

**Council Meeting: July 15, 2008**

SUBJECT: Residential Water Metering Study Issues DPW 01 and DPW 05, and Related Revision to Council Policy 3.1.2 *Metering of Water Utilities for Residences*

REPORT IN BRIEF

The current residential water meter policy calls for one potable water meter per building or lot, to avoid the crossing of property lines by private water services and mains, and for separate meters for recycled water uses. Water metering for fire suppression and non-residential uses are covered under separate policy and codes. This report focuses on the residential water meters for potable water and recycled water.

The majority of residences are served with water meters situated in the public right-of-way, maintained and read by the City. Developments with private streets and utilities have traditionally had a single water meter located in the public right-of-way at the point where the main crosses from public right-of-way to private property.

Study Issue DPW 01 (2007): *Individual Water Meters for Residential Customers* (Attachment A) is combined with Study Issue DPW 05 (2008): *Metering of Water Service to Individual Mobile Homes in a Private Mobile Home Park, Apartments in an Apartment Complex, Individual Condominium Units, and Other Multi-Family Applications* (Attachment B), to provide a comprehensive policy on residential water metering. This report addresses the study issues, along with relevant regulations, City Ordinances, and City Policy.

These issues raise questions and concerns about the costs and benefits of individual meters, and who is responsible for their maintenance. Residential developments may be single-family detached or attached homes, town-homes, condominiums, apartments, mobile home parks, and related residential uses mixed with commercial uses. This report weighs costs and benefits of various methods of providing individual water metering for the several types of developments mentioned. Recommendations for revising the City's residential water meter policy (summarized on page 12), are made based on the analysis offered herein.

BACKGROUND

Council Policy 3.1.2 *Metering of Water Utilities for Residential Condominiums* was created in 1980 with emphasis on metering multi-family residential developments. The initial result was to require one meter per building, and to prevent private water lines from crossing private property lines, where possible. The policy also required separate meters for the water usage in common areas, such as landscaping or swimming pools.

In 2005, as part of the Council Policy Updating Project, Council Policy 3.1.2 was revised to allow for separate metering for fire suppression at each building and separate metering for any recycled water use such as landscape irrigation or buildings with separate non-potable water systems (dual plumbing systems).

Title 12 of the Sunnyvale Municipal Code, Chapter 12.24. *Water Systems Regulations*, calls for individual meters for each independent consumer or separate premises. In the case of buildings occupied by several independent consumers there may be individual meters for each unit or one meter for the building. When separate houses or buildings are located on the same premises, as in condominiums, town homes, or apartment complexes, and occupied by independent consumers, a separate meter must be provided for each house or building. The code does not address the placement, ownership, maintenance or operation of the water meters, which is addressed by Council Policy, City Standards, and other relevant code, such as the Uniform Plumbing Code.

Usually when residential developments include private roads, the utilities within those private roads are also private. The city's responsibility for maintenance and repair of roads and utilities generally stops at the edge of the public right-of-way. The common property line between the public right-of-way and private property provides an excellent, easily recognized boundary between areas of maintenance by the City and areas of maintenance by the private sector. Of course there are some reasonable exceptions to this rule where City main utility lines must cross private property. In those exceptions, easements that explicitly state the purposes and associated rights are established.

Residential developers create private roads and utilities for several different reasons. Among those reasons is the privacy or exclusivity afforded by private communities, or the land efficiency that is afforded by streets that are narrower than established standards for public streets. These advantages provided by streets that are less accessible and more out of public view, pose serious concerns for the maintenance and operation of public works. These private water systems are more susceptible to un-metered illicit taps, and unseen or unnoticed leaks, given their separation from the public right-of-way. The

narrower streets, and restricted access, also increase the difficulty of normal operation and maintenance that standard streets are intended to minimize. Therefore, these private streets and associated utilities have traditionally been the responsibility of the property owner of the private street. Property owners of private streets are usually either the owner of an apartment complex or mobile home park or the homeowners association (HOA) of a condominium or townhouse development.

Most water conservation policies support individual water meters for each household, or premises. Individual water meters provide information and incentive for water consumers to identify their patterns of usage, and to conserve water.

General Principals of Water Metering

Water meters generally measure the consumption of water drawn from the municipal water system. The water system is operated as an independent enterprise that recovers the cost of infrastructure, operation, and maintenance of the system. The water usage rates are essentially derived by adding up the total cost of the system and dividing it by the total units consumed from the system. Sunnyvale's rate structure also employs increasing rate block tiers to provide incentives to conserve water and yet provide reasonably low rates for modest use.

The cost of new water distribution systems is paid for by each developer, who then passes those costs on to the owners of the new units within that development. There is a fee for buying into the existing water system, which includes the water sources, distribution, regulatory compliance, pumps, valves, and other system components. This process results in each user essentially paying for their share of the existing system initially.

Similarly, water meters are also initially paid for by the developer and those costs are also subsequently passed on to the owners of premises within the development. A meter charge is added to each water bill, based upon the size of the meter. This meter charge offsets the costs of ongoing maintenance and replacement of the meter.

City water meters are checked periodically for accuracy, and are replaced when their accuracy begins to degrade. Accuracy is of importance not only so the City and the customer can be assured that the amount of water being billed is appropriate, but also to be able to track water usage for individual locations and system-wide, to assist in identifying and locating leaks in the water system, and to be able to verify that contractual and regulatory obligations are met.

Sunnyvale water bills have several tiers with increasing rates to promote water conservation. The tiers for multi-family residences differ from single-family residences since single family residences do not have a separate meter for irrigation. Single-family charges only apply to individual single-family dwellings on their own lot of record. A duplex (two units in one building) or greater number of dwellings on a lot or in a building are considered multi-family, the same as any cluster living arrangement, such as a condominium development. Condominium development includes more than one ownership living unit, located in one or more building(s), and can include multiple single ownership buildings. Mobile home parks are considered multi-family residential developments, and are billed accordingly by the City.

Any of these developments can be constructed along streets that meet the requirements for public streets, including public utilities, and be dedicated to the City. Or, as mentioned above, they can be developed with private streets and have the water mains installed and maintained as private lines, with a master meter for the subdivision installed within the public right-of-way.

Metering of water usage for residential customers varies depending upon the nature of the housing project and the policies in place at the time of initial construction. In some cases it may be changed as part of a redevelopment.

EXISTING POLICY

The specific policy affected by this study is Council Policy 3.1.2 *Metering for Water Utilities for Residential Condominiums*. The latest version, approved as part of the Council Policy Update Project of 2005, is included as Attachment C.

Council Policy 3.1.2 states, in part, "I. Single-family residential housing projects, ...consisting of a number of dwelling units, each with title to a separate lot of record ...including, for example, private streets ...shall be provided with separate water meters serving each lot, in accordance with Municipal Code Section 12.24.090." There has been some confusion with regards to this Policy, due to a wide variety of applications.

The use of meters as a part of utility billing, changing billing methods, adjusting rates, and creating new billing categories are pertinent to several policies in the *Fiscal Element of the General Plan* under Section 7.1B *Revenue Policies*.

Sunnyvale Municipal Code Chapter 12.24.010. *Rates fixed by resolution* establishes the method for adjusting rates. The FY 2007/2008 water rates were adopted on June 12, 2007.

Sunnyvale Municipal Code 12.24.090. Separate meters required.

(a) In all cases in which water is served to a building occupied by different and independent consumers of water, independent services must be provided for each such independent consumer, unless the owner or other responsible representative of the occupants prefers to have all such independent consumers under one meter, in which case he shall assume the entire account and pay not less than the sum of the minimum rates for all such independent consumers.

(b) All separate premises, even though owned by the same consumer, shall have a separate meter.

(c) When separate houses or buildings are located upon the same premises and occupied by different and independent consumers, a separate meter must be provided for each house or building. (Prior code § 11-1.14).

Sunnyvale Municipal Code 12.24.080 *Meters and appliances – Installation—Liability for damages* calls for meters to be placed in the public right-of-way between the curb and the property where practicable, or on the consumer's premises as necessary.

DISCUSSION

There are three basic types of water services: potable, fire suppression, and recycled water. Potable uses include water for drinking, washing, and other normal residential uses. After a brief discussion of fire suppression and recycled water uses the rest of this report focuses on the potable water meters.

Water for fire suppression usually comes from fire hydrants, or may be applied to a fixed fire sprinkler system. In single-family homes fire sprinkler systems usually are tapped off of the homes domestic (potable) system after the potable water meter. In multi-family buildings the fire sprinkler system usually has a separate meter, frequently contained within the backflow-preventer and valve system. Water hydrants are not metered, but most devices attached to the hydrant contain a meter to account for these uses.

When recycled water is used it is metered separately. Generally when recycled water is used for irrigation there is one meter for each lot or common area. When recycled water is intended for non-potable uses within a building there is one recycled water meter, in addition to the regular potable water meter, for each building.

Potable Water Meters

The municipal code is clear that there should be separate water meters for each consumer. The definition of the consumer is not clear. For example, at one point the code allows apartments to either have a single meter per building

or to have individual meters for each premises. In this case the premises could either be a residential unit, such as an apartment or condominium or could be a swimming pool, clubhouse or landscaped common area. The code is clear that each building must have at least one meter. The code does not address requirements for location of the meters or specifically regulate how the meters are to be used or maintained.

Analysis

Generally it is best to let the City maintain the public right-of-way and for the private sector to maintain private property. This is consistent with practices for most cities and tends to provide the best quiet enjoyment of private property and the most options to private property owners. Also, water meters can provide information to the consumer on their water consumption patterns and trends and can be useful in identifying leaks or other unusual occurrences on their private systems. This information supports consumers in conserving water and, particularly when paired with a tiered rate structure, provides monetary incentive to conserve water. Where groups of households are charged under a single main meter, the information and incentives are not as clear.

Developers have the option of designing streets and utilities, within a defined public right-of-way, that meet the minimum public standards and dedicating the right-of-way, and improvements, to the public, subject to inspection and acceptance by the City. For economic, social, and other reasons, developers and residents sometimes prefer having various housing options. Several of these options result in situations where utilities must reasonably be placed beyond the public right-of-way. Without limiting those housing options, nor treating system users inequitably, roadways and utilities beyond the public right-of-way should be maintained by the private property owner. That private property owner may be a homeowners association, a company, or a person.

Water consumption metered at the point where the water line leaves the public right-of-way is billed to the person, or agent, responsible for the private property containing the private water system. The responsible agent can then distribute the cost of water to each household or premises in a manner consistent with Public Utilities Code (PUC) requirements. Where there are individual private meters the water bill may be divided up proportionately. Homeowners associations can vote on their preferred method of apportioning the water bill in their bylaws. Apartment owners can select their option and disclose it in their lease or rental agreements. The Santa Clara Valley Water District (SCVWD) showed in a pilot project of water consumers in several mobile home parks, that after individual meters were installed, overall water consumption dropped. The cost-benefit here is directly aligned with the water conservation goals. By not having City water system personnel traversing and

maintaining facilities in private streets, the city's water system's liability is decreased.

Preventing illicit un-metered taps, leaks, and/or improper usage also supports water conservation. Therefore, master water meters should be provided wherever the water line leaves the public-right-of-way. Having a master water meter does not preclude use of individual water meters for each household or premise, but does protect the municipal water system from losses that may occur on private water systems.

The master water meter measures all water consumed within a private system regardless of its use. Individual water consumption can be monitored with individual water-meters and compared to the master meter. Considering the vast variety of housing layouts and reasons for those differences, consumers may not be well served by a policy demanding that they all conform to one rule. Once the City is assured that the public water system does not suffer loss from any particular user, each housing development may have different methods that are appropriate to maximize their water conservation efforts and minimize their overall water bill in the manner that best suits the particular situation.

Generally, the PUC prohibits organizations from creating new rates or charging different rates than what they were charged by the City. Homeowners Associations and mobile home park owners have concerns over becoming a regulated utility under the Public Utilities Code. Therefore, it is also important that the City's rate structure fairly recognizes the number of households being served by master meters and treat them in a similar manner as households being served directly from an individual City water meter. The current rate structure does this by multiplying the quantity allowed in each tier by the number of housing units served by a master water meter.

Existing developments would likely not be affected by revisions to the new policy, unless they have a major renovation or redevelopment.

Various Types of Residential Dwellings

Single-family Detached Dwellings

In a single family detached dwelling there is one potable water meter for the lot, located in the public right-of-way. The property owner can distribute the water within the private property to a separate garage, swimming pool, irrigation or other uses as long as they comply with the Uniform Plumbing code. No separate meter is required. In special circumstances where the improvements are designed for using reclaimed water a separate reclaimed water meter would be added.

Single-family Attached Dwellings or Multiple-family Dwellings with Individual Lots Associated with each Dwelling (Townhomes, Duplexes, Zero-lot Line Homes, and similar developments)

Many of these types of housing can be served with individual meters, located within the public right-of-way, for each residential unit. In these cases, each premises is analogous to a single family detached home. The difference would be that there may be a common lot that benefits each of the units within the development. The common lot would have one meter for each building, swimming pool, irrigation or similar use.

In the case where the development is organized around one or more private streets, the configuration shares characteristics with a condominium or apartment development. To the extent that homes could be reasonably served from individual meters in the public right-of-way, that configuration would be required.

It is usually not reasonable to place multiple meters in the public right-of-way where the individual water lines beyond the meter would have to cross other properties, or run in large parallel banks (spaghetti lines). This sort of system tends to cause maintenance trouble where it is difficult to repair one line without damaging another, or where it creates great challenge to provide appropriate landscape amenities due to the large strips of land containing parallel water lines. Therefore, where lots are more readily served by private streets or a private water main, a master meter would be installed at the point where the sub-main leaves the public right-of-way, and individual meters would be installed near each housing unit.

This system respects the boundary between public right-of-way and private property without compromising the goal to have individual meters for each housing unit. The City would maintain the master meter in the public right-of-way and bill the property owner of the private area that it serves. The private owner would in turn maintain the private utilities, and distribute the cost of water to those units arranged along the private street or private water main, in proportion to the usage indicated on their individual meters

Some housing developments are arranged in a park-like setting where driveways and parking are clustered together and housing units are reached through pedestrian walkways. These would follow the private roadway example, even though there is no roadway, yet the sub-water main would need to carry water relatively far from the master meter and the public right-of-way. Common areas would be served with separate meters for each building, swimming pool, or similar use. A separate landscape meter would be required for the common lot.

Multiple-family Buildings with shared use of land – (Condominiums clustered in buildings, Apartments)

Where the individual housing units do not have associated lots, other than a common area, each building would have at least one meter. The common area would be served with separate meters for each building, swimming pool, or similar use. A separate landscape meter would be required for the common lot.

To the extent that condominium or apartment buildings could be reasonably served from individual meters in the public right-of-way that would be required. Depending upon the configuration of the condominium or apartment building, the meters for each building may need to occur on private property. Where it is more reasonable to locate meters for individual buildings on private property, a master meter would be placed in the public right-of way, similar to the arrangement for townhomes.

Common areas would be served with separate meters for each building, swimming pool, or similar use. A separate landscape meter would be required for the common lot.

For condominiums, individual meters would be required for each housing unit. Being on private property, these would also act as sub-meters to either the building meter (if within the public right-of-way) or the master meter if building meters are located on private property.

Apartment owners would have the option of either installing individual meters for each apartment or not. There is merit to requiring individual metering at apartments for water conservation purposes, and since apartment buildings are sometimes converted into condominiums. If Council wished to pursue a requirement that apartments have individual water meters, they would need to direct staff to prepare a revision to the municipal code, which currently leaves the option up to the apartment owner.

Mobile Home Parks

In Mobile Home Parks (MHP) the land is usually owned by a company, or person, or may be owned by a home-owners association. Although the mobile homes may be individually owned, the space they occupy is leased or rented. The amenities within the park are usually also owned by the real property owner, with rights of use provided as part of the leases or rental agreements.

Mobile home parks normally have private roads, and utilities systems. A master water meter serves the entire mobile home park, for potable water uses, and a separate meter is used for landscaping. Many existing MHP's do not have individual water meters for each mobile home.

In the year 2000, the Santa Clara Valley Water District (SCVWD) responded to the request of a Mobile Home Park owner with a pilot program to examine the potential benefits of having individual meters for each mobile home. The SCVWD shared the cost of meter installation with the MHP owner. The MHP owner was interested in both conserving water and saving money. The intent was that the use of individual water meters (sub-meters) would cause a change in consumption practices, encouraging water conservation with the incentive of individual residents not paying for the excesses of those who use more water. The MHP owner was required to read and record the individual water meters within four different parks, one of which is in Sunnyvale. The SCVWD conducted follow-up on the installation when the City requested the results of the pilot program in 2007.

In August 2007, the SCVWD gathered data that had been collected by the MHP owner since the 2000 installations, reviewed it and drafted a report (Attachment D). The report showed that in the seven years since the pilot installations, the savings were in the range of 15% to 30%. This has led to additional requests for individual meters for other MHP's in Sunnyvale. Therefore, Sunnyvale is encouraging the SCVWD to extend their pilot program.

The meters installed in the MHP pilot were "sub-meters" that are used internally by the MHP owner to proportionally allocate the water bill they receive from the City's master meter. The manner of dividing the cost of the water, or maintaining the water system beyond the City' right-of-way is left to the MHP ownership.

The management of MHP's is controlled at the state level, and the way in which water bills are divided must be checked by the MHP ownership against established regulations. The City bills MHP's similar to other multi-family locations, such as apartments. That is, the City bills the MHP based upon the reading of a master meter, and the billing tier for the MHP is based upon the number of spaces in the MHP, and the multi-family rate. Consideration is not taken for vacant spaces, just as the tier for an apartment is not dependent upon how many units are occupied.

The revised policy could include Mobile Home Parks as a category, similar to condominiums, where a master meter within the public right-of-way would be read and maintained by the City; individual meters would be required for each mobile home space on new mobile home parks. Existing facilities would have the option of adding individual meters but would not be required to unless triggered by a significant change of use or redevelopment. Similarly, all buildings within the Common areas would be served with separate meters for each building, swimming pool, or similar use. A separate landscape meter would be required for the common lot.

MHP owners have raised an issue with the rate of billing water to mobile home parks, and the rate the park can bill the individual mobile home owners based upon individual meters. The City bills based upon a multi-family rate, but the mobile home parks are required under state law to bill at the single family rate. The base is different for the two, and results in no savings for the mobile home park with the installation of individual meters, making it less likely that a park would be interested in using individual meters unless required to do so. The Finance Department Revenue Division is aware of this issue and is considering possible solutions. An option would be to create a separate rate schedule for MHP's that would revise the rate structure to bill MHP's that have separate meters similar to that of single family dwellings, in order to promote the water conservation incentive.

Existing Facilities Exemption

Staff suggests that existing residential units would be exempt from having to retrofit to satisfy a revised policy, unless renovated. Significant remodeling, change of use, or redevelopment would require compliance with the policy after its adoption.

Analysis of Policy Issues to Consider

1. Should the City extend its operation and maintenance practices for the water system beyond the public right-of-way, into private property? Staff's recommendation is not to extend operation and maintenance beyond the public right-of-way. Several concerns arise when City crews are expected to perform work on private property. The lines of maintenance can become blurred creating expectations for City crews to perform private work, or raising the appearance of mis-use of public funds or resources. The private space may have more limitations for access than would normally be provided in the public right-of-way, decreasing efficiency and increasing risk. Therefore, it is best to limit public facilities on private property, as well as to limit the need for City crews to perform work on private property.
2. Should the City operate and maintain water meters on private property? Staff's recommendation is not to maintain meters on private property, for the same reasons stated above. Similar concerns of City personnel needing to access private property arise. However, the meter reading and maintenance is a more limited activity than maintaining water lines and valves. Although power companies have electric and natural gas meters on private property they are regulated by the Public Utilities Commission Rules under a different set of rules. (The City is regulated by the Public Utilities Code.) Private property owners can read and maintain the meter and use it to distribute the overall water costs billed from the master meter.

3. Should the City require individual water meters for each living unit? Staff is suggesting yes. Generally it serves water conservation goals for each living unit to have a water meter. These can be used to apportion the master bill after reading the master meter. This allows the private property owner to evaluate differences between the master meter usage, and the total of each sub-meter to help detect leaks. The water rate structure for mobile home parks who opt to provide individual meters could be revised to provide incentive for water conservation. This will need to be set-up within the current framework of restrictions by the state on how to apportion individual water charges. Such a rate structure would allow mobile home parks the ability to recover costs of installing individual meters.

4. Should the City require a water meter wherever the water line leaves the public right-of way? Staff is suggesting yes. The master meter makes sure there are no losses to the water system from illicit taps or leaks in private water systems.

The following chart presents in summary, the recommendations of this report, based upon the preceding discussion.

Application	Current	Recommended	Comments
Single family detached dwellings	Public streets - One public meter for each residence	Public Streets - One public meter for each residence	Clarified for consistent application
	Private streets – Four different options: (1) Individual public meters for each residence, (2) master public meter(s) entering complex only, (3) combination of 1 and 2 depending upon site plan layout, (4) master meter(s) entering complex AND individual private meters for each residence	Private Streets – Public master meter entering complex, plus private individual meters for each residence	
Single family w/ “accessory living unit”	One or two separate public meters	One public meter, plus one optional private meter	Clarified for consistent application

<p>Single family attached dwelling, with individual lots associated with each dwelling (townhomes, zero lot-line homes, etc.)</p>	<p>Public Streets – One public meter for each unit</p>	<p>Public streets – One public meter for each unit. Separate public meter for irrigation (reclaimed water) system. Separate meter for each ancillary building.</p>	
	<p>Private Streets – Four different options: (1) master public meter entering complex only, (2) individual public meters for each unit in a cluster setting, (3) combination of 1 and 2 depending upon site plan layout, (4) master meter entering complex AND individual private meters for each unit or for each building. Separate public meter for irrigation (reclaimed water) system.</p>	<p>Private streets – Master meter entering complex, plus separate public meter for irrigation (reclaimed water) system plus, private individual meters for each residence. Separate private meter for each ancillary building.</p>	
<p>Multi-unit condominium buildings with shared use of common land</p>	<p>Public streets - One public meter per building</p>	<p>Public streets - One public meter per building. Separate, public meter for irrigation (reclaimed water) system. Separate private meters for individual units. Separate private meter for each ancillary building.</p>	
	<p>Private streets – Four different options: (1) master public meter entering complex only, (2) individual public meters for each unit in a cluster setting, (3) combination of 1 and 2 depending upon site plan layout, (4) master meter entering complex AND individual private meters for each building, separate public meter for irrigation (reclaimed</p>	<p>Private streets – Master public meter(s) entering complex, plus separate public meter for irrigation (reclaimed water) system, plus individual private meters for each building. Separate private meter for each ancillary building.</p>	

	water) system.		
Multi-unit apartment buildings with shared use of common land	Public streets - One public meter per building	Public Streets - One public meter per building. (Apartment owner could elect to install separate private sub-meters within buildings.) Separate public meter for irrigation (reclaimed water) system.	
	Private streets - Master public meter entering complex only	Private Streets - Master public meter entering complex (complex owner could elect to install separate private sub-meters within buildings.) Separate public meter for irrigation (reclaimed water) system.	
Mobile Home Park	Public master meter entering property (private sub-meters could be installed by park owner)	Master public meter entering property (private sub-meters required to be installed by park owner, including separate private meter for each ancillary building.) Separate public meter for irrigation (reclaimed water) system. Does not apply to existing MHP's.	Recommend revising rates for mobile home parks so that they are treated as a separate customer group with charges that reflect their demand on the system, and are consistent with State requirements for sub-metering and related billing.

FISCAL IMPACT

There is no fiscal impact to consider the two study issues, or of approving the recommended revisions to the Council Policy. If the City Council wished to expand the area of City maintenance responsibility, beyond the public right-of-way, there would be significant fiscal impact to cover additional infrastructure and add it to repair and replacement programs, and to add additional personnel hours to provide the additional services to read, monitor, and bill additional meters. The cost of the additional maintenance would be offset by

increased rates to cover the additional related expenses, increasing the cost to all water consumers. The cost of the meter reading and maintenance would need to be offset by additional meter charges, which would increase cost to those consumers currently served with master meters.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, in the Council Chambers lobby, in the Office of the City Clerk, at the Library, Senior Center, Community Center, and Department of Public Safety; posting the agenda and report on the City's Web site; and making the report available at the Library and the Office of the City Clerk.

ALTERNATIVES

The alternatives presented are derived from the analysis described earlier in the report.

1. Revise (per Attachment E of this report) Council Policy 3.1.2 *Metering of Water Utilities for Residences*, to comprehensively address metering of water utilities for all residential uses, placing water meters in the public right-of-way where possible and reasonable, requiring individual water meters in compliance with municipal code, and using master water meters where necessary to monitor private water systems.
2. Request staff to prepare a revision to the Municipal Code to require that all future residential units have individual water meters, including apartments. Modify the recommended revisions to the Council Policy to conform to the code revisions.
3. Modify the recommended revisions to the Council Policy to require that mobile home parks be retrofitted within 5 years, recognizing the water conservation demonstrated by the pilot project.
4. Expand the areas of responsibility for water systems beyond the public right-of-way into private property, and require easements, and right of access on future residential developments where meters cannot reasonably be placed in the public right-of-way.

RECOMMENDATION

Staff recommends Alternative 1: Revise Council Policy 3.1.2 *Metering of Water Utilities for Residences* to comprehensively address metering of water utilities for all residential uses, placing water meters in the public right-of-way where possible and reasonable, requiring individual water meters in compliance with municipal code, and using master water meters where necessary to monitor private water systems. See summary of recommendations in the chart noted on page 12.

The staff recommendation strikes a balance between providing individual water meters to support water conservation, and respecting the boundary between the public right-of-way and private property. The City Council may wish to extend the requirement for individual water meters for apartments by directing staff to revise the municipal code, by adding Alternative No. 2.

Reviewed by:

Marvin A. Rose, Director, Public Works Department
Prepared by: James G. Craig, Superintendent of Field Services

Approved by:

Amy Chan
City Manager

Attachments

- A. 2007 Study Issue DPW 01: Individual Water Meters for Residential Customers and the Update of Council Policy 3.1.2 *Metering for Water Utilities for Residential Condominiums*
- B. 2008 Study Issue DPW 05: Metering of water service to individual mobile homes in a private mobile home park, apartments in an apartment complex, individual condominium units, and other multi-family applications
- C. Existing Council Policy 3.1.2 *Metering of Water Utilities for Condominiums*
- D. *Water Submetering in Mobile Home Parks*, Draft Report, Santa Clara Valley Water District, Water Use Efficiency Unit, August 13, 2007
- E. Proposed Draft Revised Council Policy 3.1.2 *Metering of Water Utilities for Residences*.

Proposed New Council Study Issue

Number	DPW 01
Status	Above the line
Calendar Year	2007
New or Previous	Previous
Title	Individual Water Meters for Residential Customers and the update of Council Policy 3.1.2 - Metering of Water Utilities for Residential Customers
Lead Department	Public Works
Element or SubElement	Sub-Element 3.1 Water Resources

1. What are the key elements of the issue? What precipitated it?

This study issue will evaluate the use of individual water meters for new residential construction, condo conversions and Mobile Homes.

A Study Issue was brought forward by staff in 2006 to examine and update the policy for metering of water for new residences, including single family homes and condominiums. The Study Issue would also include the update of Policy 3.1.2 Metering of Water Utilities for Residential Condominiums (which has not been modified since 1980).

Recently Council Member Howe requested a Study Issue to evaluate the use of individual water meters for new residential construction, condo conversion, and Mobile Homes

Since the previous and newly proposed Study Issues both deal with water meters for residential construction, they have been combined into a single Study Issue. This study will consider all issues related to the metering of water to residential units. Included would be the use and separate metering for landscaping, the use and separate metering of recycled water for non-potable uses, and the appropriate use of separate, cluster or neighborhood meters for new and reconstructed residential developments.

2. How does this relate to the General Plan or existing City Policy?

Goal 3.1b: Develop a Comprehensive Water Conservation Plan.

Municipal Code: 12.24.090. Separate meters required.

Municipal Code: Chapter 19.70. Conversion of Rental Housing to Community Housing Projects

3. Origin of issue

Council Member(s)	Howe
General Plan	
City Staff	Public Works
Public	
Board or Commission	none

4. Multiple Year Project? Yes Planned Complete Date 08/21/07

5. Expected participation involved in the study issue process?

Does Council need to approve a work plan? No

Does this issue require review by a Board/Commission? No

If so, which?
none

Is a Council Study Session anticipated? No

What is the public participation process?

The public would have the opportunity to review and comment on the Study Issue paper when it is presented to Council.

6. Cost of Study

Operating Budget Program covering costs
313800

Project Budget covering costs

Budget modification \$ amount needed for study

Explain below what the additional funding will be used for

7. Potential fiscal impact to implement recommendations in the Study approved by Council

Capital expenditure range None

Operating expenditure range None

New revenues/savings range None

Explain impact briefly

8. Recommendation for this calendar year

Board or Commission ranked this study issue ____ of ____

Board or Commission ranking comments

Staff Recommendation None

If 'For Study' or 'Against Study', explain

9. Estimated consultant hours for completion of the study issue

Managers	Role	Manager	Hours	
Lead	Craig, Jim	Mgr CY1:	20	Mgr CY2: 0
		Staff CY1:	0	Staff CY2: 0
Support	Conzet, Val	Mgr CY1:	20	Mgr CY2: 0
		Staff CY1:	20	Staff CY2: 0
Support	Keegan, Barbara	Mgr CY1:	30	Mgr CY2: 0
		Staff CY1:	20	Staff CY2: 0
Interdep	Kirby, Tim	Mgr CY1:	10	Mgr CY2: 0
		Staff CY1:	0	Staff CY2: 0

Total Hours CY1: 120

Total Hours CY2: 0

Note: If staff's recommendation is 'For Study' or 'Against Study', the Director should note the relative importance of this Study to other major projects that the Department is currently working on or that are soon to begin, and the impact on existing services/priorities.

Reviewed by

Maria A. Ras

Department Director

12/06/06

Date

Approved by

Steve Wallingford

City Manager

a. Chan

12-06-06

Date

Proposed New Council Study Issue

Number	DPW 05
Status	Pending
Calendar Year	2008
New or Previous	New
Title	Metering of water service to individual mobile homes in a private mobile home park, apartments in an apartment complex, individual condominium units, and other multi-family applications
Lead Department	Public Works
Element or SubElement	SubElement 3.1 Water Resources

1. What are the key elements of the issue? What precipitated it?

Traditional installation of water meters for mobile home parks and apartment buildings includes the installation of a master meter at the property line, with no other metering within the property. This arrangement has been considered appropriate because the system beyond that point is private, and the City has no control, over how the residents use the water. In the past, the single concern of the City in installing these meters is the proper measurement of water used so that an accurate bill can be charged for the water crossing into the private property.

More recently, benefits have been found from individual studies conducted by other agencies regarding installing separate meters for individual units, and billing the individual units based upon their specific water consumption. This has been most often used in the past to allow complex owners to charge residents individually for water used, and then pay the total bill to the City. This has occasionally resulted in more efficient use of water by the individual residents, presumably due to the direct impact such usage has on the water bill received.

The focus of the study issue is to analyze the effect on water usage, and the impact on overall water sales, availability, storage and waste.

Is there a system-wide benefit from installing meters to individual units on private property?

Should the City encourage such sub-metering?

Should the City (all City customers) subsidized the cost of installing and maintaining such sub-metering?

What is the impact on the cost of water purchased by the City?

What is the impact on the revenue received by the City?

What are the financial benefit/advantages to the City to allow/provide sub-metering?

What are the non-revenue benefits/advantages to the City?

2. How does this relate to the General Plan or existing City Policy?

Goal D of the Water Resources Sub-element includes several policy and action statements related to water conservation. Goal E relates to fiscal responsibility of the water program. Conservation and economics are the primary issues in analyzing the use of individual sub-meters for mobil home parks. Obviously relevant policy and action statements are included below.

GOAL D: MANAGE POTABLE WATER DEMAND THROUGH THE EFFECTIVE USE OF WATER RATES, CONSERVATION PROGRAMS AND RECLAIMED WATER.

Policy D.1 Provide for an on-going potable water conservation program.

[selected] Action Statements

D.1b Support demand management programs identified as "Best Management Practices" in our Memorandum of Understanding with the State Department of Water Resources.

D.1d Inform the community periodically on the status of water supply and the need to conserve.

D.1e Maintain current inverted rate structure policy.

Policy D.2 Provide for potable water conservation programs that will effectively respond to periods of water shortages/droughts.

Action Statements

D.2a Implement staged water conservation plans similar to those implemented during the 1987-1992 drought, depending on the severity of future water shortages.

D.2b Implement water usage restrictions tailored to the level of conservation required.

GOAL E: MAINTAIN A FINANCIALLY STABLE WATER FUND THROUGH A USER BASED FEE SYSTEM THAT FUNDS OPERATION, CAPITAL IMPROVEMENTS, INFRASTRUCTURE REPLACEMENT AND PUBLIC EDUCATION PROGRAMS.

Policy E.1 Establish *[potable]* water rate structures that will ensure funding of capital improvements, operational and maintenance needs and the development of an adequate reserve.

Action Statements

E.1a Review rate structures annually.

E.1b Establish appropriate reserves to ensure stable rates and provide for capital improvement and replacement needs.

E.1d Ensure that the City receives 100% of utility entitlement by preparing utility bills accurately, by providing on-going monitoring for the completeness and accuracy of and collection of utility billings.

Policy E.2 Establish rate structures that encourage on-going potable water conservation and that can be modified to achieve even greater levels of water conservation during period of water shortages/droughts.

Action Statements

E.2b Utilize inverted rate scenarios to achieve both on-going and severe water conservation goals.

3. Origin of issue

Council Member(s) Councilmember Ron Swegles
General Plan
City Staff
Public
Board or Commission none

4. **Multiple Year Project?** No **Planned Completion Year** 2008

5. **Expected participation involved in the study issue process?**

Does Council need to approve a work plan? No
Does this issue require review by a Board/Commission? No
If so, which?
Is a Council Study Session anticipated? Yes
What is the public participation process?
 Posting of City Council meetings and study sessions on the web and in approved locations. We will invite the public to attend public meetings on the topic.

6. **Cost of Study**

Operating Budget Program covering costs
 313 Water Resources
Project Budget covering costs
Budget modification \$ amount needed for study
Explain below what the additional funding will be used for

7. **Potential fiscal impact to implement recommendations in the Study approved by Council**

Capital expenditure range \$501K or more
Operating expenditure range \$101K - \$500K
New revenues/savings range None

Explain impact briefly

The purpose of installing sub-meters will be to encourage water conservation. If water is conserved by residents, then revenues will be decreased as money cannot be billed for the water not used. Therefore, the capital expenditure of installing hundreds, or thousands, of sub-meters, and the annual maintenance and replacement of meters will result in capital and annual operating expenditure increases. Meanwhile, reduced sale of water will decrease revenues billed, unless the billing structure is revised to account for the change in water use habits. As an enterprise fund, the water program must cover all costs of water purchase and sale. If costs per unit increase for water, then the City must alter the water billing structure in order to account for the changes in sales and expenses. The use of a financial expert would be likely in analyzing and revising rates to accommodate the required changes.

8. **Staff Recommendation**

Staff Recommendation For Study

If 'For Study' or 'Against Study', explain

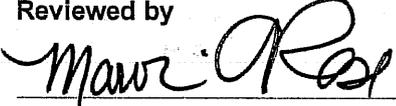
Recent water shortages by our wholesale water providers have emphasized the importance of conserving water, avoiding waste, and increasing public awareness of

the cost and impact of water and water supply. The use of sub-meters can help inform customers of their individual impact on the water supply, and can be an aid in reducing waste by water customers. There are implications of such changes in metering water, including installations on private property, connections in the middle of private water systems, increasing the costs to other water users, decreasing the revenues available to the water utility, and a potentially large cost for the reading of many more meters, evaluation of the data and preparation of billing statements. All aspects should be considered if the City is to consider entering into a program of supporting sub-meters.

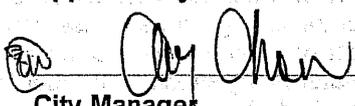
9. Estimated consultant hours for completion of the study issue

Managers	Role	Manager	Hours			
Lead	Craig, Jim	Mgr CY1:	100	Mgr CY2:	0	
			Staff CY1:	100	Staff CY2:	0
Support	Conzet, Val	Mgr CY1:	50	Mgr CY2:	0	
			Staff CY1:	0	Staff CY2:	0
Interdep	Kirby, Tim	Mgr CY1:	50	Mgr CY2:	0	
			Staff CY1:	25	Staff CY2:	0
Total Hours CY1: 325						
Total Hours CY2: 0						

Note: If staff's recommendation is 'For Study' or 'Against Study', the Director should note the relative importance of this Study to other major projects that the Department is currently working on or that are soon to begin, and the impact on existing services/priorities.

Reviewed by

 Department Director

11/2/07
 Date

Approved by

 City Manager

11/6/07
 Date

Addendum

A. Board / Commission Recommendation

Issue Created Too Late for B/C Ranking

Board or Commission	Rank	Rank 1 year ago	Rank 2 years ago
Arts Commission			
Bicycle and Pedestrian Advisory Committee			
Board of Building Code Appeals			
Board of Library Trustees			
Child Care Advisory Board			
Heritage Preservation Commission			
Housing and Human Services Commission			
Parks and Recreation Commission			
Personnel Board			
Planning Commission			
Board or Commission ranking comments			

B. Council

Council Rank (no rank yet)
 Work Plan Review Date (blank)
 Study Session Date (blank)
 RTC Date (blank)
 Actual Complete Date (blank)
 Staff Contact

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Policy 3.1.2 Metering of Water Utilities for Residential Condominiums

POLICY PURPOSE:

This policy is designed to provide uniform criteria for the distribution and metering of water to various housing units, common amenities within multi-family residential housing projects, and the appropriate use of recycled water for non-potable uses. The policy facilitates the reasonable control and consumption monitoring of water in compliance with the Uniform Plumbing Code.

POLICY STATEMENT:

1. Single-family residential housing projects, including "Planned Developments" consisting of a number of dwelling units, each with title to a separate lot of record and an undivided interest in common amenities, including, for example, private streets or recreational facilities, shall be provided with separate water meters serving each lot, in accordance with Municipal Code Section 12.24.090.
2. In general, a private water line should not cross property lines.
3. Only one separately metered source of water will be permitted to serve a given building, except for a) fire services, and b) where dual plumbing is involved for the use of recycled water for non-potable uses.
4. Air space condominiums, stock cooperatives or community apartments, not including any separate fee-title interest in land, shall be provided with at least one separate water meter per building or separate water meter for each lot of record with individual shut-off valves at each building to be arranged in a manner prescribed in the Uniform Plumbing Code.
5. A separate water meter shall be provided in all instances where water is to be consumed in conjunction with a common area improvement, such as landscaping, irrigation or swimming pools.
6. Recycled water may be used for landscaping purposes, and must be separately metered from all other water sources.

(Adopted: RTC 80-725 (12/2/1980); (Clerical/clarity update, Policy Update Project 7/2005))

Lead Department: [Department of Public Works](#)

Water Submetering in Mobile Home Parks

August 13, 2007

**Santa Clara Valley Water District
Water Use Efficiency Unit**

Water Submetering in Mobile home Parks

In 2000, the Santa Clara Valley Water District (District) began a pilot program to provide water submeters to mobile home parks in order to assist them in conserving water. The term, submetering

“...refers to the use of separate meters to measure individual tenant water usage in apartments, condominiums, mobile home parks, and small mixed commercial properties, where a utility master meter exists.” (AWWA, 2001)

While some owners do their own meter reading and billing, most owners hire specialized companies to provide billing and allocation services. These companies work as agents for the building owner. The entire building continues to be master metered and billed by the supplying water utility.

The District equipped four large mobile home parks with submeters, replacing one-meter systems in which residents in the same complex split water costs evenly, with submeters at each unit. A total of 754 submeters were installed through this program at the following mobile home parks:

- Fox Hollow (99 submeters)
- Mountain Shadows (108 submeters)
- Millpond (361 submeters)
- Quail Hollow (186 submeters)

The District provided the water submeters to the mobile home park management companies, who in turn agreed to install the submeters. Additionally, the District asked the mobile home parks to all receive an Irrigation Technical Assistance Program (ITAP) evaluation to help improve irrigation efficiency. The District also offered residents the opportunity to participate in the Water Wise House Call Program, a home water survey program that can help residents save water indoors and outdoors.

It is estimated that tenants in submetered dwellings, with billing based upon actual use, **reduce water use in the 10% to 20% range**. This is partly due to changed habits caused by the pricing signal and partly due to the identification and repair of leaks. Tenants who are individually metered can benefit by being able to monitor and control their water use – with submetering, they only pay for what they use, not what others use. A study by the Seattle Public Utilities found that about 10% of the monitored tenants used 50% of the water. 80% of the tenants consumed water at a rate of \$15 or less per month and 20% consumed water at a rate in excess of \$50 per month. Some tenants were found to be conducting water intensive businesses, such as laundries and photo labs, in their units. (AWWA, 2001)

The mobile home park management companies agreed to track water bills for the submetered complexes so that water savings could be determined. In August, 2007, the property management company of Brandenburg, Staedler & Moore provided water use information for

the aforementioned mobile home parts for the last ten years (about two to three years before the submeters were installed and the years following installation, up until 2007).

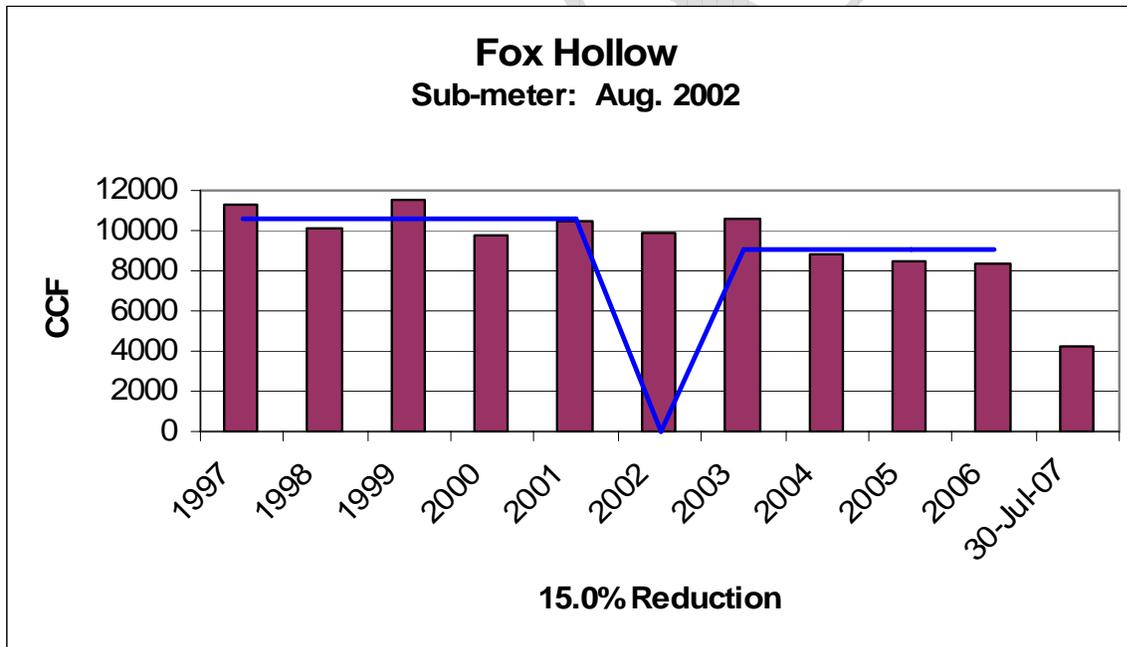
The water usage data for the four mobile home parks examined shows an annual water savings of from 15 to 30% (see Attachment 1: Water Use Data). The data was analyzed and it was determined that the average water savings was 24.8 CCF or about 18,500 gallons per household per year.

DRAFT

ATTACHMENT 1: Water Use Data

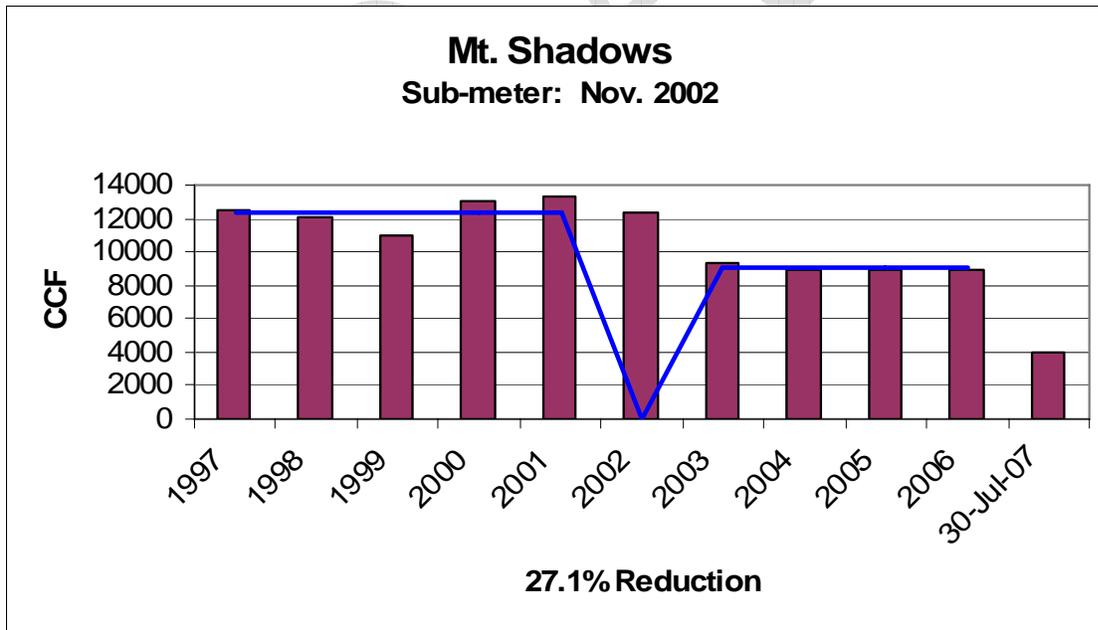
FOX HOLLOW MOBILE HOME PARK

		Fox Hollow
		Sub-meter Date:
		Aug-02
Average '97 - '01	Year	Total CCF
10628.8	1997	11327
10628.8	1998	10060
10628.8	1999	11491
10628.8	2000	9793
10628.8	2001	10473
Average '03 - '06	2002	9836
9039.25	2003	10532
9039.25	2004	8863
9039.25	2005	8456
9039.25	2006	8306
	30-Jul-07	4235
15.0%	Average Reduction	



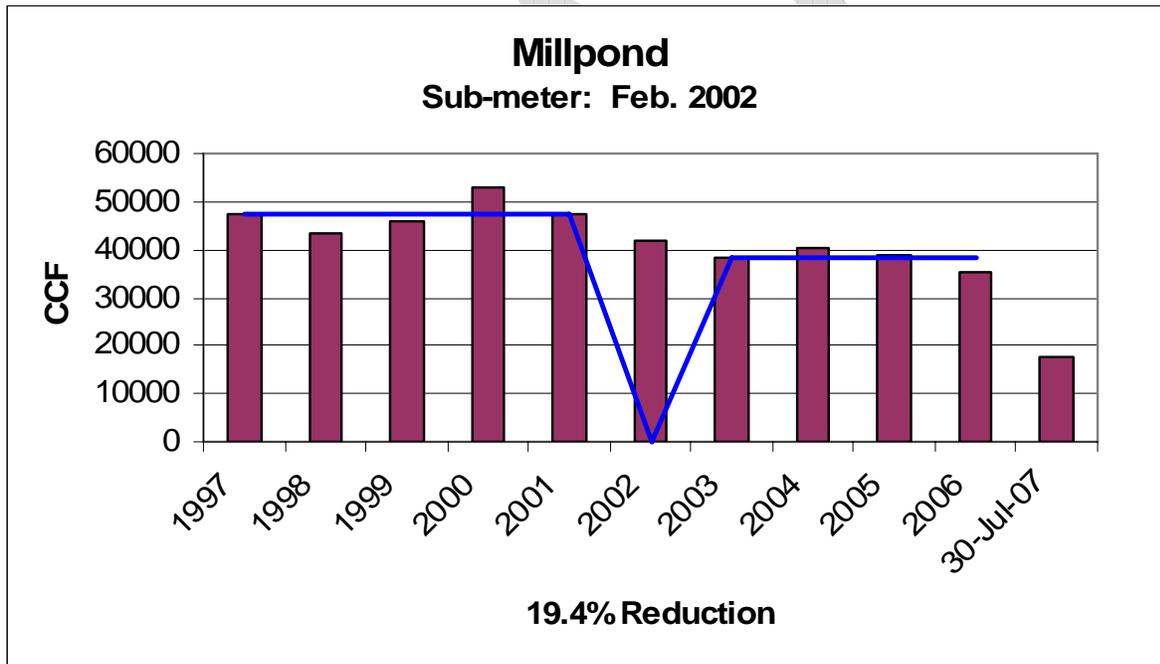
MOUNTAIN SHADOWS MOBILE HOME PARK

		Mt. Shadows
Sub-meter Date:		Nov-02
Average '97 - '01	Year	Total CCF
12403.8	1997	12484
12403.8	1998	12105
12403.8	1999	10983
12403.8	2000	13076
12403.8	2001	13371
Average '03 - '06	2002	12361
9043.75	2003	9342
9043.75	2004	8962
9043.75	2005	8942
9043.75	2006	8929
	30-Jul-07	3925
27.1%	Average Reduction	



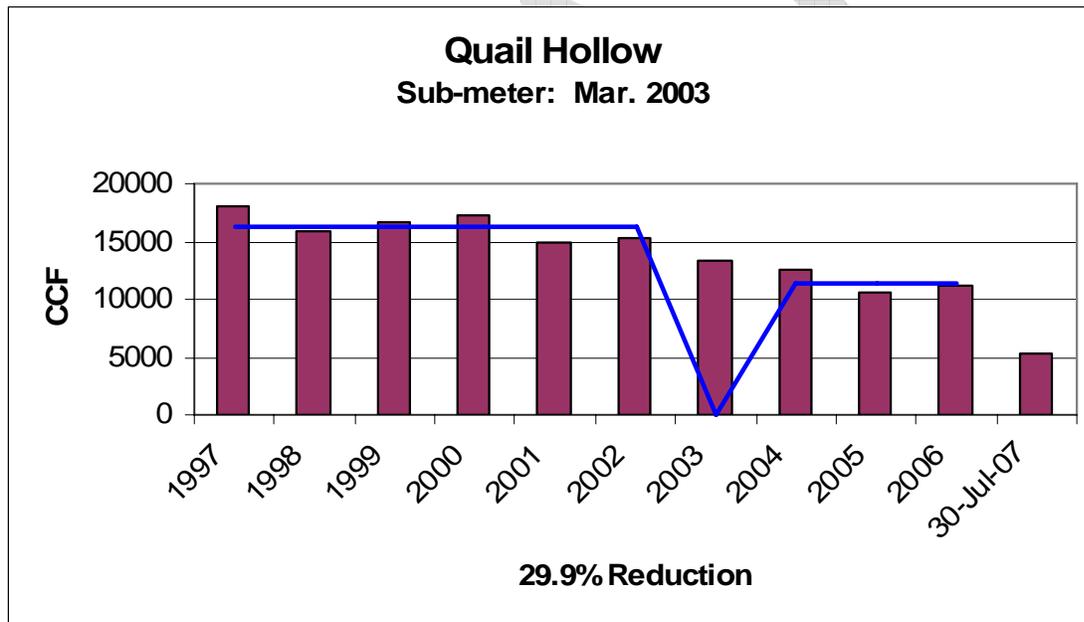
MILLPOND MOBILE HOME PARK

		Millpond
		Sub-meter Date: Feb-02
Average '97 - '01	Year	Total CCF
47421.6	1997	47245
47421.6	1998	43484
47421.6	1999	45997
47421.6	2000	52780
47421.6	2001	47602
Average '03 - '06	2002	42068
38244	2003	38512
38244	2004	40216
38244	2005	38786
38244	2006	35462
	30-Jul-07	17501
19.4%	Average Reduction	



QUAIL HOLLOW MOBILE HOME PARK

		Quail Hollow
		Mar-02
Average '97 - '01	Sub-meter Date: Year	Total CCF
16315.17	1997	17964
16315.17	1998	15937
16315.17	1999	16651
16315.17	2000	17273
16315.17	2001	14829
16315.17	2002	15237
Average '03 - '06	2003	13357
11435	2004	12564
11435	2005	10539
11435	2006	11202
	30-Jul-07	5285
29.9%	Average Reduction	



Policy 3.1.2 DRAFT PROPOSED Metering of Water Utilities for Residential Customers**POLICY PURPOSE:**

This policy is designed to provide uniform criteria for the distribution and metering of water to various housing units, common amenities within multi-family residential housing projects, and the appropriate use of recycled water for non-potable uses. The policy facilitates the reasonable control and consumption monitoring of water in compliance with the Uniform Plumbing Code.

POLICY STATEMENT:

1. Water meters shall generally be placed in the public right-of-way near the property line of the lot that is being served, in a readily accessible location. All water meters in the public-right-of way shall be maintained by the City. Generally large banks of multiple parallel water lines should be avoided.
2. Meters should be placed between the roadway curb and the property line, in landscape areas where possible, oriented for ease of reading, maintenance, and replacement. Where possible avoid placement in sidewalks. If sidewalk placement is necessary use meter box and lid that comply with the accessibility requirements of the Americans with Disabilities Act (ADA). Avoid placement of meters in roadways or driveways. Water meters with individual shut-off valves, and reverse pressure back-flow devices as necessary shall be arranged in a manner prescribed in the Uniform Plumbing Code, and the City's standard details.
3. Common areas of multi-family residential developments shall have a separate potable meter, for each building or recreational pool, and shall have a separate fire suppression service meter for each building if fire-sprinkling is required, and shall have separate landscape meter for landscaping.
4. Where recycled water is available, and approved for landscaping purposes, it must be separately metered from all other water sources. Where dual plumbing is included in building design for the use of recycled water for non-potable uses, a separate meter is required for each non-potable system.
5. In general, water lines should not cross private property lines.
6. Residences where each unit may be individually served by water-meters in the public right-of-way
 - a. Single-Family detached residences – Each residence shall have only one water meter for potable water use. All other applications, such as fire sprinklers, garages, irrigation, accessory living units (Granny units), swimming pools or other uses shall be tapped off of the water service after the meter, in accordance with the Uniform Plumbing Code.
 - b. Single-Family attached residences (duplex, town-homes, residences where each unit has an associated independent lot of record.) – Each residence unit or premises shall have only one water meter for potable water use, and building shall have one water meter for fire suppression use (for example fire sprinkler systems.)
7. Where it is not practical to place individual water meters in the public right-of-way, a master meter shall be placed where the water line leaves the public-right-of-way.

ATTACHMENT E

- Individual water meters shall be placed near each residence, common area, building, swimming pool, or other use, in a readily accessible location, avoiding driveways or sidewalks where possible. All water lines, meters, and facilities on private property shall be maintained by the private property owner.
8. Where it is not practical to locate the water meter within the public right-of-way, and where the meter can be located within four feet of the public right-of-way in a readily accessible area, a City meter may be placed within an easement on private property, and read and maintained by the City.
 9. Residences where it is not practical for each unit to be served from the public right-of-way shall have a master meter located near where the water line leaves the public right-of-way.
 - a. Where residential units are served with private streets or arranged in park-like settings away from the public-right-of way.
 - b. Where placement of multiple water meters in the public right-of-way would result in long banks of parallel lines, making maintenance or repair on one line difficult without damaging other lines, or reducing landscape opportunities.
 10. Multiple-family residences (condominiums, apartments.) Each building shall have only one water meter for potable water use, placed in the City right-of way where possible and each building requiring fire sprinkling shall have one water meter for fire suppression use. Each lot or common area, if any shall have separate potable meter, for each building or recreational pool, and shall have separate fire suppression service meter for each building if fire-sprinkling is required, and shall have separate landscape meter for landscaping.
 - a. Individual water meters are encouraged for each housing unit or individual premises. These meters shall be accessible to the residents of the building, and shall be maintained and read by the property owner or home-owners association.
 - b. Individual water meters shall be required for each housing unit or individual premises when required by local ordinance, condition of approval, or Uniform Plumbing Code.
 11. Mobile Home Parks – A public master meter shall be installed where service enters the property, and shall be the basis for the water bill submitted to the park by the City. Within the park, each dwelling unit shall have only one water meter for potable water use, and each building requiring fire sprinkling shall have one water meter for fire suppression use. Each lot of record or common area, if any, shall have separate potable meter for each building or recreational pool, and shall have separate fire suppression service meter for each building if fire-sprinkling is required, and shall have separate landscape meter for landscaping. All meters on private property shall be maintained by the property owner.
 12. This policy is not intended to require retro-fit of existing systems when there is no application for change of use or major renovation.

Revised 05/13/08

(Adopted: RTC 80-725 (12/2/1980); (Clerical/clarity update, Policy Update Project 7/2005))

Lead Department: [Department of Public Works](#)