of Downers Grove
AMR Survey Results

System Highlights			
Municipality	In hindsight, what would you do different?	Additional Suggestions/Advice	Miscellaneous Comments
Addison			For the past 8 years or so we have been using a touch pad system with dumb guns. This year they will be upgraded to computerized handheld system to handle the reading and billing
Bensenville	No	Do study	Copy of ordinance attached (no RFP available)
Berkely		We were getting 55% actual reads before project. That number is now 99.9%. Billing now on a monthly basis rather than bi-monthly. Resident has bill 4 days after meter is read. Software allows residents notification of leaks, etc.	If interested, we could demo our system for you.
Buffalo Grove	Nothing. So far, so good.	Attempt to quantify to best of your ability the return you can effect from the investment. It will be significant, but there should be a high level of real return throughout the organization everywhere water billing functions take place with this change. They should all be positive.	
Carol Stream	None	None	
Carol Stream	Improve interdepartmental communications - We had some problems with larger meters which had more "constant zeros". Miscommunication between Finance and Public Works resulted in some initial billing problems (i.e. 1/10th of actual usage). These were cleared up pretty easily with appropriate follow-ups.	There was minimal board documentation prepared.	
Clarendon Hills			Call if you have questions on the telephone read. We have just started to replace that with radio read this month.
Country Club Hills	No touch pad location was mandatory, other than the front of the house or business. One location should have been specified (i.e. front driveway side).	Our meter project: Accuracy of new meter paid for the project in a very short time Billing change from quarterly to bi-monthly Minimal customer billing problems	RFP not available (was over 10 years ago)
Country Club Hills	Push harder for radio		
Deerfield (MD)			Using Hexagram fixed network with Itron handheld radio/touch.

Village of Downers Grove
AMR Survey Results

System Highlights		
Municipality	In hindsight, what would you do different?	Miscellaneous Comments
Edwardsville	Nothing	RFP too large to fax - will need to contact for actual copy
Elk Grove	Nothing	
Elmhurst	Dont' do installations with in-house personnel - use a contractual service for installations only.	Ordinance attached.
Evanson	Too soon to tell	Current system consists of 10,164 touch and 4,119 with no remotes. Contracted to be replace. New system contracted for with Schlumberger meters and Hexagram fixed network automatic meter reading system. Distance for reading is 3/4 mile. Code available but not sent with survey.
Evergreen Park	Nothing	
Fox River Grove	Lack of qualified installers	Handheld distance is dependent on the location of the MIU. Copies of resident letter and RFP/Contract were included.
Frankfort	Nothing	No RFP/Contract issued.
Glendale Heights	Dont' know yet - We're counting on everything being perfect, figure we may win the lottery before that happens.	Have evaluated systems over the past year - actual installation to begin in two months. Vehicle distance is approximate (tested at max). No copies of code or RFP received.
Grayslake	Do not install all radios at one time, divide town into 7 sections with 1 section per year. When battery life expires, you are not performing mass maintenance. Also, by installing in sections, ease of reading is obtained by having specific sections to read via radio.	
Quincy		

Village of Downers Grove
AMR Survey Results

System Highlights			
Municipality	In hindsight, what would you do different?	Additional Suggestions/Advice	Miscellaneous Comments
Elmhurst Park	We just started to charge builders of new homes/businesses to install readers on all new construction and have them cover the costs.		Meter price list and ordinance included.
Elmhurst Crest	Would have installed 3-conductor wire for touch read, rather than 2-conductor to make the change-over to radio read easier.	Look at both radio and phone read. Touch read is good to start with, but costs for software and equipment to move from touch to radio/phone should be looked into.	
Elmhurst	Not really. Went very smoothly - except for about 50 people who refused to cooperate.	No	
Hoffman Estates	We would like to see residents to get in touch with us.	No	
Hinsdale	No		Copies of letter series provided
LaGrange Park	Nothing	The manufacturer of the meters is Sensus. The contractor we purchased them from and who did the installations is U.S. Filter. So far, we have only installed 69 meters for our very largest accounts with most having been installed since May 1, 2000. Therefore, any information we provide with respect to system performance is very preliminary.	
Lake Zurich		Go past touch read straight to radio.	
Lagaryville			
Lombard		A lot of these questions remain unanswered because there is no one here still that was involved in the original project. We are now looking at radio read and/or telephone read	Included a copy of ordinance
Lynons	Have all the touch pads placed closer to the front of the house		RFP not available
Mokena		<ol style="list-style-type: none"> 1. We are having trouble reading our second meter (deduct) at homes. We have to enter manually. 2. Very awkward to carry. 3. Does not stay in radio frequency mode all the time. 	

Village of Downers Grove
AMR Survey Results

System Highlights			
Municipality	In hindsight, what would you do different?	Additional Suggestions/Advice	Miscellaneous Comments
Wynne	Make sure all devices were installed towards the front of the customer's home. Many customers have fenced in yards making it difficult to have access to the outside remote.	No	
Warren Grove	Was not on staff at time of change		Touch (ECR) replaces defective or broken TTR's at this time as TTR system is obsolete. Meter readers walk house to house. Copy of ordinance and resident letters were included.
Naperville	Buy more Iron ERTS	Pilot program was already budgeted	
New Lenox	Nothing	We charge each new building permit \$350.00 for the meter. If it needs replacement, we replace it at our own expense. The meters that are changed out (old homes) are changed at our expense.	No RFP used. Copies of ordinance, sample letter to builders, and installation specs were included.
Niles			Currently using inbound/outbound AMR technology. Are currently using Schlumberger ARB V (over 20 years old)
Normal		ARB V is a remote electronic read system that pre-dates touch read. We are anticipating moving to radio in the future.	
North Aurora	I can tell you after the project is finished	When we first started installing touch pads, we made sure that all three wires were hooked up on the meter even though only two were used for the touch pad. This alleviated the need to get back in the home to hook up the extra wire needed for the radio units. We have always used 4 conductor wire. That way, if a wire is damaged somehow, you have a spare.	Copy of resident letter and RFP letter received
Oak Brook	Would contract out to get project done faster and probably lower cost on purchase of meters	None	Did not use RFP - just bought different meters
Oak Park	Have a contractor build data base of accounts, meter #'s, ID #'s, MIU #'s and all other information needed for change outs.		Send results to Dan McGlohn - Water Supervisor - Village of Oak Park - Fax # (708) 383-9610. Get copy of contract from Dave Bird, Village of Bensenville,
Orland Park	No.	Not at this time.	
Park Forest	Would try to do more pre-planning of installation locations/wire routing before beginning work.		Provided copies of invitation for bid, press releases, feature articles, ordinance, bid specifications and letter series.

Village of Downers Grove
AMR Survey Results

Municipality		System Highlights		Miscellaneous Comments
In hindsight, what would you do differently?	Additional Suggestions/Advice			
	Everything seems to be going good	Radio read speeds up reading, but it does take time for the change over	Will be purchasing mobil radio unit when town has been completely converted to radio from touch. Currently read with handheld units from inside vehicles.	
	None	System is very efficient - local support has been great - Sensus phone support has been wonderful (1-800-METER-IT)	Average distance is <100 ft - Have some units 600-700 ft. System works very well.	
	n/a	n/a		
	Nothing	None		
	Would have automated faster/more quickly. We continue to work with the manufacturer to improve this technology.	We did a cost/benefit analysis & Badger meter made a formal presentation to the Board. It was approved unanimously.	If you would like to come and see our system and 3 books of correspondence which occurred during this project, please contact me at (630) 980-2020 ext. 108. Ordinance, form letter, newsarticle included.	
South Holland	We were very pleased with how the project was handled and the reaction of the public. While there may be some minor items that didn't go just right, there is really nothing that I would have changed.	We got the Board involved very early in the process, change in cash flow with new meters and more frequent billing. They were also along on the site visits to the various current users.	Copies of contract, brochure, door hanger and work order form were enclosed.	
Sugar Grove	Field staff would like to see radio readers because of the time it takes for staff to read meters (residents used to self read meters). We are investigating the possibilities.		Attached resident letter	
Triley Park	Could have done more notification, maybe include something with the water bills.			
University Park			Village does not own water services - does not apply.	
Village Park	Radio reads for all apartments and commercial			

Village of Downers Grove
AMR Survey Results

Municipality		System Highlights		
In hindsight, what would you do different?	Additional Suggestions/Advice	Miscellaneous Comments		
Warrenville	n/a	The analysis of an AMR system should include a comparison of the amount of data supplied to the cost of place. The hardware and the cost to transmit (collect) the data. The options are endless from a customer service and system analysis when significant amounts of data are available (i.e. compare daily consumption in your system to quantify delivered from the Water Commission meters).	Pilot program for fixed point radio Hexagram system in	
West Dundee	Install radios outside rather than inside for ease of battery charge-out on radio devices.			
Western Springs		How do you pay your meter readers? AMR allows for quick readings, you may want to set up a reading schedule standard (i.e. 40 reads per hour, etc.)		
Westmont				
Wheaton	Look for a vendor with local support. We have a Badger/Iron system. Meters are made in Wisconsin, radio units are made in Washington	Reading radio meters with a handheld device is not the way to go for a town our size. If it wasn't for our van (data command unit), I wouldn't be totally satisfied with this system. If you plan to read meters with a handheld device, install the transmitters outside.	No RFP - Yearly bid	
Wheeling			No RFP issued.	
Willowbrook		Feel free to contact me for information at (630) 920-2262	Final process of specifications for AMR system with Badger meters and Hexagram radio read system (fixed network)	
Winnetka		I emailed Marty the agenda report if that would be helpful.	RFP and agenda report received.	
Woodstock			If you have any questions, please contact me at (815) 338-6118	

Life Cycle Cost Model Results

This report will summarize the results of Badger Meter's analysis. The results are based on the information provided by the Village, with calculations made on the information when they performed the analysis. Different assumptions could provide different results. However, they believe that the results indicated in this model should be evaluated carefully by you in determining a future course of action.

TOTAL LIFE COST APPROACH

The fundamental basis for the Total Life Cost Approach is that the *lowest initial investment* for a metering system may *not represent the lowest total cost of its ownership*.

Several performance factors that must be considered in judging whether the initial investment is representative of the complete "system cost" include:

- How long a metering system lasts
- It's long-term accuracy
- It's maintenance and installation requirements
- It's warranty coverage

Basing a metering system purchase on *its complete cost* is in the best long-term interest of our operation and our taxpayers.

A good way to demonstrate this is to look at the water meters as a cash register. The bills issued from its reading pay nearly 100% of most water operations. *An accurate meter ensures that all customers pay their fair share for the water service that they use.* If a form of automated meter reading is used, that automated reading is only as accurate as the meter.

Any new meter will generate an initial surge of revenues. However, the meter that provides the highest accuracy for the longest period of time provides the best return for the funds invested. In addition, a meter that lasts longer than other meters may reduce future replacement, maintenance and installation costs. Finally, a comprehensive warranty protects you and gives you valuable rights that may reduce operating costs. The value of that warranty should be considered.

These performance factors add value to the meter and to our operation. Over time, low, long term operating cost is not achieved by purchasing lower priced, lower quality metering products. Our operation is only as good as our weakest quality link. *The cash register is no place for a weak link.*

Background

In order to examine the cost effectiveness of the existing metering operations, they worked with our information to prepare it in terms of the Badger Life Cycle Cost Model (LCCM).

The purpose of the analysis is to demonstrate the long-term financial benefits and impacts that a life cycle cost approach may have upon your metering operations. The data presented in this report was developed in conjunction with the Village. The results of the model presented below demonstrate the value of purchasing a quality meter product.

Results

The table below presents a summary of the data from the LCCM that Badger conducted for our system:

Total System Cost/Savings (NPV)	Badger/Itron mobile radio	Schlumberger/Hexagram fixed network	Badger/Hexagram fixed network	Sensus mobile radio
Total Project Investment	3,412,086	3,740,958	3,949,719	4,292,904
Present Value of Project Investment	3,163,379	3,469,398	3,659,955	3,972,485
NPV Savings (Costs) From:				
Meter Accuracy	15,720,863	14,548,134	15,720,863	15,091,285
Reading Costs	731,631	780,305	780,305	749,884
Warranty and Maintenance	151,507	48,055	73,118	28,438
Battery Life and Costs	(345,434)	(1,010,181)	(1,010,181)	(532,920)
Total Savings	16,258,566	14,366,313	15,564,104	15,336,687
Total Life Cycle Savings (Costs)	13,095,187	10,896,915	11,904,150	11,364,202
Project Pay-Back in Years	5.2	5.6	5.7	6.2
Internal Rate of Return	56.4%	47.8%	46.5%	40.3%

The **Total Project Investment** reflects the total amount of money expected to be spent on the meter replacement/system implementation project. The **Present Value Project Investment** reflects the total project investment, but valued in today's dollars. If the entire project is expected to be completed in the first year, the present value will equal the total project investment. A difference will only arise when the project is expected to be completed over a time period of several years.

The **Meter Accuracy** data presents the incremental revenues generated by replacing the existing meters with newer, more accurate meters. Differences in the revenue estimates shown for the metering systems compared are a demonstration of how differences in meter accuracy over the term of the analysis can affect revenue generation capability. *Even a slight difference in meter accuracy can have a significant compounding affect.*

The **Reading Cost** data demonstrates the potential savings that can be gained by various reading systems that may be installed. Generally speaking, and depending upon the location of the meter, reading productivity for different locations fall into the following table:

- Direct read meters, from 200 to 350 reads per day
- Scan and visual reading systems, from 300 to 450 reads per day
- Radio frequency systems using a handheld interrogator in a drive-by mode, from 1,800 to 2,200 reads per day
- Radio frequency systems using a mobile interrogator, from 6,500 to 8,000 reads per day
- Radio frequency systems using fixed network collectors, every meter, every day

The frequency in future meter reading activity is a significant variable in the consideration of using automatic meter reading technologies. For example, if you use a direct or scan read system, any increase in reading and billing frequency will require additional automated reading equipment investments or increased labor costs. It may be more cost effective to make the automated reading technology investment now rather than later.

The **Warranty and Maintenance** data shows the costs or savings of operating the metering systems compared in the model. Depending upon the failure rate and warranty coverage of the various components of the metering system, an indicator of future operating costs is presented. Typically, an RF system is more expensive to maintain than a scan system, which are both more expensive to maintain than a local read system. *However, increased savings in reading productivity and other savings associated with automated reading systems recoup increased maintenance costs.*

The **Battery Life and Costs** data, used only if automated meter reading systems are part of the analysis, shows the cost incurred for replacing batteries.

The **Total Life Cycle Savings** summarizes the savings or costs associated with the various metering systems analyzed in the model. These savings or costs are compared to the **Present Value of the Project Investment** to determine the pay-back period for the project. *Please note that the “pay-back” is purely a cash flow calculation and does not consider the time value of money. Although “pay-back” is simple to understand, the Internal Rate of Return is a better indicator of Investment value.*

The **Internal Rate of Return** demonstrated the potential return that you receive for investing in a new metering system. The Internal Rate of Return should be compared to our cost of money. Returns that are higher than our current costs of capital are generally a favorable investment.

In addition to the performance factors identified in the model, we should consider other qualitative factors, especially when considering automated reading technologies. Reading technologies provide higher levels of customer service and confidence,

increased management and operational flexibility, potential for improved cash flows, and opportunities for providing other services to the customers.

Disclaimer

The information provided and the results indicated by the use of this model are based on the inputs provided and may not be indicative of actual future results. Nothing in the presentation, documentation or model may be construed as a promise, commitment or guarantee of any kind by Badger Meter, including, but not limited to, future revenues, expenditures or cost savings.

The purpose of this model and related material is to provide an indication of possible results under specific circumstances and assumptions. Badger Meter makes no warranties as to the accuracy or reliability of the assumptions, calculations, or results herein.

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Selection Process, Evaluation Criteria and Compliance

Evaluation Committee

All technical proposals received by the closing deadline will be evaluated by an Evaluation and Selection Committee appointed by the Director of Public Works or designated department head. The committee may request additional technical assistance from any source within the Village administration.

Selection Process

Each Proposal will be evaluated in a three-part process:

1. Mandatory Criteria Evaluation

First, each proposal will be screened by the Committee to ensure it meets the mandatory requirements as set forth in this solicitation. Failure to comply with a mandatory requirement will disqualify a Vendor's proposal. Minor irregularities in proposals that are immaterial or inconsequential in nature may be cured or waived whenever it is determined to be in the best interest of the Village.

Vendors must present their products, services and applicable features in a clear and concise manner in the same sequence as the RFP document stipulates. The proposed products, services and applicable features must meet the Mandatory Criteria established by the municipality. **Vendor must provide an explanation of how their products, services and features meet the Mandatory Criteria. Simply stating that the Vendor understands the requirements and that they comply will not be acceptable and will disqualify the proposal.**

2. Technical Evaluation

Second, after determining compliance with the mandatory requirements, the Committee shall conduct its evaluation of the technical merit of the proposals. The last phase of the technical evaluation will be the scoring by the Committee of each qualified proposal in accordance with the evaluation criteria below. Each proposal will be judged on its own merits.

Any Vendor not receiving the assigned minimum score in a given evaluation category will receive no further consideration during the evaluation process

Criteria for Technical Evaluation

The technical proposal will have an equal value to the price proposal. The criteria that will be used by the Committee for the technical evaluation of the proposals for this procurement are listed below:

- a. **Technological suitability of the proposal** (based on the extent to which the proposed system and/or products meet the Village's needs; ease of use and implementation; technical innovation; ease of migration of system to advanced AMR; flexibility of the proposed technology; completeness of the proposed training and after-sale support and service) – **40%**

- b. **Price** (based on – **40%**
- c. **Professional expertise and references** (Which skills, talents and professional experiences do the Vendors bring to the project? What does the track record of the Vendor indicate about the likely delivery and quality of the product? What are the soundness and the relevance of the provided references?) – **15%**
- d. **Completeness and presentation** (completeness of the proposal and the ease of which the information can be identified) – **10%**

3. Price Evaluation

Third, the price proposals, submitted in sealed envelopes, separate and apart from the technical proposals, will not be opened or distributed to the Committee for analysis until the initial evaluation of technical proposals is completed. The Vendor's total bid price will be evaluated. The proposal that offers the lowest total bid price will receive the highest price score. The scores of the remaining price proposals will be in proportion to the one offering the lowest total bid price as outlined in the RFP Evaluation Form.

References

Each Vendor must supply a list of references for work performed and/or products provided involving product and services similar to this RFP. The references shall be located in the local trade area covered by the Vendor making the proposal.

The Village will contact a number of references of each of the Vendors meeting the Mandatory Criteria and are not rejected because the proposal does not meet a minimum score for any Desirable Criteria. The Village will not enter into a Contract with any Vendor whose references, in the Village's sole opinion, are found to be unsatisfactory.

Final Ranking and Selection

The Committee will make a recommendation for the award of the contract to the responsible Vendor whose proposal is determined to be the most advantageous to the Village, considering both the technical and financial factors set forth in the RFP. A recommendation, if any, for award of contract resulting from the RFP is subject to approval by the Village Council.

Presentations

The Village retains the right to create a final list of eligible bids and invite Vendors who make the list to deliver a presentation of it's proposal to the Committee at the expense of the Vendor. Each presentation will be judged as to it's completeness and totally independent from the others.

The Vendor must submit their initial proposal as their best and final offer. Any changes to the RFP based on questions that point out a defect or area of confusion in the contract either in form or content raised by a vendor will be shared with all respondents. However, all proprietary and innovative responses that answer the criteria in the proposal in an unanticipated but acceptable method will remain confidential, and will not be shared with other respondents.

RFP Evaluation Form - AMR Systems

Vendor Name _____

Mandatory Criteria	Weight	Available Points	Score	Comments
All require RFP components are present		YES / NO		
Vendor has local sales and service location		YES / NO		
All components originate with one supplier		YES / NO		
Proposed register is absolute encoder		YES / NO		
Software is Windows 95/98 compatible		YES / NO		
Software currently compatible with Village billing software (Certification Statement Attached)		YES / NO		
If the answer is "YES" to all Mandatory Criteria, move on to evaluate the Desirable Criteria.				

Desirable Criteria	Weight	Available Points	Score	Comments
A. Technological suitability of the proposal	40%	80 pts	min. 32 pts	
i. Extent to which system meets Village needs		30 pts		
ii. Innovation of proposed technology		20 pts		
iii. Ease of migration of system to advanced AMR		10 pts		
iv. Flexibility of the system		10 pts		
v. Training, support and service system and personnel		10 pts		Total Points =
B. Price	40%	70 pts	no minimum	
Lowest price gets full points and other proposals are prorated. Score = (total number of points available for price) x (lowest priced proposal) / proposal price Formula = $S = \frac{\text{Min.} \times M}{P}$ S = Score / Min. = Lowest Priced Proposal P = Price on this proposal / M = Total points for price				Total Points =
C. Professional expertise and references	10%	30 pts	min. 12 pts	
i. Experience with similar systems		7 pts		
ii. Skills of Vendor's team		7 pts		
iii. Soundness and relevance of references		7 pts		
iv. Operational status of other user sites		9 pts		Total Points =

RFP Evaluation Form - AMR Systems				
Desirable Criteria (continued)	Weight	Available Points	Score	Comments
D. Proposal Completeness	10%	20 pts	min. 8 pts	
i. Completeness of proposal		10 pts		
ii. Ease of retrieval of information		10 pts		Total Points =
TOTALS	100%	200 pts		GRAND TOTAL = RANK =

THE ABOVE SCORING SHEET ACCOUNTS FOR 80% OF THE TOTAL EVALUATION POINTS
 THE REMAINING 20% WILL BE TOTALLY SUBJECTIVE BASED ON REVIEWERS' EXPERIENCE AND OPINIONS

RFP Evaluation Form - AMR Systems

Vendor Name _____

Mandatory Criteria	Weight	Available Points	Score	Comments
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All components originate with one supplier		YES / NO		
Proposed register is absolute encoder		YES / NO		
Software is Windows 95/98 compatible		YES / NO		
Software currently compatible with Village billing software (Certification Statement Attached)		YES / NO		
If the answer is "YES" to all Mandatory Criteria, move on to evaluate the Desirable Criteria.				

Desirable Criteria	Weight	Available Points	Score	Comments
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iv. Flexibility of the system		10 pts		
v. Training, support and service system and personnel		10 pts		Total Points =
B. Price	40%	70 pts	no minimum	
Lowest price gets full points and other proposals are prorated. Score = (total number of points available for price) x (lowest priced proposal) / proposal price Formula = $S = \frac{\text{Min.} \times M}{P}$ S = Score / Min. = Lowest Priced Proposal P = Price on this proposal / M = Total points for price				Total Points =
C. Professional expertise and references	10%	30 pts	min. 12 pts	
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ii. Skills of Vendor's team		7 pts		
iii. Soundness and relevance of references		7 pts		
iv. Operational status of other user sites		9 pts		Total Points =

RFP Evaluation Form - AMR Systems				
Desirable Criteria (continued)	Weight	Available Points	Score	Comments
D. Proposal Completeness	10%	20 pts	min. 8 pts	
i. Completeness of proposal		10 pts		
ii. Ease of retrieval of information		10 pts		Total Points =
TOTALS	100%	200 pts		GRAND TOTAL = RANK =

THE ABOVE SCORING SHEET ACCOUNTS FOR 80% OF THE TOTAL EVALUATION POINTS
 THE REMAINING 20% WILL BE TOTALLY SUBJECTIVE BASED ON REVIEWERS' EXPERIENCE AND OPINIONS

SUGGESTED SCORING GUIDE FOR CRITERIA OTHER THAN PRICE

Quality of Response	To translate into points, multiply this number by:
Excellent. Meets all of our requirements (100%)	1
A sound response. Fully meets most of our requirements	0.8
Acceptable at a minimum level. Meets our basic requirements	0.6
Falls short of meeting basic requirements	0.4
Response does not address our requirements	0.15
Response is completely unacceptable	0

PRICE EVALUATION EXAMPLE

Lowest "qualified" bid gets full points = 70 points
 Each other bid price is assigned points by using the following formula: (lowest bid x maximum points) divided by bid = Score for each bid

Example -	Bids Received:	Point Calculations
	1. 100,000	1. $100,000 \times 70 = 7,000,000 / 100,000 = 70.0$ points
	2. 110,000	2. $100,000 \times 70 = 7,000,000 / 110,000 = 63.6$ points
	3. 120,000	3. $100,000 \times 70 = 7,000,000 / 120,000 = 58.33$ points
	4. 150,000	4. $100,000 \times 70 = 7,000,000 / 150,000 = 46.67$ points