

APPENDIX 3-3

Project 3: City of Santa Maria, LeakWatch Project

- News Articles
 - “21st Century Meter Reading,” Santa Maria Times, September 17, 2009
 - “Meter Reading Goes High Tech,” Santa Maria Times, December 30, 2009
 - “Measuring Success in Santa Maria: Lessons Learned from an AMI Implementation,” Water World, August 2010
- Sensus Metering Systems, “FlexNet Simplicity” product information
- Initial Analysis – FlexNet Payback
- FlexNet Propagation Analysis (Project Design)
- Price Quotes for Project Equipment – Phase 1 and II
- CEQA Categorical Exemption, July 8, 2009 (Project formerly named “City of Santa Maria Fixed Base Water Meter Reading”)
- Santa Maria City Council Notes on “Fixed Base Pilot Project Results, Director of Utilities, December 11, 2009
- Proposed Santa Barbara County IRWM Data Management System, Application for Prop 84 Planning Grant, Round 1, Santa Barbara County, IRWM Plan 2012, Task 4: Establish Data Management System, pp. 51, September 28, 2010



21st-Century meter reading

Julian J. Ramos/Staff Writer | Posted: Thursday, September 17, 2009 12:00 am

The days of time-consuming water meter reading by foot are numbered in the city of Santa Maria.

The city plans to use federal grant money to install radio transmitters on 6,000 residential water meters in order to upgrade the way the Utilities Department takes water meter readings .

The first phase of the switch to a fixed-base meter-reading system is being partially funded by a ,600,000 grant.

Under the new system, radio transmitters on the water meter will send data every four hours, automatically every day, to a base station & an antenna & that will forward the data to a computer server. The data will be used for billing and also for troubleshooting leaks in the system.

The need to send out meter readers will be eliminated.

Cost of one base station and 6,000 transmitters, about

,1.4 million, will be covered by the grant and an ,800,000 city match.

The grant money is part of a

,5 million U.S. Bureau of Reclamation CALFED Water Use Efficiency Grants Program.

The CALFED program is meant to promote water-efficiency projects to cut the need for imported water outside the San Francisco Bay and Sacramento-San Joaquin River Delta area.

A unanimous City Council approved the grant Tuesday night.

Shannon Sweeney, Santa Maria's water resources manager, said installation of a base station to receive the data from the transmitters could come as soon as mid-October, with installation of the first batch of transmitters soon after.

The first base station is slated for Atkinson Park, Sweeney said. The remaining two are planned for the Hagerman Sports Complex and the city Recreation and Parks facility next to Elks Field in Simas Park.

Most of Santa Maria's water meters, about 75 percent or about 15,000 of 20,000 accounts, are on a touch-read system.

Two meter readers spend about 12 days each every month going from house to house waving a wand over the water meter, Sweeney said. There is no need to lift the lid.

The city began converting water meters from touch-read to radio-read technology in 2006 in an attempt to slash staff time spent reading meters in some of the city's most challenging areas by foot, such as industrial and commercial zones.

With a radio-read system, Bdrive-byC meter readings are taken with a reading device installed in a vehicle.

In the meantime, fixed-base meter reading has come up as a way to read meters without staff time out in the field.

Sweeney said the intent is to change out the entire touch-read system to the real-time radio metering system.

Total cost of the project is estimated at ,3.1 million.

There is ,1,130,554 and an additional ,867,200 available in the budget to upgrade the meter-reading technology, according to the city.

An additional ,523,500 is available in the next fiscal year to complete the project.

City officials plan to convert the most time-intensive neighborhoods first to maximize cost savings and benefits.

Total annual savings of ,72,242 are estimated for customers whose water leaks are repaired when first detected.

An annual savings of ,96,995 is estimated for the city in costs. The bulk of the savings, ,72,176, is estimated for meter-reading staff, who would be transferred to other positions, according to City Manager Tim Ness.

Besides, the cost and time savings, Sweeney said, the wealth of data is an exciting possibility.

BThe value of that information is huge,C she said.

For example, customer calls about a high water bill can?t be analyzed on a monthly read. With the new system, data can be broken down to show usage by hour 8 which could be indicative of a water leak if there is activity at all hours of the day.

BThat?s power,C Sweeney said. BThat?s information that allows us to provide excellent customer service.C

It is estimated 264 acre-feet of water 8 one acre-foot is equal to 326,000 gallons 8 could be saved in the program?s first year, according to the city. Santa Maria is entitled to 16,000 acre-feet a year from the State Water Project which is water from the Bay-Delta region.

Every acre-foot saved would result in less State Water bought by the city on the open market, according to the city.

Sensus Metering Systems, the project contractor, has already installed fixed-base meter reading equipment in other California cities, including Redwood City, Foster City, Los Banos, and Woodland.

Sweeney said a visit to Redwood City and Foster City to observe how the system works was satisfactory.

End of the meter reader

To upgrade the way Santa Maria?s Utilities Department takes water meter readings, the city plans to use federal grant money to install radio transmitters on 6,000 residential water meters.

Under the new system, radio transmitters on the water meter, top, will send data every four hours, automatically every day, to a base station 8 an antenna 8 where from the data will be sent to a server. The data will be used for billing and troubleshooting leaks in the system.

The need to send out meter readers will be eliminated.

Cost of one base station and 6,000 transmitters, about ,1.4 million, will be covered by the grant and an ,800,000 city match.

September 17, 2009



Meter reading goes high tech

By Julian J. Ramos/Staff Writer jramos@santamariatimes.com | Posted: Wednesday, December 30, 2009 12:00 am

A pilot project that uses radio-transmission equipment to read water meters for more than 870 customers in Santa Maria has been a success and will be expanded, according to the city's water-resources manager.

The test program, which will eventually go citywide, is an attempt to slash staff time spent reading meters in some of the city's most challenging and time-consuming areas by foot.

The need to send out meter readers will be eliminated.

The system also will allow the city to better respond to customers who call with "sticker shock" over high water bills.

With the new system, real-time data can be broken down to show usage by hour — which could indicate a water leak if there is activity at all hours of the day.

Existing meters can only be analyzed on a monthly read.

Since mid-November, the city has been able to take hourly water meter readings from

877 meters fitted with radio transmitters. A base station to receive data from the transmitters has been installed in Atkinson Park.

Three test areas — in the northern half of the city — were chosen for their proximity to the Atkinson Park base station, said Shannon Sweeney.

The sections, representing

4 percent of the city's water meters, also were picked because they take the longest to read, and were selected to test the base station range and accuracy, she said.

Installation of the transmitters began in late October, with the Atkinson Park station in place in late September.

At least one more base station will be installed, Sweeney said.

Possible locations are the Hagerman Sports Complex and the city Recreation and Parks facility next to Elks Field in Simas Park.

Under the new system, radio transmitters on the water meter lids send data every four hours, automatically, to the base station, which forwards it to a computer server. The data is used for billing and troubleshooting leaks in the system.

So far, eight of 10 meters showing constant or abnormally high hourly water use have been reconciled, Sweeney said.

The source was likely either a leak or overuse, she said.

Accurate billing is the main function of the meter-reading program, she said.

"I find it to be exciting," Sweeney said of being able to look at more than a single number each month for every meter.

The system will reduce staff time spent going out to read and check on meters, since the data can be seen on a computer screen to

pinpoint water usage, she said.

Sweeney said the hope is to be able to alert customers ahead of time to possible leaks or excessive water use, and to avoid soaring water bills for customers.

Most of Santa Maria's water meters, about 75 percent or about 15,000 of 20,000 accounts, are on a touch-read system.

Two meter readers spend about 12 days each month going from house to house waving a wand over the water meter. There is no need to lift the lid.

The city began converting water meters from touch-read to radio-read technology in 2006 in an attempt to slash staff time spent reading meters in some of the city's industrial and commercial zones.

With a radio-read system, "drive-by" meter readings are taken with a device installed in a vehicle.

In the meantime, fixed-base meter reading has emerged as a method to read meters without staff time out in the field.

Full-scale installation is scheduled to begin in February 2010, and will take about two years to complete.

The switch to a fixed-base meter-reading system is being partially funded by a federal grant.

Cost of one base station and 6,000 transmitters, about \$1.4 million, will be covered by a \$600,000 federal grant and \$800,000 from the city.

Change-out of the entire touch-read system to the real-time radio metering system is estimated at

\$3.1 million.

There is \$1,130,554 and an additional \$867,200 available in the budget to upgrade the meter-reading technology, according to the city.

An additional \$523,500 is available in the next fiscal year to complete the project.

City officials plan to convert the most time-intensive neighborhoods first to maximize cost savings and benefits.

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Every acre-foot saved will result in less State Water bought by the city on the open market, according to the city.

Sensus Metering Systems, the project contractor, has already installed fixed-base meter-reading equipment in other California cities, including Redwood City, Foster City, Los Banos, and Woodland.

SPECIAL | Advanced Metering Infrastructure

Measuring Success in Santa Maria: Lessons Learned from an AMI Implementation

By Shannon Sweeney, water resources manager for the City of Santa Maria, California

Recent advancements in metrology are delivering water utilities unprecedented intelligence to help them increase revenue, support conservation efforts, and provide better customer service. While electric utilities leverage new technologies including advanced metering infrastructure (AMI) systems to create a smarter, more effective power grid, water utilities are also leveraging these technologies for improved measuring of water supply and monitoring of distribution systems to support proactive leak detection and reduce the risk of supply interruptions.

In an environment where nearly two-thirds of states expect to experience water shortages before 2013, the impetus to update an aging infrastructure and better manage water resources has never been greater. Historically, Automated Meter Reading (AMR) systems that sent billing information to the utility were deployed as an initial step towards driving greater efficiency. However, the AMR systems, with one-way communication, fell short of the two-way communication features inherent in an Advanced Metering Infrastructure (AMI) fixed base system.

For this reason, many utilities are now making the investment in AMI fixed base systems that enable two-way communications between the utility and the meter to proactively identify and solve problems such as leaks and connectivity issues. This helps water utilities preserve revenue and provide greater customer service, all while further increasing operational efficiency.

The water utility in the city of Santa Maria, California, experienced the benefits of deploying a fixed-base AMI system during a 45-day pilot project which identified leaks in three percent of homes in the test area, allowing the utility to save nearly a half million gallons of water and hundreds of dollars for customers, prompting their decision to move forward with a full-scale implementation.

Making the switch to AMI

In 2007, the Santa Maria water utility was twenty-five percent of the way through installing an AMR system when an extensive lifecycle cost analysis showed that upgrading to a fixed-base AMI system would ultimately provide greater benefits.

The utility estimated achieving a full return on investment in an AMI system in a matter of a few years, even after factoring in the cost of replacing the initial installations of the AMR system. This return would be derived based on savings from reduction in staff time and vehicle costs spent on drive-by readings, and by capturing additional revenue through increased frequency of meter reads for earlier leak detection and improved accuracy in measuring and billing, both of which would also help the utility improve customer service.

Water utility officials developed a list of minimum required qualifications for an AMI system, including that the network operate on a private, FCC-licensed spectrum. Licensed spectrum offers high power of transmission with low noise, dramatically increasing the range, throughput and performance of communications when compared with networks communicating via unlicensed spectrum.

Based on this and other criteria, including the cost of installation, towers and other system components, the utility ultimately chose to deploy the FlexNet™ Advanced Metering Infrastructure (AMI) communications system from Sensus.

Results of a pilot program justified the investment

To forecast the return on the required investment for deploying an AMI system, Santa Maria city of-

officials requested that the water utility develop a pilot program to test the range, performance and results that the technology offers.

A pilot program—designed in part to challenge the reach of the proposed AMI communications network—successfully demonstrated savings of both water and money. To test the full extent of the system's range, water utility officials used one tower to read three reading books, or groups of meters typically read on a drive-by route, that were geographically disparate. The AMI system proved successful in uploading information from the meters to the utility for analysis.

The technology identified leaks in nearly three percent of the homes in the test area, equivalent to 2.5 acre-feet worth of leaks. Santa Maria officials credit earlier leak detection with saving nearly a half million gallons of water—and hundreds of dollars for customers—in the first 45 days of the pilot. This pilot proved influential in confirming the true cost and water savings advantages of running the AMI system, justifying the costs of initial implementation.

Moving toward full deployment

Based upon the pilot program's results, city officials estimate that its customers could save almost \$100,000 annually from leak identification alone. In terms of water conservation, more than 86 million gallons of water could be saved in the first year after total de-



ployment of the FlexNet system, which will reduce the amount of water the city must purchase from the state.

The AMI system will enable improved quality of customer service as representatives will be able to access accounts, locate leaks and in many cases identify the source of a leak instantly, from their desk, where they once had to schedule and conduct on-site analyses. Leak detection time will also be cut drastically from one month to a matter of days as new registers read every one cubic foot of water versus one hundred, providing information on an hourly basis. Customers have responded quickly to fix leaks identified on their property, saving money on their water utility bills.

The City of Santa Maria is currently underway in deployment of this system, having completed installations of approximately 3,500 meters to date. Santa Maria utility staff has managed the installation process. Other necessary alterations to the utility's daily management have been implemented smoothly, such as changes to billing procedures. Deployment in the northern half of the City is expected to be complete in February 2011 at a total of approximately 12,000 meters.

Careful planning and analysis enabled Santa Maria to successfully transition to a fixed-base AMI system that will allow them to reap rewards for many ensuing years as they preserve previously lost revenue, support conservation efforts, and improve customer service. The lessons they have learned will provide valuable insight and experience as water utilities across the country continue to adopt new technologies that will transform the nation's aging infrastructure and set new standards in customer service.

WW

Circle No. 263 on Reader Service Card



FlexNet SIMPLICITY

FlexNet is the industry's only solution for utilities that demand unmatched customer service and pinpoint-accurate reads.

Only FlexNet delivers Primary-Use licensing by the Federal Communications Commission, which guarantees an uncluttered, crystal clear path for transmissions. And that paves the way for an industry-leading two watts of power, making your FlexNet system the only mass-deployed utility system to enjoy the highest level of protection, power and productivity in North America.

FlexNet Advanced Metering Infrastructure (AMI) solution is offered exclusively from Sensus Metering Systems. It empowers electricity, gas, water and combination utilities with a proven means to increase meter reading efficiency, reduce overhead costs and enhance customer service – simply, reliably, and with unlimited flexibility.

Simple Communications

FlexNet's single-tier design relays communications directly from meter-to-receiver. The streamlined infrastructure eliminates complex databases, algorithms and store-and-forward nodes, while maintaining coverage over a large geographical area.

The tower-based system allows for a turn-key deployment program, delivered via master agreements with nationwide owners of existing radio towers, eliminating easement and access issues. Optional, all-inclusive pricing ensures utility budget control.

No interference. Period.

901.125, 940.125 MHz

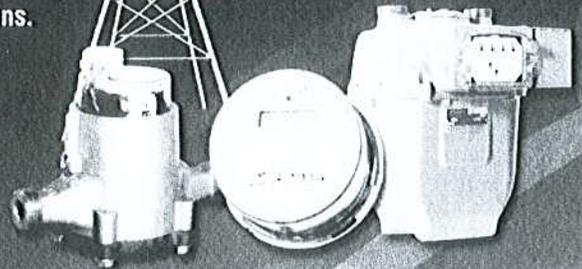
The FCC license awarded only to the FlexNet system clears the airways for your transmissions on this dedicated frequency. While others fight over shared bands, your reads will be sent and received seamlessly under this Primary-Use licensed spectrum. Your data collection is protected; FCC laws assure that any interference is removed immediately.

This dedicated frequency allows Sensus to offer our clients the highest RF power in the industry. Two watts is at your fingertips, increasing range and reliability on endpoint-to-tower communications.

And, reliability is further ensured through an overlap of receiver endpoint coverage, data/message redundancy, and backup provisions.

FlexNet is designed to allow both one-way and two-way meter endpoints to co-exist in the same network, giving customers the freedom to apply FlexNet to all of their endpoints. Whether your needs are based in electricity, gas or water, or in an urban, suburban or rural landscape, FlexNet is the solution that gives protected results with the flexibility to adapt the system to your

75 to 300 Sq. Miles
per Tower Range



Two-way & One-way Meter Endpoints
(Electric – Gas – Water)

TGB
Tower Gateway
Base Station



utility's needs. The FlexNet system also offers options beyond the meter, including distribution automation, load control and home automation.

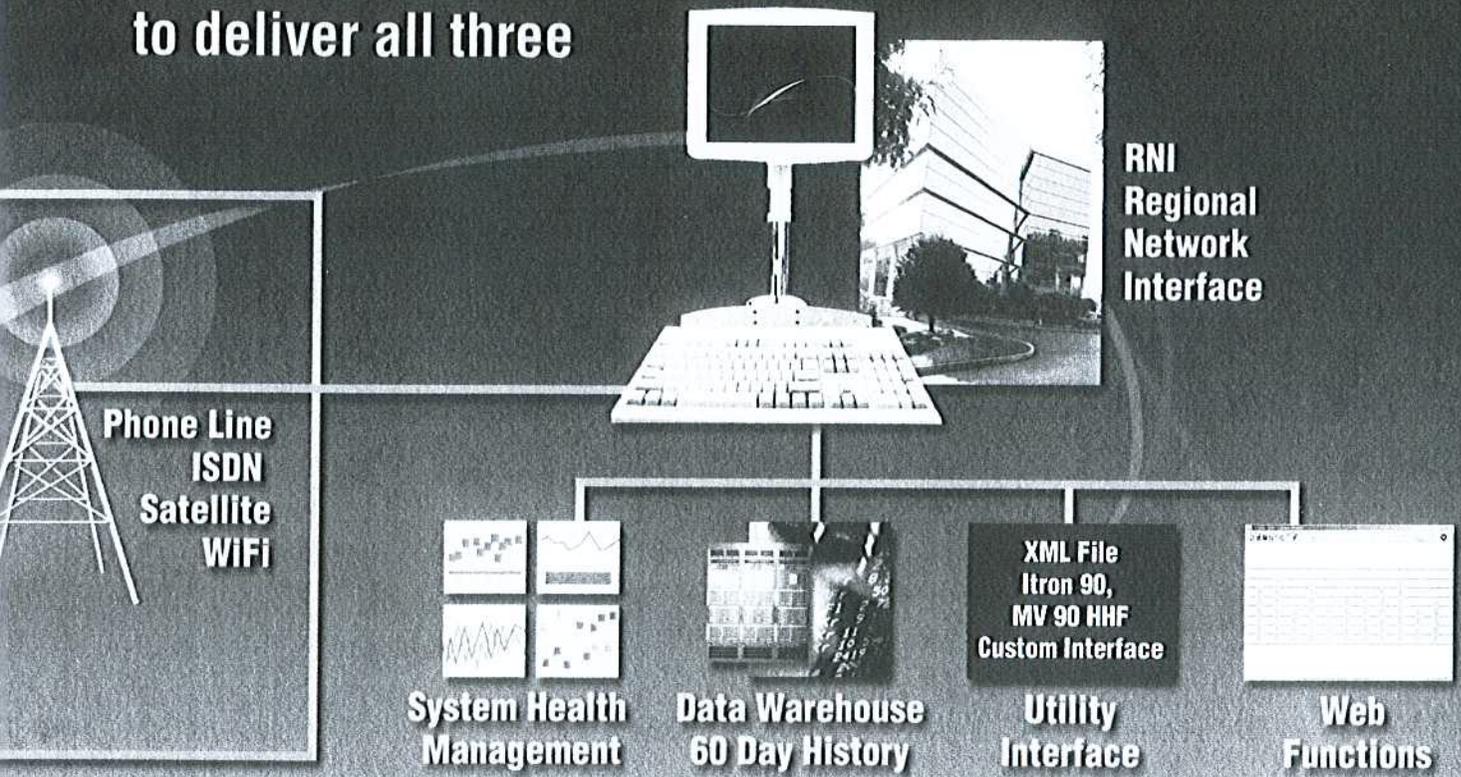
Capture the power of a two-watt, protected network. Eliminate unnecessary infrastructure. Partner with Sensus today and leverage the unbridled communications of the FlexNet system.

FlexNet's data collection and command network consists of a Local RF network and a Regional Network Interface (RNI).

The Local RF network consists of FlexNet transceivers at the meter and Tower Gateway Base Stations (TGBs). TGBs, which use existing radio towers, are antennas installed at heights ranging from 200 to 650 feet. TGBs provide the best solution to cover large areas. In addition, they have the ability to store 30 days of data and provide eight hours of battery backup, should the primary source of power be interrupted.

The RNI is the network backbone of the system. It receives and stores the reading data from the TGB(s), and presents it to the user via the Meter Data Management (MDM) software. The RNI also monitors the system health of the TGB(s), while also keeping a 60-day log of metering data. The RNI provides network capacity for all of the TGBs in one local RF network.

... RELIABILITY... FLEXIBILITY...
**and the power
 to deliver all three**



How FlexNet Works

FlexNet transmitters collect meter consumption and status information and communicate that data to the TGBs;
 The TGB forwards data to the RNI via hardwire links, but also stores data in the event of communication interruption;
 Once data reaches the RNI, a utility is able to perform billing, account management, network management, data warehousing,
 and customer hand-off functions based on the information received.



Two-way FlexNet Features for Electric Utilities:

- 2 watts of 900 MHz licensed power output
- Programmable daily, hourly, 15 and 5-minute data intervals
- Time-of-use billing
- Remote Disconnect/Reconnect

AC Load Shed Transition
 CRC-32 protected, redundant data messages
 Tamper and energy theft detection
 Under the glass integration of electric meters
 Power Fail notification
 Hot Socket Detection
 Programmable thermostat that allows two-way communications between utility and customer
 Meter location using poll command
 Demand reads and demand register reset commands
 Both simple residential and advanced C&I applications with a single network
 ANSI Table sessions (virtual modem)



One-way FlexNet Features for Water Utilities:

- 2 watts of 900 MHz licensed power output
- Hourly or daily reporting options
- Flexible programming options
- CRC-32 protected, redundant data messages

Plug-n-play installation using patented TouchCoupler technology
 20 year battery life
 Meter tamper reporting
 Leak detection
 Field replaceable battery
 Low battery warning



One-way FlexNet Features for Gas Utilities:

- 2 watts of 900 MHz licensed power output
- Hourly or daily reporting options
- Flexible programming options
- CRC-32 protected, redundant data messages

20 year battery life
 Both residential and C&I Meters
 Multiple Meter Compatibility



Initial Analysis

Capital Cost		Number Needed		Cost	
	Cost per unit	Radio Read	Fixed Base	Radio Read	Fixed Base
Towers	\$80,000	0	3	\$0	\$240,000
Registers	\$60	13,500	13,500	\$810,000	\$810,000
Radio Xmitters	\$130	12,000		\$1,560,000	\$0
Flex Net Xmitters SP	\$150		7,000	\$0	\$1,050,000
Flex Net Xmitters DP	\$160		6,000	\$0	\$960,000
Total				\$2,370,000	\$3,060,000
Difference					\$690,000
Annual Costs		Number Needed		Cost	
	Cost per unit	Radio Read	Fixed Base	Radio Read	Fixed Base
Staff Time per year	\$72,176	1	0	\$72,176	\$0
Vehicle Costs/year	\$6,600	1	0	\$6,600	\$0
Account Transfers	\$6	2988	0	\$17,271	\$0
Meter Rereads	\$3	328	0	\$948	\$0
Total				\$96,995	\$0

Payback

7.1 years

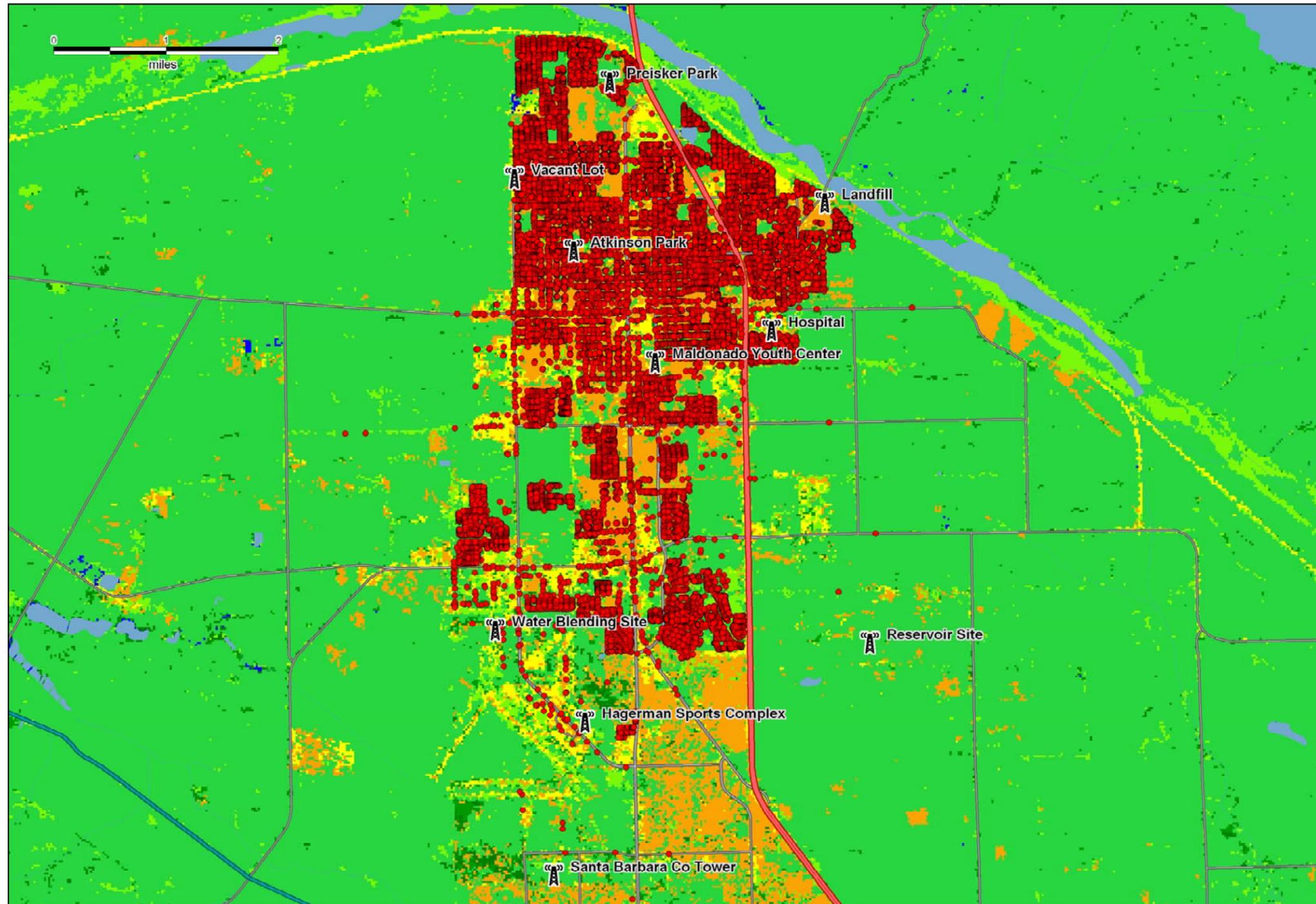
FlexNet Propagation Analysis

City of Santa Maria, CA

Clutter View of Service Area

LEGEND:

-  Towers
-  Meters

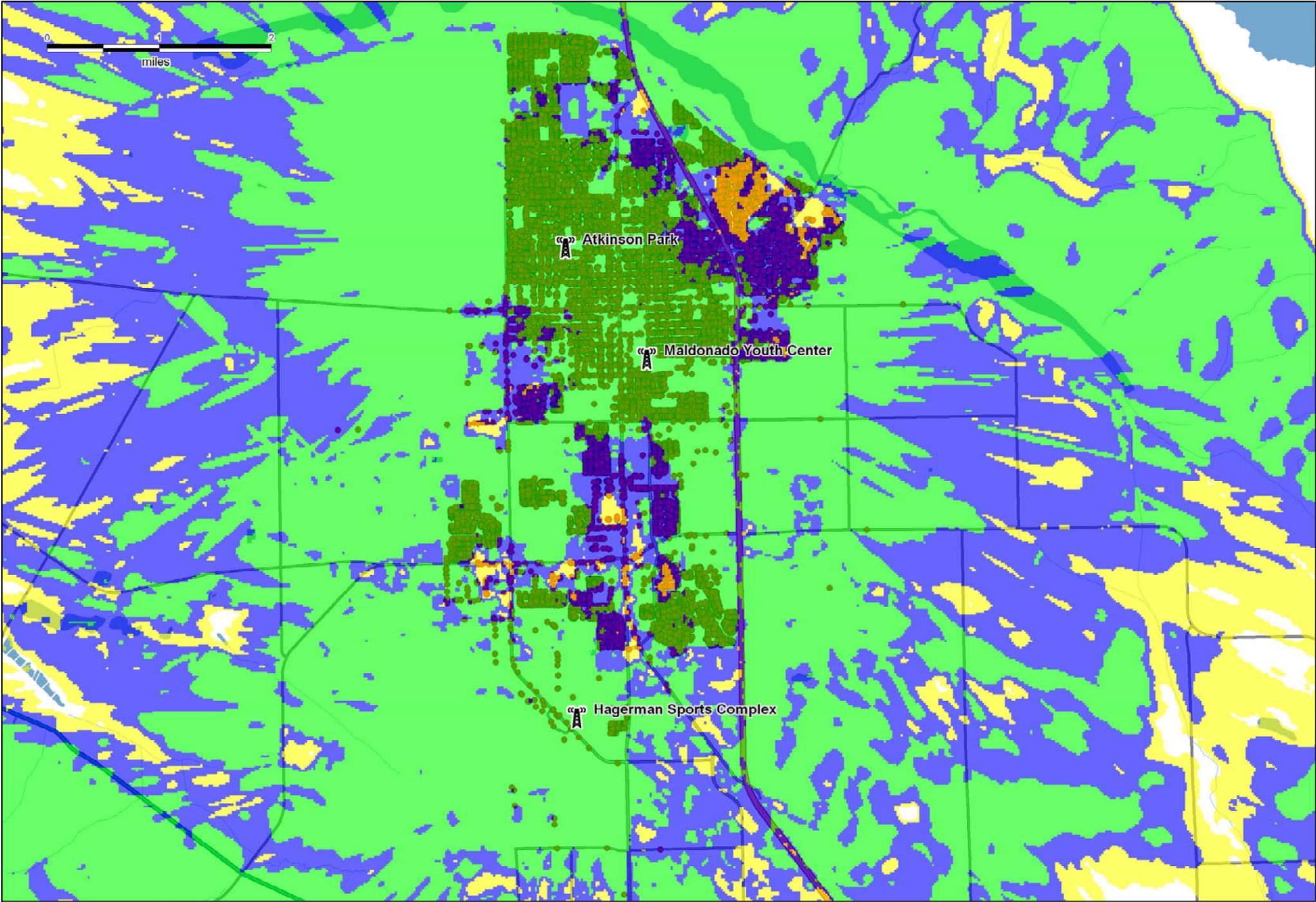


FlexNet Propagation Analysis

City of Santa Maria, CA

Best Server Coverage

Atkinson Park
Maldonado Youth Center
Hagerman Sports Complex



Signal Strength Ranges	Covered Meters	Percentage of Total Meters
-200 to -122	0	0.00%
-122 to -112	1,010	5.32%
-112 to -102	4,881	25.72%
-102 to MAX	13,084	68.95%
Total Meters	18,975	

LEGEND:

-  Towers
-  Meters
-  -102 dBm
-  -112 dBm
-  -122 dBm



Notice of Exemption

To: Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

From: (Public Agency) City of Santa Maria

110 E. Cook Street

(Address)

Santa Maria CA 93454

County Clerk
County of Santa Barbara

Project Title: City of Santa Maria Fixed Base Water Meter Reading

Project Location - Specific: Whip antenna and controls to be installed at Atkinson Park, 1000 N. Railroad Avenue, Santa Maria. Transmitters to be installed on existing individual water meters, in existing meter boxes.

Project Location - City: Santa Maria

Project Location - County: Santa Barbara

Description of Nature, Purpose, and Beneficiaries of Project:

The purposes of the project is to collect water use data. Transmitting the data via radio to a fixed location at Atkinson Park will take the place of meter reading by field personnel who currently drive or walk around town to collect this data.

Name of Public Agency Approving Project: City of Santa Maria

Name of Person or Agency Carrying Out Project: City of Santa Maria, Utilities Department

Exempt Status: (check one)

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- Categorical Exemption. State type and section number: Class 6 §15306
- Statutory Exemptions. State code number:

Reasons why project is exempt: This project is for basic data collection. Installation of a whip antenna and transmitters on individual meters in existing meter boxes does not result in a serious or major disturbance to an environmental resource.

Lead Agency

Contact Person: Shannon Sweeney

Area Code/Telephone/Extension: (805) 925-0961 x7416

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: 

Date: 7/8/09

Title: Water Resources Mgr

Signed by Lead Agency

Date received for filing at OPR:

Signed by Applicant

Revised October 1989

COUNCIL NOTES

December 11, 2009

To: City Council
From: City Manager
Prepared by: Director of Utilities

SUBJECT: FIXED BASE PILOT PROJECT RESULTS

RECOMMENDATION:

That this information be forwarded to the City Council for informational purposes only.

SUMMARY:

The Fixed Base real time radio water meter reading pilot program (Fixed Base) has been implemented and is working successfully.

BACKGROUND:

The City's water meter reading process has evolved over time. The processes included:

- ◆ Manual meter reading of water meter dials,
- ◆ Electronically reading meters with wands, known as touch read, and
- ◆ Drive-by meter reading, known as radio read.

Prior to the implementation of the Fixed Base program, the City's previous meter reading program was a combination of touch read and radio read. Both processes required field staff time to obtain a meter read from each meter once every billing cycle.

The City evaluated the use of a new meter reading technology, called fixed base meter reading, which eliminates the need for staff to read meters in the field and has the added benefit of providing real-time meter data on an hourly basis. The technology works by installing tower gateway bases (TGBs) in strategic locations and placing transmitters in each meter box that transmit information via the TGB to a database at City Hall. Several fixed base vendors were asked for propagation studies, presentations, and quotes for their systems. A life-cycle cost analysis demonstrated that Sensus Meters had the most cost effective fixed base system for the City.

In April 2009, the United States Bureau of Reclamation announced the availability of approximately \$5 million in Federal funds for the CALFED Water Use Efficiency Grants Program to implement urban and agricultural water use efficiency projects. Utilities staff expeditiously generated a grant proposal and were notified in July 2009 that the Fixed Base Program would be awarded a \$600,000 grant.

In September 2009, City Council authorized staff to accept the grant funds and implement the Fixed Base program. The pilot program was implemented first in order to

verify the results of Sensus's propagation study and to test the system before full scale implementation.

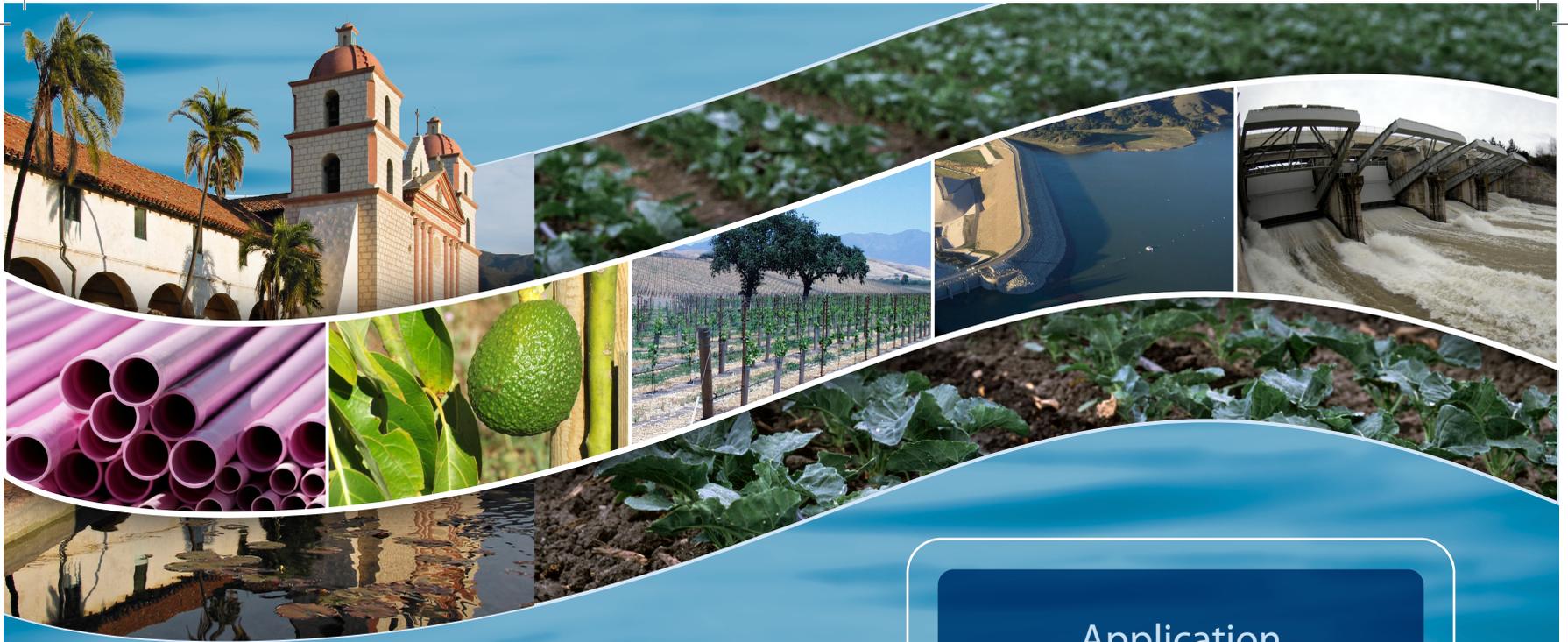
DISCUSSION:

Three geographical groupings of meters, called "books" were selected to be converted to fixed base registers and transmitters during the months of October and November to test the range of a TGB installed at Atkinson Park. These books were selected to test the range of the TGB's communication and to confirm Sensus' assertion that the transmitters can communicate through metal meter box lids. The three test books contain a total of 902 accounts. Of the 902 accounts, 869 have been converted to the fixed base technology. The remaining 33 accounts have not been converted because they are either part of the pre-1940's pipeline replacement project and conversion would occur after the pipeline installation, they belong to schools whose changeouts are restricted by the school calendar, or they are inactive accounts with no physical water service (accounts that have been created but are not yet associated with a development). All 869 converted accounts are communicating with the TGB, and their hourly meter read data is being stored in a database at City Hall.

The meter consumption database has several built-in reports that allow City staff to query regarding water use patterns that indicate leakage or unusually high use. These reports were run and have shown potential leakage at ten accounts. Six service addresses were tagged for constant leakage, three service addresses were tagged for high peak consumption, and one service address was tagged and shut off for illicit water use (water use on an inactive account). These accounts have been tagged to inform the residents that they have a potential leak, several weeks before they would have otherwise become aware of the leak through their utility bill. Three accounts have shown a decrease in water use. One of the tagged accounts was a nonprofit organization that was able to repair a leak several weeks before their utility bill was scheduled to arrive, saving them hundreds of dollars, and saving the City a minimum of 129 units (96,000 gallons) of water that would have otherwise been wasted.

As a result of the success of the pilot program, City staff will be proceeding with the full scale implementation of the Fixed Base radio meter reading system.

RICHARD G. SWEET, P.E.
Director of Utilities



Santa Barbara County

Application
for
Proposition 84
Planning Grant
Round 1

Santa Barbara County
Cuyama
IRWM Plan 2012



**Santa Barbara County
Water Agency**



Prepared by

CH2MHILL

September 28, 2010

Task 4: Establish Data Management System

Introduction

The objective of this task is to establish a DMS, which will set up a process of data collection, storage, and dissemination to IRWM participants, stakeholders, the public, and the State. The type of data that will be included for dissemination may include technical information such as designs, feasibility studies, reports, and information gathered for a specific project in any phase of development including the planning, design, construction, operation, and monitoring of a project. This task will also include cross referencing of existing data in various databases such as:

The WDL that DWR maintains for the state, which stores data from various monitoring stations, including groundwater level wells, water quality stations, surface water stage and flow sites, rainfall/climate observers, and water well logs (<http://wdl.water.ca.gov/>).

The SWAMP created by SWRCB has standards required for any group collecting or monitoring surface water quality data, using funds from Propositions 13, 40, 50, and 84 (http://www.swrcb.ca.gov/water_issues/programs/swamp).

The GAMA program is maintained by the SWRCB and provides a comprehensive assessment of water quality in water wells throughout the State. GAMA has two main components, the California Aquifer Susceptibility (CAS) assessment and the Voluntary Domestic Well Assessment Project. The CAS combines age dating of water and sampling for low-level volatile organic compounds to assess the relative susceptibility of public supply wells throughout the State. Because water quality in individual domestic wells is unregulated, the program is voluntary and will focus, as resources permit, on specific areas of the State. Constituents to be analyzed include nitrate, total and fecal coliform bacteria, methyl tert-butyl ether, and minerals (<http://www.swrcb.ca.gov/gama>).

DWR maintains the Integrated Water Resources Information System (IWRIS), which is a data management tool for water resources data and not a database. IWRIS is a web based GIS application that allows entities to access, integrate, query, and visualize multiple sets of data simultaneously (<http://www.water.ca.gov/iwriss/>).

California Environmental Resources Evaluation System (CERES) is an information system developed and maintained by the California Natural Resources Agency to facilitate access to a variety of electronic data describing California's rich and diverse environments.

The DMS as proposed in the 2007 Santa Barbara IRWM Plan needs improvements to include or better provide access to more local water-related information. Currently, Santa Barbara County maintains existing water resources-related and IRWM-related data on the Santa Barbara County Water Agency website located at: <http://www.countyofsb.org/pwd/water/index.htm>. This site also provides the forum for sharing of reports, public meeting dates, agendas, meeting minutes, and annual reports. In-depth data are not currently stored on the website and the GIS capabilities are not explored extensively.

The objective of the DMS for IRWM Plan 2012 is to store project related data and make it publicly available, is to ensure efficient use of available data, stakeholder access to data, and to ensure the data generated by IRWM implementation activities can be

integrated into existing State databases. A part of the effort of this task will be to explore financial and staff resources to implement the scope under this task.

Task 4.1 *Review the Existing Data within the IRWM Region and Identify Data Needs*

This task includes identifying and analyzing documents and data that are pertinent to updating the IRWM Plan. The principal task will be to conduct review of previous studies, e.g., City of Santa Barbara's Water Supply Planning Study; SMVWCD annual report, Reports of Santa Barbara County, monitoring reports required by adjudicator. The data gaps/data needs within the IRWM region will be identified from the existing documents.

Where appropriate, data management will be coordinated with State and Federal databases in a format consistent with SWAMP and GAMA.

Task 4.2: *Develop a Web-based DMS*

One of the objectives of the DMS is to make the data publicly available. This task includes development of a web-based DMS with easy access to the participating agencies including stakeholders. The DMS will serve as a data repository for various types of data (for example, project related data, water quality data). Depending on the type of data, the components and protocols for data assimilation from various sources into the DMS will be developed. For example, a library of information for spatial data can be compiled into a Geographic Information System (GIS) on a project by project basis and shared with the stakeholders.

The RWMG will decide on the use of an appropriate website for developing the DMS. The existing system on the website management will be explored at the time of implementation of DMS. For example, the existing Santa Barbara County Water Agency website located at: <http://www.countyofsb.org/pwd/water/index.htm> also may serve as a resource for the development of the DMS. This site may also be continued to provide the forum for sharing of reports, public meeting dates, agendas, meeting minutes, and annual reports. All data used to support development of the IRWM will be outlined in a database and available for review on the website, which will provide links to information available on partner agency websites. Any required documentation of Proposition 50 will be made available on the DMS website by appropriate project administrators.

Task 4.3 *Establish Typical Data Collection Technique*

For data gathering a common data collection protocol will be developed to keep the web-based DMS up-to-date. The protocol will describe the use of common and compatible methods for data gathering, analysis, monitoring, and reporting formats. The data collection technique will be developed in such a way that any update on the website will be notified automatically to all the participating stakeholders to bring their attention on the changes made on the data bank.

Task 4.4 Develop Procedure for Adding Data to the DMS

Separate account login information and the website links will be set up to provide access to the DMS for all the stakeholders. Guidelines for uploading the information to the DMS will be developed. Stakeholders will access the website to retrieve information and/or contribute data to the DMS using their account login information.

Task 4.5 Maintain the DMS

The responsibilities for maintenance of the DMS will be explored by the RWMG. The RWMG will select the best approach for maintaining the DMS. This task will include the following:

Develop guidelines for maintaining the DMS system

Update information as it becomes available

Update calendar of meetings and workshops to inform the stakeholders for the upcoming events

Encourage participation from various stakeholders

Resolve any data management related issues

Task 4.6 Data Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) of data is a major task that involves reviewing the quality of data. This task includes description of the validation or quality assurance/quality control measures that will be implemented by the RWMG for data generated and submitted for inclusion into the DMS.

Under the QA/QC task an effort will be taken to update the datasets and to prepare a consistent format for all types of data.

Task 4.7 Data Sharing

This task includes a protocol preparation on how data collected for IRWM project implementation will be transferred or shared between members of the RWMG and other interested parties throughout the IRWM region, including local, State, and federal agencies. The data saved in the DMS will be distributed to the stakeholders. Efforts will be made to keep compatibility with the State databases including SWAMP, WDL, GAMA program, CEIC, and the CERES.

RWMG and public workshops will serve as the primary venue for information sharing. Other settings where information can be shared include quarterly project progress meetings, monthly agency coordination meetings, e-mail subscription lists, and monthly e-mail newsletters. These forums will serve to continue to facilitate the ongoing data sharing between stakeholders as well as the expansion of the existing Water Agency data warehousing activities.