City of Woodland

REPORT TO MAYOR AND CITY COUNCIL

AGENDA ITEM

TO: THE HONORABLE MAYOR
AND CITY COUNCIL

DATE: April 29, 2008

SUBJECT: Water Resource Workshop

Report in Brief

The purpose of the Water Resource Workshop is to brief the City Council and the public on the condition of Woodland's water supply system. Staff will present seven discussion points associated with the operation of the water system. The presentation will provide the City Council with the opportunity to offer comments and give direction to staff regarding several future actions required to maintain and improve the system.

The City of Woodland is committed to providing a safe and reliable drinking water system that meets State and Federal requirements. Many of the issues outlined within this report will require actions to replace aging infrastructure, comply with legal mandates and meet tighter regulatory conditions for both drinking water and discharge limits. The actions presented herein include the development of major capital projects and implementation of long-term financing in order to secure the funds necessary to complete the projects.

Staff recommends that the City Council provide direction and comments regarding the following issues:

- The selection of a pedesphere style elevated water tank and location of the tank near the Armory building as described within Item 2 of the attachment; direct staff to present this information in public meetings for area residents, the Parks and Recreation Commission and Planning Commission.

- The guidelines for meter implementation as contained in Items 3 and 4 of the Attachment.

- The guidelines that need to be decided for preparing the Water Rate Study as contained in Item 5 of the Attachment.

Background

The City obtains its water from wells which tap into groundwater aquifers at varying depths throughout the city. Groundwater aquifers are primarily replenished from rain seeping into the soil and becoming trapped at varying depths by impermeable layers (in this region, typically clay deposits). Groundwater replenishment is a slow process for reaching the depths from which water is drawn and the process serves to filter the water from most impurities carried from the surface, however minerals and chemicals can leach down to our municipal water bearing zones. The quality of water eventually delivered to customers is largely a function of chemical and mineral leaching and erosion of the geologic formations from which the water flows. Before entering the City system, water is disinfected with chlorine.

The City Council has previously approved several actions related to the maintenance and operation of groundwater resources and the water system. In addition, Council periodically reviews reports and information regarding the quality and reliability of these resources and the delivery system. These actions have provided the foundation for the information presented herein.

As the City Council is aware, the State has mandated water meter implementation and funding has been approved for the meter implementation plan which is nearing completion. The plan will provide detailed specifications and implementations steps to meet the State required implementation deadlines. Funding for the actual meter installation will be needed.

The City Council recently reviewed the 2007 Water Quality Report. This report indicated that Woodland's groundwater meets all current water quality standards. The Report also indicates that the City's groundwater supply is being impacted by rising nitrate levels.

In 2006 the City engaged the consulting firm of Brown and Caldwell to review segments of the water system infrastructure. Brown and Caldwell's February 2007 *Water System Modeling and Altitude Valve Implementation Plan Tech Memo,* an assessment of the City's 300,000 gallon elevated storage tank in August 2006 indicated that the tank does not meet current seismic requirements and should be replaced.

These and other water system infrastructure issues have been reviewed over that last four months by the City Council Infrastructure Subcommittee (Council members Pimentel and Marble). The Subcommittee has reviewed a significant amount of information and provided guidance to staff regarding the issues described herein. However, many of these issues require policy guidance and resource allocation decisions that need comments and direction from the entire City Council. In recognition of this fact, the Infrastructure Subcommittee and staff agreed that a focused Study Session for the City Council was needed in order to review all of the issues. In order to prepare for the Study Session, staff has developed an attachment that provides a detailed explanation of seven items associated with Woodland's water system. These items include:

- Overall Water Quality and Production Concerns
- Elevated Tank Replacement Planned for FY 2009

- Foundational Decisions for Meter Implementation
- Review of Frequently Asked Questions (FAQs) for Water Meter Plan Implementation
- Guidelines for Preparing a Water Rate Study
- Review of a Recent Letter from the California Regional Water Quality Control Board
- Status of New Well No. 25 at Gibson Road and Ashley

A summary of the pertinent points and requested Council guidance is provided in the following Discussion section of this report. Detailed information, including charts, images and aerial photos that are intended to facilitate the City Council's review of these items are included in the attachment.

Discussion

Item 1 of the Attachment contains information and trend analysis charts relating to water quality. It also includes information on the general aging condition of our wells. Progressively rising nitrate level, more restrictive regulations and the old age of many of our wells will require major capital outlays in the very near future and likely require us to utilize higher water quality supplies than groundwater. This item is presented as foundation information for discussing the balance of the items presented in the staff report and the attachment.

Item 2 of the Attachment provides an update and information on the project to replace the elevated tank. The existing tank will be removed once the new tank is built. The new tank will be about 1/3 times larger in volume and 15 – 20 feet higher than the existing tank to provide improved and more reliable water pressure. The project will improve fire flow capability, especially in the central part of the City. The project will include one or more public meetings primarily focused on the adjacent neighborhood.

The City Council is requested to provide direction regarding staff's and the Infrastructure Committee's recommendations on the tank's location and the selection of the pedesphere tank style.

Item 3 of the Attachment contains a list of foundational guidelines for water meter implementation. These guidelines are needed to be able to move forward in an organized, efficient, systematic and economical manner. Work will also be needed to replace or install meters and related water service lines to the meter which will also be paid for with Water Enterprise Funds. Items 3 and 4 of the Attachment both relate to meter implementation and should be reviewed together.

The City Council is requested to provide direction regarding staff's and the Infrastructure Committee's recommendations on these water meter implementation guidelines.

Item 4 of the Attachment contains a list of anticipated Frequently Asked Questions (FAQs) and answers relating to the City of Woodland's Water Meter Plan. This Q/A list will be used to help inform the public of our water meter plan. The list of Questions and Answers will eventually be posted on the City's website.

The City Council is requested to provide comments on the FAQs. This item is provided since it reflects the implementation of many of the guidelines recommended by staff for meter implementation.

Item 5 of the Attachment contains guidelines that need to be decided upon for preparing a water rate study. The City does not have a residential meter rate and a rate study is needed to implement one. In addition, a rate study will support assessment of the long-term fiscal soundness for the Water Enterprise Fund 210 which supports the City's commitment to 10-Year Financial Planning. It is especially important that we do this at this time considering the very significant Capital Improvement Plan that would be financed by Water Enterprise Fund and the possibility of going to surface water by 2016.

The City Council is requested to provide guidance on the information presented in both the attachment and in the Study Session.

Item 6 of the Attachment includes an assessment of a letter we received from the State Regional Water Quality Control Board (RWQCB) dated March 13, 2008. The State indicated that they used currently published accepted studies that have effluent limits of 700 ppb for both EC and boron. These limits far exceed our current wastewater discharge levels and even exceed the concentrations in our groundwater wells.

This letter from the RWQCB requires no Council action. It is provided so that the City Council and staff can better understand what the State's wastewater treatment limits will likely for the City's future Discharge Permit renewals. Staff believes that an improved water quality supply will be needed in the future to comply with this anticipated stricter discharge limits.

Item 7 of the Attachment provides an update and information on the project to drill a new well for development in the storm water retention basin at the corner of Gibson and Ashley. This work will be paid for using Water Development Fund 584. Prior to drilling the well a monitoring well will be drilled to take water samples from different depths and to evaluate the geological strata and identify the depth of the upper strata to be sealed off to prevent excessive intrusion of nitrate water into the deep water supply aquifer. Due to the nitrate problems within the City, this well will not be drilled until we have more information on the geology and water quality of the water bearing zones that are anticipated to be utilized. The project will include a public meeting and reviews by the Parks and Recreation and Planning Commissions.

This will be an update on the status of new Well No. 25 at Gibson and Ashley. No Council action is needed. This information is provided to better understand the problems the City is facing in doing well renovation and replacement work.

Fiscal Impact

Most of the issues presented herein will require the expenditure of funds for capital projects to improve the water system. All of the funding will come from Fund 210 Water Enterprise and/or Fund 584 Water Development. The commitment for funds will be considered by the City Council in association with actions related to the Capital Improvement Project budget.

As noted in the above discussion a water rate analysis is being prepared that will come back to Council for evaluation, comment and approval.

Public Contact

The annual water quality report will be distributed to residents via their water bill. All residents will receive a copy in their monthly water bill before July 2008. The report will be distributed to managers of apartments, retirement homes and property mangers to be made available to their residents.

The City's Senior Civil Engineer for Utilities has made presentations to the Chamber of Commerce on water supply and reliability concerns, metering plans, and the possibility of needing to utilize Sacramento River water in the future.

A public meeting will be held May 5, 2008 to explain the meter implementation plan and receive public input. Continuing public education is planned as the City progresses in addressing system needs.

Council Committee Recommendation

Staff has worked closely with the Infrastructure Committee in preparing the staff recommendations included in the Attachment.

Alternative Courses of Action

This workshop will provide for a discussion to allow for input and direction on numerous guidelines relating to the replacement of the elevated tank, metering implementation and how the water rate study is to be structured.

Recommendation for Action

Staff recommends that the City Council provide comments and direction regarding the following issues:

1. The selection of a pedesphere style elevated water tank and location of the tank near the Armory building as described within Item 2 of the attachment; direct staff to present this

information in public meetings for area residents, the Parks and Recreation Commission and Planning Commission.

2. The guidelines for meter implementation as contained in Items 3 and 4 of the Attachment.

3. The guidelines that need to be decided for preparing the Water Rate Study as contained in Item 5 of the Attachment.

Prepared by: Doug Baxter, P.E.
Senior Civil Engineer

Reviewed by: Greg Meyer
Deputy Public Works Director

Dick Donnelly, P.E.
Acting Public Works Director

Mark G. Deven
City Manager

Attachment

4/29/08 ATTACHMENT

For 4/29/08 WATER RESOURCE WORKSHOP

Item 1 - 4/29/08 Attachment.
Overall Water Quality and Production Concerns

The following report is an update on our groundwater quality and production capacity. This report is for information only and no action is required. The information provided is foundational in understanding the reasons and timing required for most major CIP water enterprise funded projects. While our groundwater currently meets State requirements its decreasing water quality will soon require major alterations to several wells, the drilling of new wells, use of storage tanks with booster pumps, and/or nitrate treatment to stay in compliance. Similar actions are also cause by the aging of our wells.

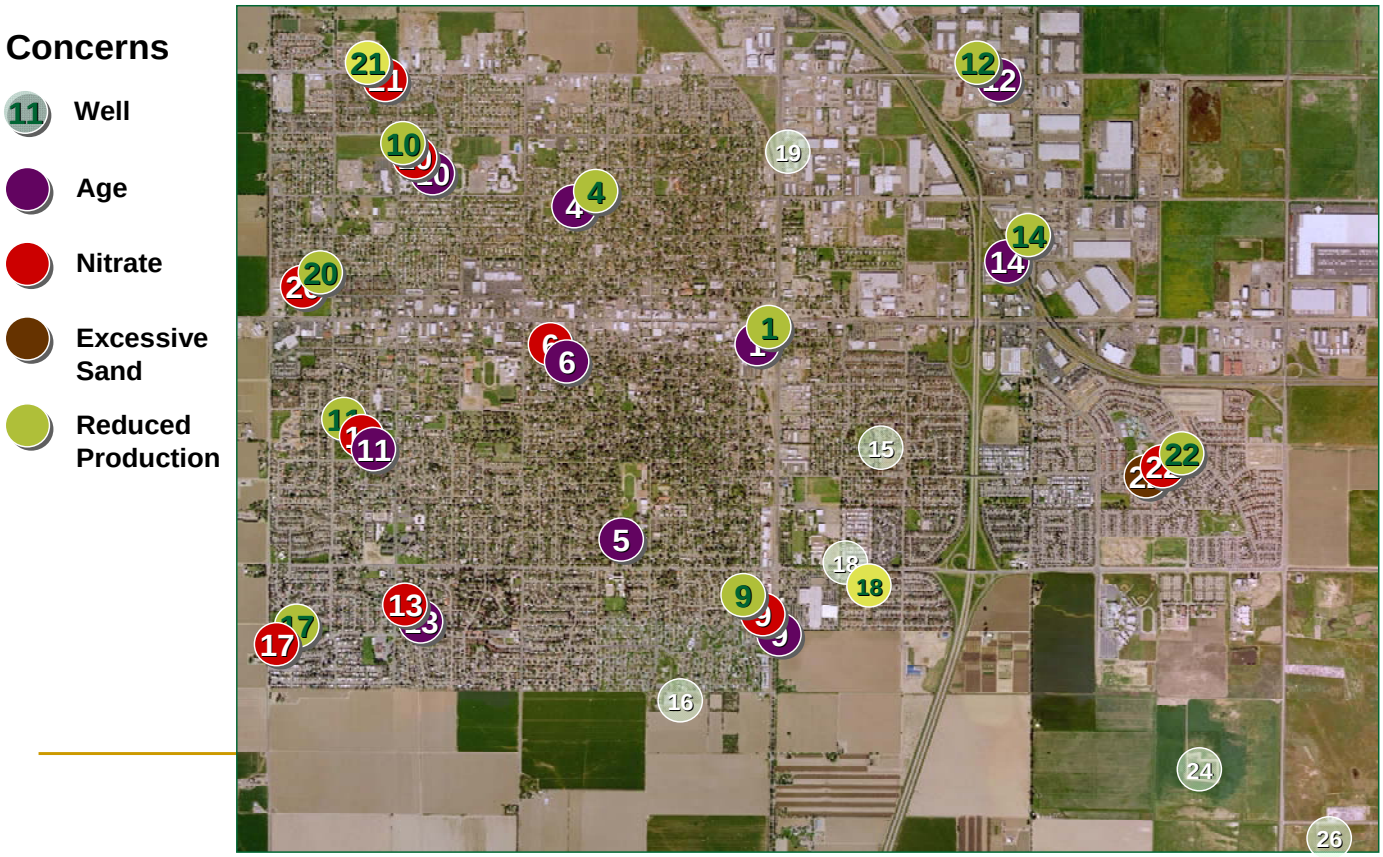
Woodland is solely dependent upon groundwater for our water supply. Protection of groundwater aquifer(s) from contamination is of paramount concern to the City and a continuing focus for pursuing future system reliability. Contaminants that do end up in the water supply primarily come from private well and septic systems, storm water runoff carrying petrochemicals washed from pavements, industrial wastes, animal wastes, fertilizers and pesticides from agricultural sources, copper and lead leaching from pipes, and from chlorine disinfection itself.

From a drinking water perspective it is very important to discuss two constituents found in most of our wells - nitrate and boron. Nitrate contamination of groundwater comes from fertilizers, industrial waste chemicals, seepage from septic systems and animal manure. Nitrate concentration levels vary throughout the City and vary within each well site at different times and different levels (aquifer zones). However, trends demonstrate that nitrate levels are rising on average at a concerning number of well sites and the City is taking actions to address this concern. Boron is a common constituent of Woodland water which exceeds the quantity for "notification level". Boron is a naturally occurring chemical that has always been in the City's groundwater and it is not a recent occurrence. Currently, there are no established acute or long term health risks associated with boron in drinking water. However, boron is toxic to plants and agronomists and farmers prefer irrigation water with less than 1 mg/L of boron. This becomes a potential impact on the other end of the treatment process for wastewater effluent standards for Tule Canal and the Yolo bypass.

Salt too is an issue of concern as it relates to our future wastewater treatment plant discharge permit renewals. Salt is discussed as a separate item that relates to a letter we received from the State Regional Water Quality Control Board (RWQCB) dated 3/13/08. In summary, it is evident from that letter that we will need an improved water quality supply to meet anticipated RWQCB discharge limits.

The following visual aid shows that most of our wells have elevated levels of nitrate, are old and for various reasons have had their production rates reduced over time.

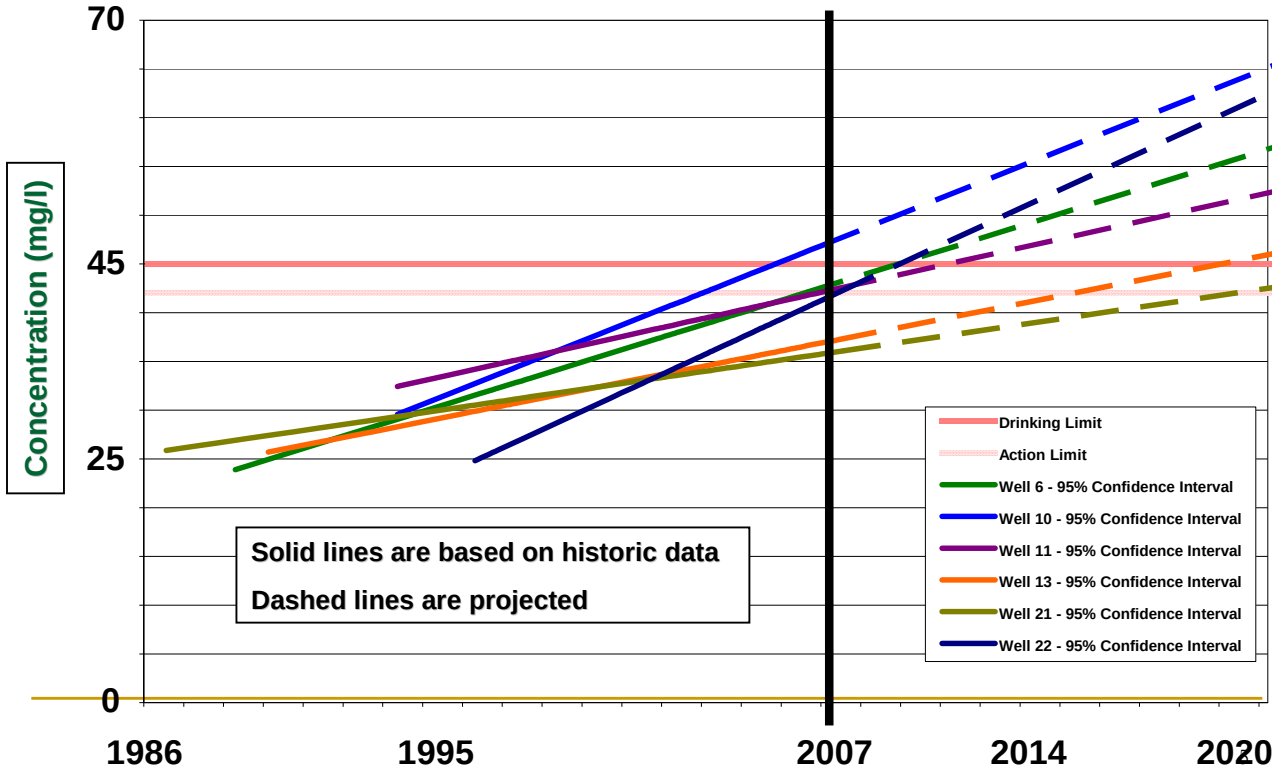
Well Numbers And Which Wells Have Long-Term Reliability Concerns



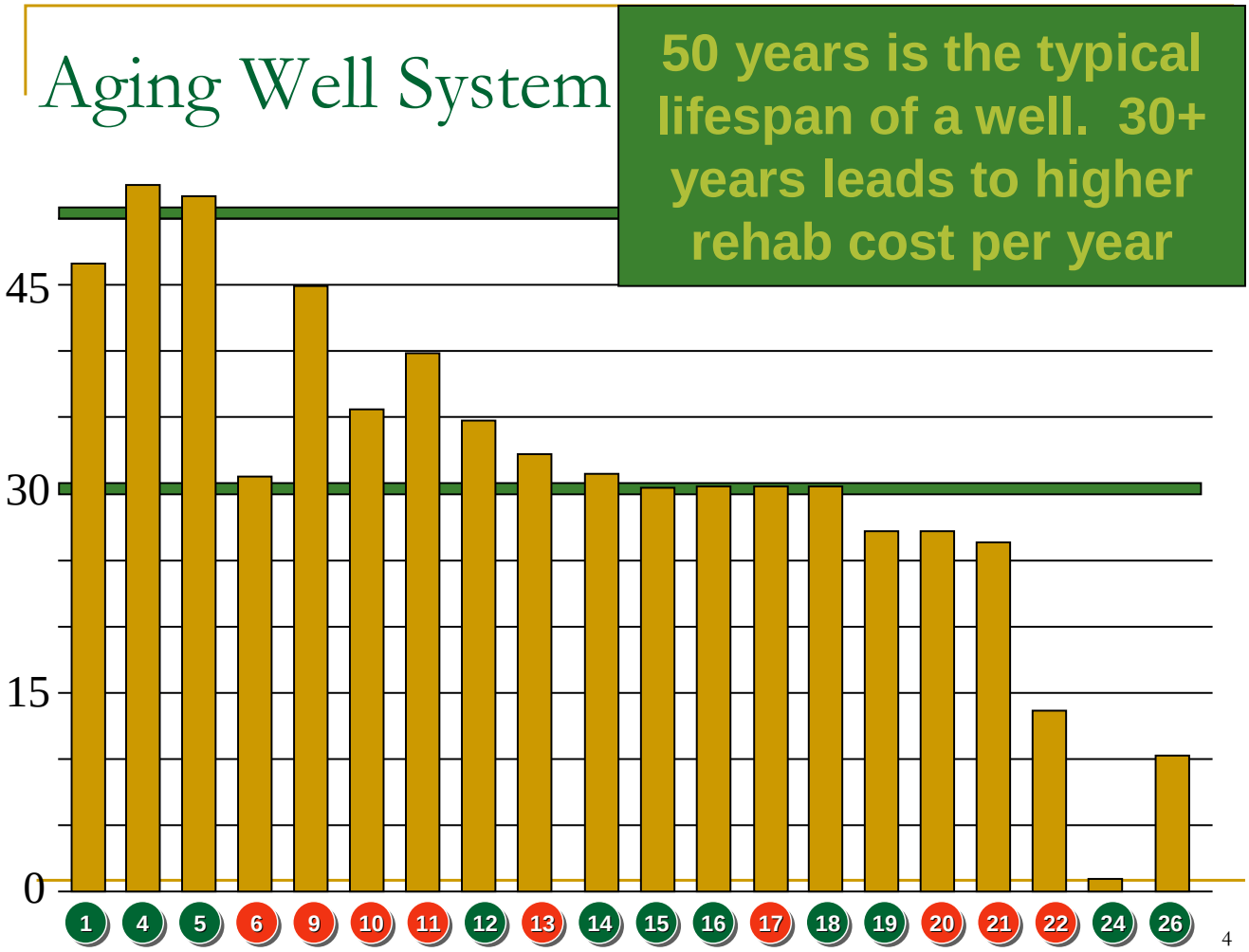
The above visual aid shows that most of our wells have elevated levels of nitrate, are old and for various reasons have had their production rates reduced over time. Groundwater in Woodland moves from west to east. Wells located in the western part of the City have demonstrated the higher nitrate levels than wells in the eastern part. Generally, the nitrate concentrations of all the wells are increasing.

The following chart shows representative examples of varying rates of increase in the elevated nitrate levels for our wells. For some wells it is an immediate problem. For other wells we have more time to resolve those problems. As you can see, the horizontal red line is allowable limit for drinking water. The dotted red line is the limit that the City has set as our allowable limit before we shut a well down.

Trend in Nitrate Levels for Our Wells

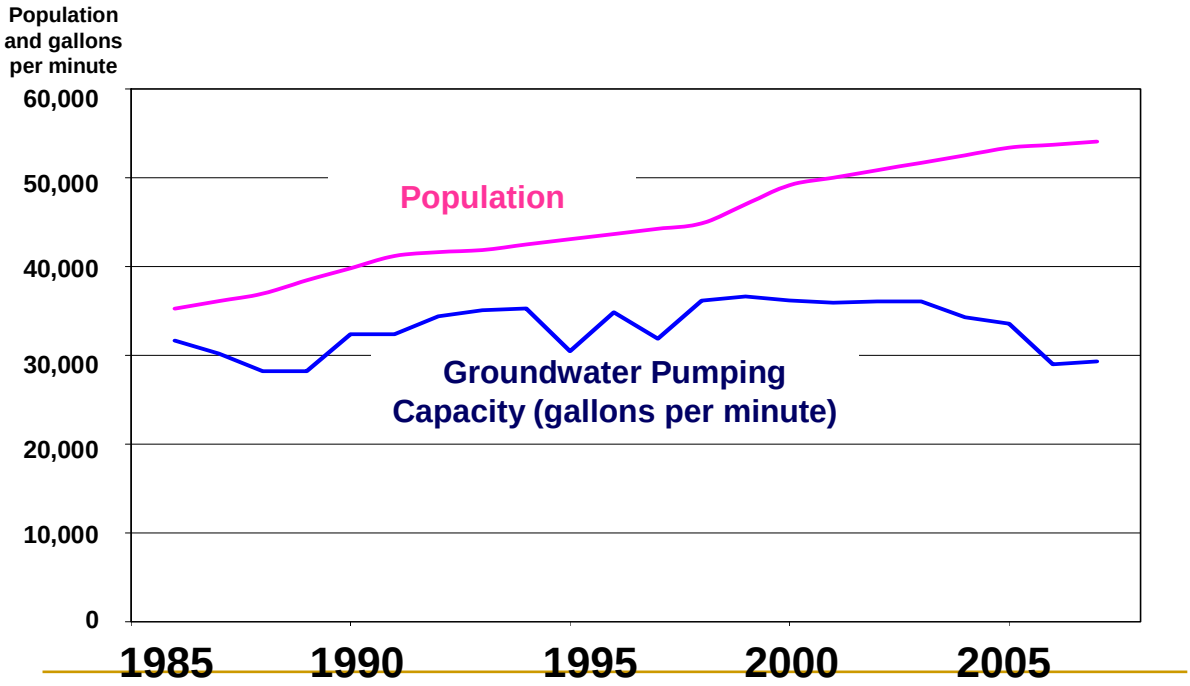


The following chart is arranged by well number and the well's age. Most wells are at or exceeding their expected efficient-life expectancy, and four are approaching or have exceeded their expected lifespan. Problems will increase with time as the well's casing becomes less reliable. Those wells with the red around the number have elevated nitrate levels.



The following graph shows how growth has occurred and how commiserate total production capacity has not kept pace with the increase in population over the last couple of decades. As development has occurred new wells have been drilled to provide capacity for this growth. However, as existing wells have failed, replacement wells have not been provided. In addition, many of the wells have had reduced production rates due to deterioration of the wells and/or required modifications to address nitrate levels or sand pumping problems.

GW Pumping Capacity vs. Population



NOTE: In 1996 4.2 billion gallons were pumped. In 2007 5.4 billion gallons were pumped were pumped.

6

Do We Have Enough Wells ???

- August 22, 2007 (close to a peak water use day)
  - Only one well not running
- January 4, 2008
  - High winds caused an almost citywide power outage
  - We had only a few wells with backup power
- Study underway

7

On the two dates noted above we were at the edge of not having sufficient water to meet the City's needs. On August 22 demands were very near our water production rate capacity. On January 4th we lacked enough backup power so even though it was a low water use day we again almost could not meet the City's water demands. We are planning to add more backup power capabilities to our wells.

We are currently doing a Water Focus Study that is focusing on these water quality and production problems. We should have more information on these subjects by late summer.

Item 2 - 4/29/08 Attachment.
Elevated tank replacement planned for 2009.

We request the Council give staff direction regarding staff's and the Infrastructure Committee's recommendations on the selection of the pedesphere tank style and the proposed location for replacing the City's only water storage tank.

Staff recommends that the elevated tank be replaced as soon as possible since it is at the end of its useful life, would otherwise need to be renovated, and is far below current seismic standards. The tank met the seismic standards when it was built in 1952 but its lateral stability is only 20% of current standard for earthquake design. Reducing this concern over seismic stability is important and the tank replacement project is moving forward as rapidly as possible. It is not possible to reduce the seismic lateral force by lowering the water level in the tank without causing even greater concerns about inadequate water pressures throughout the City which would result in inadequate fire flows in the central and downtown part of the City.

The new tank will be 15 – 20 feet higher than the existing tank to provide improved and more reliable water pressure. Another project PPSS 06-09 Supervisory Control and Data Acquisition (SCADA) will allow for radio communication between all the wells and the tank so the tank can be kept full but not overflow. Collectively these two projects will significantly improve water pressure and allow for greater fire flows.

Public involvement planned:

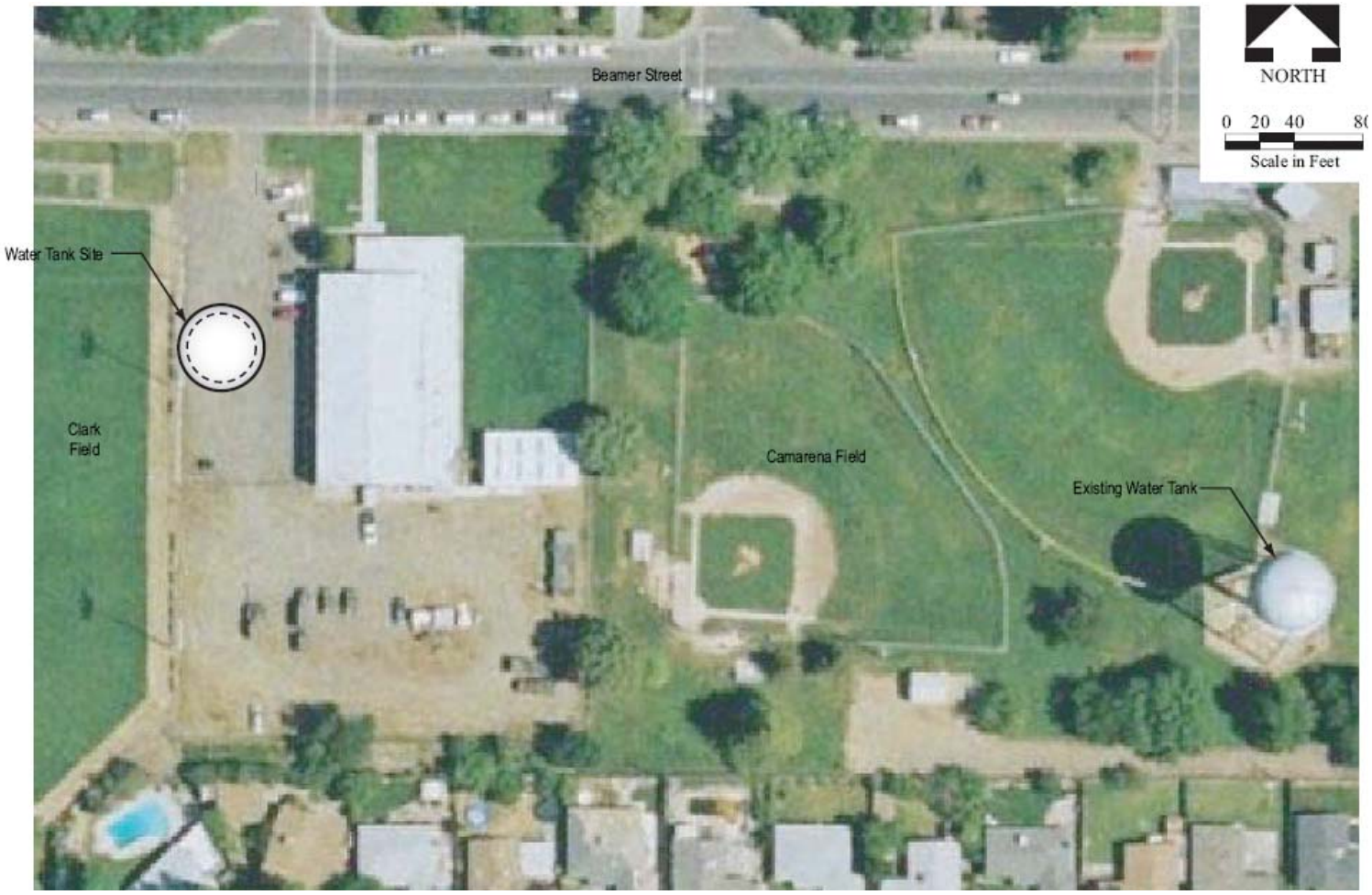
- A neighborhood public meeting is planned near the tank site at the park on May 8th from 6:30 PM to 8 PM. It will be noticed in the local newspaper and those within 500 feet of either the new or existing tank will receive an individual notice.
- The tank replacement project will be an agenda item for the May 19th Parks and Recreation Commission meeting and also for the June 5th Planning Commission meeting.

The Parks and Public Work Departments mutually recommend the location for the new tank to be in the area west or south of the Armory building (preferably on the west side). The Armory building will be removed before or after the new tank is built. The tank will be located in a manner to facilitate a planned parking lot for the park, allow for the demolition of the Armory building without affecting the tank and reduce the impacts to the adjacent ball park to the extent practicable.

Once the new tank is built, the old tank will be removed by draining it, cutting it and then removing it in sections.

A revised PPSS is needed for the tank replacement project. The current project shows funding coming from both water development funds and water enterprise funds. Public Works staff sees no basis for charging development funds since the project is replacing an existing tank. The tank's current and planned peak flow and fire flow capabilities are for the downtown area and the area surrounding the tank. Funding should be 100% from the Water Enterprise Fund and this change will be proposed in the near future.

The following aerial shows the location of the existing tank (lower right). When removed it will provide more open space for the park and ball field. Also shown is the proposed general location of the new pedesphere tank (between Clark Field and the Armory).



TWO MAIN TANK STYLES

•Multi-Column – Tank supported by multiple radial columns with water transfer piping in a center column.

•Single-Column – Tank fully supported by a single larger column that also serves to contain the water transfer piping.

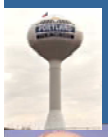
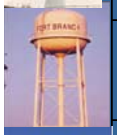
BROWN AND CALDWELL

Staff and the Infrastructure Committee both recommend the single-column pedesphere style for the following reasons:

1. Less potential for youths to try to climb the tank. The multi-column tank has cross braces to hold onto and it is easier to get on the tanks ladder even if the ladder is secured.
2. It is much easier to remove graffiti where it will likely occur on the pedesphere tank than the multi-column tank.
3. There is significantly lower annual O&M costs for the pedesphere.
4. Public Works O&M has concerns about safety and the costly repainting expense for the multi-column tanks.
5. The pedesphere has the least visual impacts especially if you are in the park.
6. Cleaner looking structure for being located in a highly utilized park setting.

Tank Cost Summary

Tank Style	Capital		O&M	Total NPV	
	Cost	$/gal		**Cost**	**$/gal**
Pedosphere	$1,200,000	$ 3.00	$ 191,661	**$ 1,391,661**	**$ 3.48**
Multi-column	$ 975,000	$ 2.44	$ 236,027	**$ 1,211,027**	**$ 3.03**
Composite	$1,180,000	$ 2.95	$ 162,274	**$ 1,342,274**	**$ 3.36**
Fluted Column/Pillar	$1,250,000	$ 3.13	$ 191,661	**$ 1,441,661**	**$ 3.60**

BROWN AND CALDWELL

NPV means Net Present Value which considers both initial capital and future O&M expenses.

For example the above tree logo without the background, another logo or just the City's name could be economically used on the tank. The logo selection will include input from the public. Tank color will be white or near white to reflect heat and keep the water as cool as possible.

Highly unique shapes and/or paintings such as those shown below significantly increase the tank's project cost and are not proposed. The City's name and/or logo would be placed on the tank.

Item 3 - 4/29/08 Attachment.
Foundational Decisions for Meter Implementation

On March 4, 2008 the Infrastructure Committee concurred in utilizing the following foundational decisions for guidance in doing our meter implementation. Staff requests that the full Council approve the following meter implementation guidelines or provide other direction to staff to allow meter implementation to proceed in a timely manner. These foundational decisions are also needed to initiate a water rate study. These guidelines include the following:

1. City will comply with State mandated requirements, i.e. post 1991 development must have consumption based water meter billings prior to 2010. The rest of the City will be metered prior to the 2025 deadline.
2. The following attachment entitled "*Water Meter – Frequently Asked Questions"* encapsulates the information that will be provided to the public and also include many of the major policies for implementing the City's water meter program. This will ultimately be posted on the City's website.
3. Metering will be implemented in two phases. Spreading out the timeline into two phases of metering was recommended by Staff and the Infrastructure Committee concurred because water rates can be kept lower by 6-10% (depends on the year) than by trying to complete all the metering by 2012.
    a. Phase 1 metering will include the metering of:
        i. Post 1991 development that is connected to our water system,
        ii. Existing metered connections for commercial and industrial users,
        iii. All remaining unmetered commercial and industrial accounts (about 135 that are still on a flat rate),
        iv. City buildings to set the example for water conservation,
        v. City parks,
        vi. City landscape areas,
        vii. Pre 1992 residences that already have a meter installed due to service line replacement or other work done in conjunction with street improvements or when other maintenance work was done, and
        viii. When a homeowner request a meter and this individual action is cost effective and practicable. This last item is new and was not presented previously to the Infrastructure Committee. We have had a couple recent requests to be metered in areas that would otherwise not be metered for several years.
    b. Phase 2 metering will be completed between 2009 and 2018. This time frame allows for lower rates now and through 2018 as compared to doing all the metering by 2012. Some Phase 2 metering will continue to be done as maintenance or in conjunction with other related street work. Most of the Phase 2 metering work will be done during the time frame of 2016 – 2018 after the proposed surface water project, should it be approved by Council, has been completed.
4. A new water rate study will be needed to establish a residential meter rate. The rate study is discussed in more detail as a separate item below.
5. The City will move to a monthly utility billing system to spread out the financial impact of paying higher water rates. Staff also believes monthly billing will help conserve water as the customer's water bills will show their water usage more frequently. This also allows the customer a more realistic

view of their actual monthly costs for water usage. Staff has found in casual conversations with our water customers that they commonly don't recognize that their current water bill is for two months. They often quote their bi-monthly rate as their 'rate' when comparing it to other jurisdiction's monthly rates.

6. All work for metering and service line replacement on the supply side of the meter will be paid for through Water Enterprise Funds.
7. Where more than one service line exists to serve a resident, the City will consolidated these multiple service lines into a single service line. This will allow for only one meter per facility/house. Since the homeowner has paid for these multiple connection this consolidation work will be done with Water Enterprise Funds. We have perhaps 200 of these multiple connection that will need to be resolved.
8. City will utilize an Automated Meter Reading (AMR) system rather than having a manual meter reading system requiring a large staff of meter readers. AMR works by having the individual meters send out a signal that will be received at 2 locations which relay them on to our Finance and PW Departments. Davis is changing to an AMR system. AMR has a significantly lower annual O&M cost that provides for a payback period in only 7-10 years. AMR also provides extensive near real time data on water use to help in our water utility plan, management and optimization.
9. Before actually billing customers for consumption, the City will endeavor to provide a few months (perhaps 6 months) of sample billings. This is intended to assist water users in adjusting their water use patterns, advise them of the likelihood of leaks in their water plumbing, and give them time to fix the leaks. The AMR system will allow us to help customers identify likely water leaks.
10. After Phase I metering when a flat rate user has a meter installed by the City (perhaps when doing a service line repair or as part of road utility work) those customer will be converted to a metered account. We plan to provide information to them on metering and conservation, but it probably will not be practicable to provide some sample billings for these mid-year connections.
11. Metering can lead to unpredictable revenue. To minimize this potential problem and to minimize the differences between those who are on flat rate vs. those on metered rate, the metered rate total will likely be based on about 70-80% base (fixed) rate and 20-30% on consumption. When we have better historical information and/or Phase II metering is complete we will ultimately change this ratio to about 30% base rate and 70% on consumption. The higher use of consumption may be mandated by the State as a qualifier for access to State funding for our water projects. To help us set accurate meter rate charges we are currently doing representative meter reading (for staff planning use only) on 69 residential meters in the Phase I areas. We will eventually read some meters in Phase 2 areas to get representative data on the old parts of the City too.
12. We have a public meeting schedule for May 5th to explain the meter implementation program. We are also sending out information fliers with the utility bills.
13. The meter implementation work is being coordinated with IS and Finance.
14. The City is planning to implement a lower rate for low-income households. A state law prohibits using Water Enterprise Funds to subsidize a group of utility users. General Funds and/or other funds will need to be used. Based on the experience of other communities the financial impact can be minimal but very important. It may be limited to $50K per year although the initial demand may be higher.
15. This last item is for information only. Finding ways to reduce peak hour demand is very important since this can significantly reduce the capital costs for supplying water. Customer education will be pursued to help reduce peak hour usage. One possible option we will look at is that with the new AMR technology staff will look into the possibly having a lower rate for consumption during off peak

hours and a higher rate for consumption during peak time (similar to electrical billing methods). If we can reduce water use during peak hours we may not have to drill a couple wells which will amount to about $5 million dollars in savings. This is another way for low-income and other customers to save some money. This option would not be initiated until we have more reliable information.

Item 4 - 4/29/08 Attachment.
City of Woodland's Water Meter Plan Frequently Asked Questions

The following list of Questions and Answers will eventually be posted on the City's website. No Council action is needed on this item. This item is provided since it reflects the implementation of many of the guidelines recommended by Staff for meter implementation. We do request comments and suggestions. Since the public may read selective portions but not all of the following material, the Q/A responses contain some repetition of information where we believe it is necessary to understand the answer to the question. The editing comments noted below are for Council to understand that some of the referenced websites are in the making but are not active at this time.

General

1. **Q: When and why must water meters be installed in Woodland?**
   A: As of January 1, 1992, a California law requires all new water service connections include the installation of water meters. In 1992, the State did not require that these meters be used for billing, just that they be installed. However, per Assembly Bill 2572, signed by Governor Schwarzenegger in September 2004, the State is requiring that water customers with meters be billed on their consumption beginning by January 1, 2010, and that by 2025 all water users located within the City's service area, be billed on consumption.

2. **Q: Do I already have a meter?**
   A: All homes and businesses built in 1992, or after, have a meter installed on the property. Most homes and businesses built prior to 1992 generally do not have a meter.

3. **Q: I recently bought my house and already have a water meter. How does this new City-wide program affect me?**
   A: State law has required the installation of water meters on all homes built since January 1, 1992. However, most presently-installed meters are only compatible with a "Touch Read" meter reading technology will need to be retrofitted.

4. **Q: What if I don't have a water meter yet?**
   A: The City is planning to complete the citywide metering within 10 years. Since 1992, state law has required water meters as part of all new construction. As a result, about a third of the homes in Woodland already have water meters. Eventually, every water customer in the city will have a water meter. Currently, there are three types of residential and commercial service conditions: 1) those who already have water meters; 2) those with meter boxes that only need a meter placed inside (meter-ready); and 3) those who do not have anything in place for metering installation (needing a full retrofit). All three of these water service conditions will need to have the radio read automated feature added or incorporated into their water meter. Meter retrofitting and installation will take place on a neighborhood-by-neighborhood basis. The order of work will provide for an orderly and efficient implementation. The complete water meter installation schedule is available on the city's Web site at **www.cityofwoodland.org**. Also, meters will be installed when it is necessary to repair or replace individual water service lines.

5. **Q: When will the City start reading the meter?**
   A: The City will begin meter reading soon after the installation in order to supply you with consumption data. The information collected will also give the City historical data for use in long-term planning as well as aiding in determining the likelihood of leaks on the customer's side of the water meter.

   Metered customers will not be billed for their consumption until January 1, 2010.

6. **Q: What are the benefits of metering?**
   A: All water service customers will benefit from water metering. Metering will help the city better manage its water supply, foster efficient water use among customers, reduce the number of costly wells, and reduce pumping and energy use. Water meters are also an efficient tool for detecting water leaks in your service line. An additional benefit is a more equitable charge for water service. Meters, along with a rate based on usage, will allow customers to pay for what they actually use. Customers can then benefit from conservation they choose to implement.

7. **Q: Will the City meter its facilities too?**
   A: Yes, the City of Woodland parks and buildings will be metered as part of Phase 1 work. Landscape medians that are already metered will be charged based on consumption as part of Phase 1 and the rest of the medians will be metered as part of Phase 2 work.

8. **Q: How can I determine how much water I am using?**
   A: For a few months prior to paying metered rates, your utility bill will show how much water you use and compare your flat rate versus the new metered rate. The purpose of providing this information to our customers is to encourage customers to enact water conservation measures that are consistent with their life style and to help in identifying leaks in their plumbing system that may need to be repaired.

9. **Q: What happens if the meter breaks? Am I responsible?**
   A: No. The City is responsible for the water service line up to, and including, the water meter and the meter box. Customers are responsible for the plumbing from the house to the water meter box. A broken water meter is generally the responsibility of the City, as it is part of the city's water system.

10. **Q: How will my meter be tracked? Will someone read my meter?**
    A: The City will use radio-read technology which allows all meters in the city to be read within a day. Data is electronically recorded and logged. While city staff will manage the meter reading, radio-read capabilities will help avoid human error and reduce the number of City employees needed for the meter reading and billing process.

11. **Q: Are other areas in the Yolo/Sacramento region being metered?**
    A: Yes. These metering requirements are statewide. Most other cities in the state, and throughout the country, have already been metering water customers for years. For example, the City of Davis began metering its customers in the mid-1990s. The City of Woodland and others in the Sacramento region are some of the last cities in the state to begin metering.

12. Q: Are there things I can do now to conserve water?

A: Yes. To help you use water more efficiently, the City has a program (We plan to add a link to the website about conservation program details for low water use plumbing fixture retrofits which aids water conservation. You can also cut back on simple things like shower length and landscape watering and wash full loads of laundry and dishes to maximize efficiency.

Especially try to minimize water usage during our water peak hour period of 5:30 AM to 8:00 AM such as scheduling your lawn watering to avoid those hours.

Click on the link below for more water conservation tips.
http://www.cityofwoodland.org/indexSub.cfm?page=768920

Billing/Costs

13. Q: How will water meters affect my utility bill?

A: The City is working to ensure that rates are the minimal required to meet our water quality and reliability standard. After a sample metered billing period, customers with meters will be charged for the amount of water that they use rather than paying a flat rate. In general, if you use a small amount of water, your bill will be less than those who use more water. The more water you use, the higher your bill will be. Most metered customers will have bills lower than flat rate bills in the winter and higher bills in the summer. We are working to make the transition to metered billing as smooth as possible. The City will try to set metered water rates so the total annual amount paid by the average meter customer is similar to that paid by the flat rate customer.

14. Q: When will I begin to be billed on a metered rate?

A: All customers with water connections installed in 1992, or after, must be billed on a metered rate by January 1, 2010. All other customers will be billed on a metered rate as soon as water meters are installed. The City anticipates all meter installations to be complete by 2018. By law, everyone in the City must be billed on a metered rate by January 1, 2025.

15. Q: How much will my metered bill be?

A: A metered rate has not yet been adopted. The City of Woodland currently has no meter rate structure for residential customers so one will need to be established. The City plans to do a water rate study during the summer of 2008. Any proposed rate change would need to go to the City Council and comply with State law (Proposition 218) in its implementation.

The City anticipates that those on the metered rate structure whom utilize modest water conservation measures will pay a similar annual total for water as those who will be still on the flat rate (who eventually will be on a metered rate structure too). In order to minimize the financial burden on the City's water customers, a water conservation program is available that can help you reduce water use and consequently lower your water bill.

Water usage may be more significant during the summer months than in the winter, so summer bills will likely be higher than those in the winter.

16. Q: Will assistance be provided to low-income water customers?

A: The City will seek low interest loans and/or grants to minimize the financial impact to all customers. To assist low-income customers, the City will endeavor to set up a low-income assistance program. The program would provide for a yet to be determined percent reduction in the monthly surcharge for qualified applicants. Information about this upcoming program will be provided in future issues of the Woodland Water News and subsequent updates to the City of Woodland's website.

17. Q: What should I do if I think the consumption recorded on my bill is inaccurate?

A: Please call the City at (530) 661-5962 to obtain more information about your water usage for the billing period and, if needed, request a meter reader come out to check the meter.

Water meters are flow tested to meet national standards before they are installed. Meters must comply with the American Water Works Association standard C700 which prevents a meter from reading higher than one percent above the actual water usage and not less than 95 percent of the actual water used. This standard puts any errors in accuracy in favor the customer. Furthermore, as meters age or wear it records less water than what is actually used which again favors the customer. To prevent excessive under recording of water usage the City replaces water meters on average every 10 -15 years.

18. Q: I have a pool. Will this cost me more money?

A: You will be billed for the amount of water that you use. With proper maintenance, pools should rarely have to be drained and refilled. To reduce the amount of water you'll need to add to your pool, use a pool cover to prevent evaporation, check for (and fix) leaks and manually clean pool filters. (We may want to allow for a lower rate during a winter month during low usage to allow for pool refilling. We just don't want homeowners filling pools during peak hour or peak day demand periods.)

19. Q: What is the difference between metered rates and flat rates?

A: Customers on a flat rate will pay one fee, regardless of the amount of water used. Those on a flat fee do not have meters so their flat rate covers both the service charge and a flat amount for the cost of consumption that depends on their lot size. The service charge is that amount which covers the cost of providing pipe lines, testing, fire hydrants, maintenance, billings and similar cost that are independent of the amount of water that is used.

Customers on metered rates will pay based on how much water they use. Their rate will include an amount for the service charge plus an amount based on actual amount of water used as recorded by the water meter.

The homeowner on a metered rate will have more monthly variation in their water bill since water usage is normally higher in the summer and lower in the winter months. Some metered customers

will pay less than the average customer if they use less water than the average customer. The City of Woodland will strive to have the total annual cost to homeowners on meters to be similar to the total annual cost of those still on a flat rate.

Metered water customers can use up to a certain amount of water (base amount to be determined) before additional costs are incurred. Once the customer exceeds the base amount, the customer will pay for the additional water based on the metered rate.

Eventually all customers will be on a metered rate.

20. Q: What is the service charge part of the metered rate?

A: The service charge is a fixed portion of metered customers' water bills. The service charge covers the City's cost of constructing and maintaining the water system so that it is always available for you to use. The water service charge applies to all users. Even if a customer doesn't use a drop of water during the billing period, the service charge will still be assessed for service connection. Your monthly metered bill is the total of the service charge and the consumption portion of you water bill.

21. Q: Is there any way to lower the service charge?

A: All residential customers will pay the same residential service charge. Some types of non-residential customers may find that downsizing their meter size is a viable alternative depending on the users flow requirements. Those desiring to change the size of their meter would pay for the cost of the work, applicable fees and the new rates associated with that size meter. Meter downsizing will lower the service charge; however it will not affect the usage rate. Based on the available water pressure the meter must be of sufficient size to meet applicable the fire flow requirements and the operational requirements of the property; and be within the operational limits of the meter.

22. Q/A: What is the automated radio read meter system and how does it works?

A: The City of Woodland is planning on using what is called an Automated Meter Reading (AMR) system to minimize the operational cost for meter reading. Years ago communities with water meters had to hire several meter readers to continually go around the city and read the meters. Today communities install AMR capable meters with transmitters that daily send out water usage information. The AMR capable meters come with small transmitters that are strong enough to send a daily signal for 20 years to a receiver mounted on antennas at existing community facilities. The data is gathered and bills are then prepared and distributed.

The Automated Meter Reading system greatly reduces staffing requirements and billing errors, increases water conservation, helps the City evaluate hourly system wide water use demands for water resource planning, and helps homeowners to identify when leaks occur.

23. Q: How much does a water meter cost?

A: When a water meter is installed during new home construction, the cost of meter installation is about $400. In a retrofit situation (where there currently is no meter) the cost is higher because the service line must be located, excavated and cut into, and meter boxes, lids, re-setters, shutoffs and

meters installed. Sometimes old service lines may need to be replaced. The average cost for a full retrofit installation is estimated to be $950. The average cost to install a meter on a meter-ready service is about $160.

24. Q: Will I be required to pay for my meter installation?

A: This meter installation project is one of several required major capital construction projects that will be paid for through the City's Water Enterprise Fund. All capital construction projects that serve existing water customers are paid for with Water Enterprise Funds. These Water Enterprise Funds are generated through the collection of water rates paid by the customers. You will not be required to pay for your meter installation unless you request a change in your meter configuration or a change that is outside the normal service provided for your property.

Installations

25. Q: Will I be notified about my meter installation or retrofit?

A: Yes. About a week prior to installations or retrofits in your neighborhood, you will receive a notification letter in the mail. You will also be notified 24 hours in advance of the meter installation or retrofit with a door hanger at your home. You will also be notified well in advance of when you will start paying for water service based on how much water you use.

26. Q: Will my landscaping or property be impacted by meter installations or retrofits?

A: No. If you already have a meter box and your landscaping is not covering or obstructing the meter box your landscape should remain in the same condition as found. However, any landscape covering and/or obstructing access to the meter box will need to be removed by the property owner. (Article VII Sec.23C-7-10.C --- "obstructing access to a water facility prohibited") The water meter and meter box is city property and must be accessible to city staff for any maintenance needed to city property. If necessary this work will be done by City contractors who will photograph any landscaping that will be affected prior to beginning any work and again when the work is completed to ensure successful landscape restoration on your property.

If you do not have a meter box or your service line to the street needs to be replaced some disturbance may occur. All reasonable efforts will be made to restore the site to its previous condition. Work crews will make every effort to keep the impact on landscaping to a minimum and affected landscaping will be returned to its original condition. City contractors will photograph landscaping prior to beginning any work and again when the work is completed to ensure successful landscape restoration on your property at the meter box location.

27. Q: What can we do to help things work smoothly and reduce operational costs?

A: Please participate in public meetings and provide us your thoughts on how we can collectively enact the best meter implementation plan possible. It is more than us just complying with the law – it's our community and we want to do it in a positive interactive manner.

We ask that those with water meter boxes (marked with "WATER" on them) please keep the surface of them uncovered, generally clean and accessible. When new meter boxes and the

automated radio system are installed it will be necessary to also keep them uncovered, generally clean and accessible. The automated radio read water meter box cover will look the same as the existing conventional meter box except it will have a transmitter located on it which looks like a 4 inch wide by ½ inch high black button on it. It is important that this transmitter "button" be kept uncovered so it works properly which will help keep citywide operational cost to a minimum. We appreciate your help.

28. Q: How long will the installation take? How long will a retrofit take?

A: Typical installation time is approximately 4 hours. A simple retrofit may take as little as twenty minutes, while more complicated retrofits may take significantly longer than 4 hours.

29. Q: Do I need to be home during the installation?

A: No. Customers do not need to be home during the install. About a week prior to installations or retrofits in your neighborhood, you will receive a notification letter in the mail. You will also be notified 24 hours in advance of the meter installation or retrofit with a door hanger at your home or business.

30. Q: Where is my meter/meter box located?

A: Your meter/meter box is located on your property either in the front yard, driveway, park strip, or walkway. The meter is inside the meter box below ground level.

31. Q: How is the location of the meter determined?

A: Installation of the meter will be in the same vicinity of your existing water service line and generally near the sidewalk. Conditions may arise that prevent the meter from being installed in the same spot as the service line such as trees and retaining walls. Efforts will be made to keep the meter as close as possible to the original water service line.

32. Q: Will the water pressure or flow go down after the meter is installed?

A: The meter is sized large enough that the water pressure is not noticeably affected. Due to the configuration of the meter, a minimal amount of pressure is lost. The City of Woodland is taking steps to improve citywide water pressure that will more than offset any possible pressure loss due to the water flowing through the water meter. You will also retain the same approximate flow capability of water through the meter as you currently have.

For additional questions, please contact utilities engineering at 530-661-5962.

Item 5 - 4/29/08 Attachment.
Guidelines for Preparing a Water Rate Study

We request that Council review and concur, or provide other guidance for the following criteria in preparing the 2008 Water Rate Study.

A water rate study is required to provide a rate for residential metering, establish equity between all rates users, and evaluate the long-term financial cash flow requirements for sustaining a reliable water supply system. Significant information relating to anticipated rate increases was completed as part of the surface water California Environmental Quality Act (CEQA) process and was presented to Council in November of 2007. To reduce cost for preparing the rate study and to avoid duplication of prior work we will utilize the same consultant for our water rate study that prepared the work to date on the surface water project.

The water rate study would likely be completed during summer of 2008. Council will need to evaluate the results of the rate study and adopt a water rate study in the fall of 2008. It is anticipated that the Prop 218 process would be completed and new residential meter rate by early 2009. This schedule is important as we need time to work out our processes for initiating the Automatic Meter Reading system and to have enough time to provide sample billing to customers with new meters.

The following criteria will be used to guide the completion of the water rate study.

1. The water rate study will look at the Capital Improvement Plan for water and establish options and conditions for determining residential meter rates.
2. "Pay as you go", bonding, or a combination of both will be considered for the long-term financial planning to handle the unusually large capital requirements.
3. The use of water revenue bond(s) and other municipal financing options will be evaluated.
4. The number and timing of bonds issued will consider factors such as capital cash flow requirements, cost of issuance of each bond, and interest costs on unused portions of bonds.
5. The rate study will cover long-term financial planning for all needed expenditures such as capital, debt repayment, operations and maintenance (O&M), and other costs paid for by the Water Enterprise Fund. The rate study will cover water system liabilities for the next 10 years.
6. Financial planning will be done in a manner to keep the surface water project option open for future Council consideration.
7. The water rate study will be based on delaying Phase 2 metering since previous studies have shown that this approach will result in significantly lower water rates over the next 15 years. However, some Phase 2 metering will be done on the heels of Phase 1 metering at opportune times, i.e. during street work or water line repair work, but most of it will be done after the proposed surface water project, is completed in 2016 (providing Council approves the project and its related Prop 218 process) when cash flow is more favorable.
8. Rate analysis work done to date as part of the Surface Water CEQA process indicates that with or without a surface water project the water rates will need to go up approximately 19% per year each year through 2012. With the anticipated surface water project, the water rate increase would continue at about 19% per year through the year 2016.

9. The water rate study will evaluate both short-term and long-term water revenue requirements to assure a sustainable and reliable water supply and conveyance systems through the year 2020. O&M, Capitol Improvement Projects (CIP), and other requirements will be evaluated.
10. The water rate study and proposed rates will:
    a. Sustain existing facilities.
    b. Sustain existing facilities needed to work collectively with the proposed surface water supply project.
    c. Project needed revenues from rates, bond proceeds and other non-rate sources.
    d. The water rate study will also recommend annual water rate increases that:
        i. Maintain a positive fund balance during the study period;
        ii. Maintain a debt coverage ratio of 1.25 or better;
        iii. Yield a FY 19/20 ending fund balance equivalent to the FY 06/07 fund balance in escalated dollars;
        iv. Provide for improved water quality or at least keeps that option open for future implementation.
        v. Minimize rate increases; and
        vi. Spread out rate increases over time to keep each increase less than 20%/yr.
11. When completed, the water rate study and requests for bonds will come back to Council for subsequent authorization and approvals.
12. To allow the CIP water projects to move forward, an initial bond will be issued in September of 2008 for $12 million to handle capital water projects planned over the next couple years.
13. The City of Woodland will convert to a monthly billing cycle by 1/1/10 when the new residential meter rates take effect. This will be done to help spread out the financial impact of paying for higher City utilities rates.

    The current CIP for Water Enterprise Fund is shown below. This CIP will be continually refined as more information is gathered on our groundwater conditions, as near failure events occur with our individual wells, and additional studies are completed.

2008 Water Capital Improvement Program

MPFP	Capital Items	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Wtr-1	Standby Power @ Well #21		$140,000										
Wtr-2	Telemetry System/SCADA (ONLY 2/3 of costs shown on this line)	$320,000	$80,000	$440,000									
Wtr-13	Update Water System Master Plan (cost shown below)		$0										
Wtr-100	Upgrade Well-site Control Panels (CEC work did most of this)		$100,000										
Wtr-101	Implement a Water Audit and Leak Detection Program			$150,000	$150,000								
Wtr-102	Construct a Chlorine Containment System		$35,000										
Wtr-103	Development of an Electricity Purchasing Plan		$15,000										
Wtr-105	Repair and install Backflow Preventers at Five City Parks		$20,000										
Wtr-106	Install Water Meters at Eight City Parks		$35,000										
Wtr-107	Complete an Hydraulic Analysis of the Water Tank (in tank replacement)		$0										
Wtr-108	Re-Coat Interior Surface of the Water Tank (tank being replaced)		$0										
Wtr-109	Complete seismic Retrofit of the Water Tank (tank being replaced)		$0										
Wtr-111	Eliminate Pipeline Looping Deficiencies			$200,000	$200,000								
Wtr-112	Complete a Source Water Vulnerability Assessment		$20,000										
Wtr-113	Prepare Water Service Rate Study (will be phase with meter imp. planning)	$45,000											
Wtr-119	Construct Well 1 Improvements		$50,000										
Wtr-120	Construct Well 4 Improvements		$45,000										
Wtr-121	Construct Well 5 Improvements		$75,000										
Wtr-122	Abandon and Destroy Well 7		$0										
Wtr-123	Prepare Assessment of Well 9 (well to be destroyed)		$35,000										
Wtr-124	Construct Well 10 Improvements (done)		$0										
Wtr-125	Construct Well 11 Improvements (done)		$0										
Wtr-126	Construct Well 12 Improvements		$40,000										
Wtr-127	Construct Well 13 Improvements (done)		$0										
Wtr-128	Upgrade Standby Power at Well 14 (only if well not replaced)		$80,000										
Wtr-129	Construct Well 17 Improvements (done)		$0										
Wtr-134	Implement a Scheduled Valve Exercising Program		$50,000	$75,000	$75,000	$75,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$0
Wtr-135	Develop an In-lieu Groundwater Recharge Program (now not planned)		$0										
Project Subtotal		**$365,000**	**$840,000**	**$865,000**	**$425,000**	**$75,000**	**$100,000**	**$100,000**	**$100,000**	**$100,000**	**$100,000**	**$100,000**	**$0**
On-going Replacement projects													
Wtr-114	Upgrade Galvanized Pipe Water Services				$700,000	$700,000	$700,000	$700,000	$700,000	$700,000	$700,000	$700,000	$700,000
Wtr-115	Rehabilitate Unlined Cast Iron Water Pipe (200k is now in street work below)		$0	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Wtr-116	Eliminate 2 and 3" Water Service Lines		$0		$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$0
Wtr-136	Groundwater Supply Well Replacement (SEE PROJECTS BELOW)		$0										
Wtr-137	Water System Street & Maintenance Repair & Upgrades	$150,000	$150,000	$175,000	$175,000	$200,000	$200,000	$200,000	$200,000	$250,000	$250,000	$250,000	$250,000
Subtotal replacements		**$150,000**	**$150,000**	**$375,000**	**$1,200,000**	**$1,225,000**	**$1,225,000**	**$1,225,000**	**$1,225,000**	**$1,275,000**	**$1,275,000**	**$1,275,000**	**$1,150,000**
Total Cost For Projects Listed In The Bartle Wells Rate Study		**$515,000**	**$990,000**	**$1,240,000**	**$1,625,000**	**$1,300,000**	**$1,325,000**	**$1,325,000**	**$1,325,000**	**$1,375,000**	**$1,375,000**	**$1,375,000**	**$1,150,000**
Additional Repair and Replace Water Projects Not Listed In The BW Study		**07/08**	**08/09**	**09/10**	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**	**15/16**	**16/17**	**17/18**	**18/19**
New/tbd	Add Standby Power to two wells in addition to Well 21		$240,000										
New/tbd	Install multi zone sampling/monitoring wells		330,000										
New/tbd	Modify well casing to reduce nitrate level and extend well's usefull life		240,000			120,000				120,000			120,000
00-53	GIS database												
03-07	03-07 Beamer Park (water utility work)	$51,000											
in-progr	00-04 Lemon North	$119,000	$250,000										
07-51	Meter Implementation Plan	$150,000	$0										
07-49	Elevated Water Tank No. 1 Replacement (2/3 Enterprise see development below)	$450,000	$2,050,000										
07-50	Water Focus Study												
New/tbd	Replace Wells 4, 5, 13, 14 and 16(All new but use existing site)		$1,400,000	$3,600,000			$700,000	$1,800,000					
07-47	Replace Wells 22 (new hole but reuse rehabed pump, generators,retain most equipment)			$1,100,000									
New/tbd	Distroy Old Wells Wells and restore site		$180,000		$120,000		$60,000		$60,000	$60,000			
New/tbd	New Tank No. 2 -- Replace well capacity from Wells 6, 9 and 10		$600,000	$2,100,000	$2,000,000								
New/tbd	New Tank No. 3 -- Replace well capacity from Wells 11, 12 and 15							$600,000	$2,100,000	$2,000,000			
08-08	Meter Installation for year 2010 mandated	$200,000	$2,300,000	$1,300,000									
New/tbd	Citywide Meter Installation for year 2025 mandated				$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$2,400,000	$2,400,000	$2,400,000
Total Cost For Work Not Listed In The Bartle Wells Rate Study		**$970,000**	**$7,590,000**	**$8,100,000**	**$2,420,000**	**$420,000**	**$1,060,000**	**$2,700,000**	**$2,460,000**	**$2,480,000**	**$2,400,000**	**$2,400,000**	**$2,520,000**
TOTAL OF ALL ENTERPRISE FUNDED CIP		**$1,485,000**	**$8,580,000**	**$9,340,000**	**$4,045,000**	**$1,720,000**	**$2,385,000**	**$4,025,000**	**$3,785,000**	**$3,855,000**	**$3,775,000**	**$3,775,000**	**$3,670,000**

Item 6 - 4/29/08 Attachment.
State RWQCB letter dated 3/13/08

We received a letter from the State Regional Water Quality Control Board (RWQCB) dated 3/13/08. This letter from the RWQCB requires no Council action. It is provided so that we can better understand what our State wastewater treatment limits will likely be in our future Discharge Permit renewals. We believe that an improved water quality supply will be needed in the future to comply with this anticipated stricter discharge limits.
The letter from the RWQCB was a response to their review of a study we submitted to them in May of 2006 entitled, "City of Woodland Water Pollution Control Facility Site-Specific Criteria Study For Agricultural Beneficial Uses" (hereafter referred to as the EC Study). Electrical Conductivity (EC) is a measurement of salt concentration. The EC Study looked at the impacts of Woodland's wastewater effluent salts and boron on agriculture. The EC Study was done both because it was required by the State and also in hopes that the City of Woodland would be able to justify more favorable future discharge limits for boron and EC.

The State RWQCB rejected the conclusions and methodology used in our EC Study. The State indicated that "In the absence of an approved site-specific study … "staff would use currently published accepted studies that have effluent limits of EC and boron 700 ppb." Those limits far exceed our current wastewater discharge levels and even exceed the concentrations in our groundwater wells. In simple terms this means that if we discharged our well/drinking water directly into the Tule Canal, where our wastewater is discharged, that water would not meet the proposed State standards unless we mixed it with higher quality surface water supplies.

The City of Davis is also working with the Regional Board to obtain more favorable limits for EC, Boron and Selenium. City staff will work with City of Davis to pool efforts, resources and information to address this issue. City staff will also continue to work on securing our 1994 groundwater permit, secure various other discharge permits, and do other related pre-design work to ensure the long-term functioning of our water system.

Our consultants are not optimistic of getting significant effluent limit relief that would allow us to met future permit requirements with our current groundwater supply.

The most economical way of meeting the State's limits for EC and boron is to have an improved water quality supply, i.e. heavily utilize surface water (the Sacramento River) for future water supplies.

The following chart shows the differences between the State requirements for our wastewater discharge, our current discharge levels, groundwater constituent levels, and the constituent levels in the Sacramento River for EC, boron and selenium.

Constituent	**Likely State Limit (State letter 3/13/08)**	**Current Wastewater Discharge Concentration RANGE**	**Concentration in our Groundwater RANGE**	**Concentration in our Groundwater AVERAGE**	**Concentration in the Sacramento River AVERAGE**
EC	700umhos/cm	1,350 – 1,650 umhos/cm	790-1000 umhos/cm	937 umhos/cm	163 umhos/cm
Boron	700 ppb	2,100-3,000 ppb	1,400-2,300 ppb	1,835 ppb	Less than 100 ppb
Selenium	4.4 ppb	4.2 ppb		8.1 ppb	Less than 0.05 ppb

Item 7 - 4/29/08 Attachment.
New Well No. 25 at Gibson and Ashley Status Report

The following is an update on the status of the proposed new Well No. 25 at Gibson and Ashley. No Council action is needed. This information is provided to better understand the problems we are facing in doing well renovation and replacement work.

Due to the nitrate problems within the City this well will not be drilled until we have more information on the geology and water quality of the water bearing zones that are anticipated to be utilized. We are in the process of drilling a monitoring well that will allow us to test the water quality at various depths and aquifers. Likewise a test well would be drilled before a production well is drilled. We anticipate a well to be operational by 2009.

The reasons this location was selected are:

1. A water production facility is needed in this general area to improve water pressure in the southwest part of the City. Additional pumping capacity will assist in stabilizing and improving pressure.
2. The existing water pipelines in the area are generally sufficiently large enough to be able to convey the production water pumped from this site.
3. Three phase power is available at this site.
4. This site meets the setback requirements from other existing buildings, sewer and storm drain pipes.
5. Finding a new well location in this part of the City is difficult due to it being fully developed.
6. This site is City owned and meets other site requirements.
7. The pond and/or Farmers Central Canal can handle the pump to waste water that would be produced during the well pump development phase of well drilling. If this capability does not exist the cost of drilling a new well is greatly increased.
8. We get better asset management of our production resources with a mix of both old and new wells distributed throughout the City.
9. Mitigation measures are feasible for this site.
10. Other City's have successfully incorporated water wells in residential areas with appropriate design considerations.

A well at this site would include a neighborhood meeting. As this is a residential area, staff recognizes that the following would be serious concerns that need to be addressed:

1. Noise:

All improvements will be contained in the building so that outside noise will be negligible. Short-term construction noise and lighting will be reduced by using 24 foot high sound panels. Construction noise and lighting will occur to some degree as some drilling process has to go on 24 hours a day for about a week. A multi-zone sampling well will also be drilled to provide information on nitrate trends.

2. Lighting:
Security lighting level will be similar to what currently exists and will be directed away from residences.

3. Impacting a park-like facility:
The well pump building will be located on the eastern side of the site. Well site will have architecture and landscaping improvements to minimize environmental effects. New trees and landscaping will be provided and the project will provide some amenities such as new concrete benches. Earthwork filling and hard surface areas will be minimized. Fencing would comprise of wrought iron rods. The project may also include a low water use landscaping demonstration area. New trees and landscaping will be provided to reduce visual impacts of building. Existing trees will be protected to the extent possible and more trees will be planted than the 3 that may need to be removed. Building will likely be a brick wall, low profile building with a hip roof.

4. Storm Drain Impact:
The automation of the Gibson and Ashley SD gate facility will more than offset the minor loss of SD pond storage area that will be lost due to the partial earth fill needed for the well pump building.

Anticipated location for Well 25 is shown below. Utility setback requirements for the well hole limit our site layout options. The building will be located as far away from homes as possible. Building has been shifted towards Ashley to minimize impacts to open space and residences.