

REPORT TO MAYOR AND CITY COUNCIL

AGENDA ITEM

TO: THE HONORABLE MAYOR
AND CITY COUNCIL

DATE: March 15, 2011

SUBJECT: Adoption of the Groundwater Management Plan

Report in Brief

The proposed Groundwater Management Plan (GWMP) addresses measures to monitor and manage groundwater within the service area of the City including: groundwater quality degradation, land surface subsidence, and changes in surface water flow and surface water quality that directly affect the City's groundwater levels or quality or are caused by groundwater pumping in the basin.

This item came before the City Council at the March 1 meeting. The Council conducted a Public Hearing and introduced the ordinance by waiving the first reading and reading by title only. Comments regarding the proposed ordinance were received from Christine Casey, chair of the Water Rate Advisory Committee; these comments have been addressed through a letter from West Yost Associates included as Exhibit 2.

Staff recommends that the City Council adopt Ordinance No. _____, adopting the GWMP which, under SB 1938, establishes the framework for working cooperatively with local agencies in managing local groundwater resources and establishes grant funding eligibility for construction and groundwater projects administered by the California Department of Water Resources. The preparation and adoption of the GWMP are statutorily and categorically exempt under the California Environmental Quality Act ("CEQA," Pub. Res. Code, § 21000 et seq.).

Background

The GWMP has been prepared in order to comply with three pieces of legislation (AB 3030, SB 1938, and SB 1672) which encourage local agencies to prepare groundwater management plans, require certain components to be included, and encourage regional cooperation between public agencies in managing groundwater. The GWMP provides the framework for coordinating groundwater management activities among stakeholders. The plan identifies the basin management goals and objectives needed to guide efforts to effectively manage the groundwater basin as a safe and sustainable water supply. Staff has included the Executive Summary as Exhibit A.

On March 1, the City Council conducted a Public Hearing and introduced the ordinance. Christine Casey, chair of the Water Rate Advisory Committee, presented comments regarding the GWMP and requested a response. These comments focused on the need for a strong conservation plan, actions necessary to educate citizens regarding water quality, improved system management and the need for the GWMP to include an Executive Summary. Staff has worked with West Yost Associates to provide a complete response to Ms. Casey's comments which is included as Exhibit 2. The response references sections of the GWMP as well as other water resource management documents that address these very important issues.

Discussion

The City of Woodland currently relies entirely on groundwater obtained from twenty wells located throughout the City. The decline in the quality of the groundwater and new regulatory requirements are requiring the City to plan to partially shift its source of potable water from groundwater to surface water. The GWMP addresses how to manage the groundwater in light of this shift and will also qualify the City for grant funding opportunities administered by the State Water Resources Control Board and other state agencies.

Fiscal Impact

There are no costs associated with the adoption of this GWMP. The cost of developing the GWMP was budgeted in the Public Works Operations and Maintenance fiscal year 2007/2008. Fiscal impacts have been identified in connection with potential implementation of groundwater management activities. If grant funding is pursued and received, the amount can be used to offset the cost of implementation of these water management activities.

Public Contact

The first draft of the GWMP was circulated in early December 2010 for public comment. Comments were received and have been previously addressed by staff. A notice for the public hearing conducted on March 1st was published in the Woodland Daily Democrat on February 9 and 16, 2011 pursuant to section 10753.5 of the Water Code, and further notice was published pursuant to section 6066 of the Government Code. A copy of the GWMP is available at the Library, Public Works Department, the City Manager's Office, and can be currently found online at:

www.cityofwoodland.org.

As stated previously, a response has been provided to the comments received from Christine Casey as a representative of the Water Rates Advisory Committee (WRAC). The response is included as Exhibit 2.

CEQA Compliance

If approved, the GWMP would entail a discretionary action by the City. However, the GWMP is exempt from review pursuant to CEQA under multiple exemptions, including the following:

The GWMP is statutorily exempt under California Code of Regulations, title 14 (“State CEQA Guidelines”), section 15262, because it entails identification of best management objectives, identification of potential natural recharge areas, management and optimization of well field operations, and identification and feasibility study of potential conjunctive use projects, and therefore entails feasibility and planning studies. The GWMP includes the consideration of environmental factors, including the impacts of global climate change.

It is categorically exempt under the State CEQA Guidelines section 15306 exemption for information collection, because it entails monitoring of groundwater quality and quantities within the basin and development of monitoring protocols, and will have no serious or major disturbance of any environmental resource. While well rehabilitation/blending, the installation of groundwater monitoring wells, a new ground level tank project, and surface water projects are discussed, these actions are not part of the GWMP. Instead, they entail past activities that have already been the subject of CEQA review, or possible future activities that are currently only speculative, but, once identified, are separate projects that will be the subject of appropriate CEQA review.

The GWMP is also categorically exempt under State CEQA Guidelines section 15307 exemption for activities taken to maintain, restore, or enhance a natural resource and section 15308 exemption for activities taken to assure the maintenance, restoration, enhancement, or protection of the environment, because the GWMP’s purpose is to create a monitoring program, groundwater sustainability, groundwater protection, and planning integration.

In order to protect and enhance the environment and the natural resources of groundwater and surface water, the GWMP creates Basin Management Objectives and a program for monitoring and managing the basin’s groundwater levels and preventing groundwater quality degradation, inelastic land subsidence, and changes in surface water flow and quality that directly affect groundwater levels or quality or that are caused by groundwater pumping in the basin. It also includes monitoring protocols designed to detect such changes, such that a net benefit to basin groundwater users will result. It describes potential future groundwater management actions that could be implemented in order to develop integrated regional solutions for water management and to coordinate conjunctive management of surface and groundwater to improve regional supply, reliability, and quality of water.

The GWMP does not include construction activities or relaxation of environmental standards, and no expansion of capacity will be created by the steps taken to manage groundwater. There is no possibility that implementation of the GWMP may cause a direct physical change in the environment, a reasonably foreseeable indirect physical change in the environment, or a significant impact on the environment.

Alternative Courses of Action

1. Adopt Ordinance No. _____, adopting the GWMP which, under SB 1938, establishes the framework for working cooperatively with local agencies in managing local groundwater resources and establishes grant funding eligibility for construction and groundwater projects administered by the California Department of Water Resources. The preparation and adoption of the GWMP are statutorily and categorically exempt under the California Environmental Quality Act (“CEQA,” Pub. Res. Code, § 21000 et seq.).
2. Do not to adopt this GWMP and give direction to staff on changes to be made to the GWMP.

Recommendation for Action

Staff recommends that the City Council approve Alternative No.1.

Prepared by: Akin Okupe
Senior Civil Engineer

Reviewed by: Doug Baxter
Principal Civil Engineer

Reviewed by: Greg Meyer
Director of Public Works

Mark G. Deven
City Manager

Attachments: Exhibit 1 – Executive Summary
Exhibit 2 – Response to WRAC Comments.

GROUND WATER MANAGEMENT PLAN

EXECUTIVE SUMMARY



The City of Woodland (City) adopted a resolution to prepare this groundwater management plan (GWMP) on June 1, 2010, pursuant to Sections 10750 *et. seq.* of the California Water Code (CWC).

This GWMP was developed in coordination with the other local agencies with adopted plans and other basin stakeholders. This plan will be administered by the City Director of Public Works with consideration of the recommendations of an advisory committee made up of members of the Water Resources Association of Yolo County (WRA) Technical Committee, which includes staff representation from the City of Woodland.

The City intends to work cooperatively with other local agencies to manage water resources in the basin. This GWMP is one of several planning documents that will support the City's efforts. In an effort to better manage groundwater resources, local agencies in the vicinity of the City have adopted and are implementing the GWMP, Urban Water Management Plans (UWMP), and Integrated Regional Water Management Plans (IRWMP). The City is an active agency member of the WRA. The WRA, in cooperation with federal, state, and local agencies, developed an IRWMP intended to identify and describe water supply projects, address flood management, protect water quality, enhance aquatic and riparian habitat, and improve recreational opportunities (WRA, 2007). The writing of the IRWMP led to close collaborative ties between City, County, and State agencies, local water resource agencies, and community organizations. The City is also a member of the Westside Regional Water Management Group (RWMG), which consists of public agencies in Yolo, Solano, Lake, Colusa, and Napa Counties. The Westside RWMG is preparing the Westside IRWMP, which will constitute an integrated Water Management Plan for the Cache and Putah Creek watersheds. The Westside IWRMP is scheduled to be completed in 2016.

Public participation was sought during the development of this plan, and this final version of the GWMP reflects input received from members of the public. Key areas were climate change and plan implementation. Input was sought through the plan's public outreach process. Comments were received in writing, and the City worked with the individual commenters to develop appropriate responses to the comments and revisions to the GWMP. The public comments and City responses are documented in the GWMP.

ES.1 AUTHORITY

The CWC provides the City's authority to adopt this GWMP. The City overlies the Yolo Groundwater Sub-basin and provides water service within its service area. The City is a local agency pursuant to CWC Section 10752 (g). The City is authorized to adopt this GWMP as provided in CWC Section 10753 (a).

ES.2 PURPOSE OF THE GROUNDWATER MANAGEMENT PLAN

The City relies on groundwater to meet the water demands of its customers. The purpose of this GWMP is to:

1. State the City's overall groundwater management goal;
2. Put forth Basin Management Objectives (BMO) applicable to the City service area;
3. Provide a mechanism for the continued collection of baseline groundwater and aquifer information; and
4. Establish management actions, including provisions for updating the plan as conditions change and new information becomes available.

The City is located in the Yolo Sub-basin (Sub-basin 5-21.67) of the Sacramento Valley Groundwater Basin as defined in the California Department of Water Resources (DWR) Bulletin 118 update (DWR, 2003). Figure ES-1 shows the location of the City in relation to the boundaries of other local agencies overlying the groundwater basin. The Yolo Sub-basin is bounded by Cache Creek on the north; the Sacramento River on the east; Putah Creek on the south; and the Coast Range on the west (DWR, 2004). This plan covers the City service area.

ES.3 OVERALL GROUNDWATER MANAGEMENT GOAL

The City's overall groundwater management goal is to work cooperatively with basin stakeholders and the public to maintain a sustainable, reliable, high-quality groundwater supply for beneficial use in the City service area and surrounding areas (Figure ES-2).

ES.4 BASIN MANAGEMENT OBJECTIVES

BMOs were developed to support the City's overall groundwater management goal. BMOs were established to address the following five areas:

- Groundwater quality
- Groundwater elevations
- Inelastic land subsidence
- Adverse impacts to surface water flows and surface water quality due to groundwater pumping
- Adverse impacts to groundwater levels and groundwater quality due to changes in surface water flow or quality

BMO-01 – Protect and maintain groundwater quality within the City service area for the benefit of basin groundwater users. Groundwater within the City's service area is affected by nonpoint sources of nitrate and salts, and localized point sources of anthropogenic contaminants. Naturally occurring contaminants, resulting from dissolution of minerals comprising the aquifer skeleton, also affect groundwater quality. The City's objective is to minimize the impact of these contaminants at the locations of individual municipal wells within its service area, and to support stakeholder efforts to protect beneficial uses in the groundwater sub-basin from adverse impacts to groundwater quality.

The City analyzes groundwater quality samples from its active production wells to comply with applicable standards in Title 22 of the CWC. The Department of Public Health (DPH) Title 22 program specifies the constituents to be tested, the detection limits for these constituents and reporting requirements. Sampling is conducted annually in a subset of the active wells such that each well is sampled on a three-year rotating cycle. Compliance with drinking water standards is a primary objective for the City. The City also uses the groundwater quality results to assess potential impacts to the municipal wastewater treatment plant, which is regulated under a Central Valley Regional Water Quality Control Board Waste Discharge Requirements Order. The primary constituents of concern for the wastewater discharge are selenium, boron and total dissolved solids (TDS). The water quality results will be evaluated on the same annual cycle under which the wells are sampled, such that each well will be evaluated every three years when new sample results are available. Temporal trends in the concentration of each constituent will be evaluated using a three-sample moving average comprised of the three most recent historical sample results for each well. Any increase in the concentration of a constituent of 20 percent or greater relative to the three-sample moving average will trigger evaluation of the need for potential actions, including:

- Consideration of possible agricultural and landscaping best management practices that could help control nitrate, nutrient and salt loading to the groundwater basin
- Additional monitoring, potentially on a more frequent basis
- Operational modifications affecting the pumping schedule and rate
- Well modifications to adjust the depth of pumping or seal zones with inferior water quality
- Well destruction, with possible replacement with a new well
- Replacement with a surface water supply
- Wellhead treatment, if feasible
- Destruction of abandoned wells

BMO-02 – Maintain groundwater elevations that result in a net benefit to basin groundwater users. Groundwater in the Yolo Sub-basin is used for municipal, domestic and agricultural supply. The City recognizes the need to support all of these uses. The City’s objective is to work cooperatively with stakeholders to maintain groundwater levels at elevations that economically meet the City’s municipal supply needs within its service area, and stakeholder needs for irrigation, domestic and industrial supply in surrounding areas of the sub-basin.

The City measures static water levels in its production wells on a monthly basis and uses the information to assess trends in groundwater levels. Historical data are available from 1976 through the present. This record encompasses significant variations in hydrology, including the 1976-1977, 1988-1992 and 2007-2009 droughts. Reductions in groundwater levels affect well capacity. Typically, the July-August timeframe is the most critical time of year because groundwater levels are near their annual minimum, and demands are near their maximum. Under dry conditions, the July and August groundwater levels could decline to a degree that potentially affects the City’s well capacity. The monthly static groundwater levels will be compared to historical results to assess the potential need for management actions. Emphasis will be placed on evaluating April through June static

groundwater levels, because groundwater levels typically reach their maximum in April. Significant reductions in April through June static groundwater levels may indicate the need for actions to mitigate reductions in well capacity caused by very low groundwater levels in July and August. Historically low groundwater levels occurred in 1977 and 1991. The lowest recorded measurements for the months of April through June occurred in 1977. The need for potential actions will be considered when April through June groundwater levels decline to levels that are within 25 percent of the April through June 1977 groundwater levels. Potential actions include:

- Outreach to encourage conservation
- Operational modifications to reduce reliance on wells most affected by groundwater level declines
- Construction of additional wells
- Use of surface water supplies

BMO-03 – Minimize the risk of future significant impact due to inelastic land subsidence.

Inelastic land subsidence resulting from groundwater withdrawal has had significant consequences in the Yolo Groundwater Sub-basin. The risk of future significant impacts depends on a complex array of variables including: the degree of new groundwater development, especially in areas or at depths not previously exploited; changing land use, which could bring to light an impact that would otherwise go unnoticed; and the mineral composition of the aquifer skeleton, and its consolidation history. The City's objective is to prevent or minimize future impacts that may result from increased rates of inelastic land subsidence in and around its service area by continuing to cooperate with other stakeholders to monitor rates of inelastic land subsidence using the Yolo Subsidence Network.

Rates of inelastic land subsidence are being established by the WRA's Yolo Subsidence Monitoring Project. At present, data are insufficient to establish significance criteria for rates of inelastic land subsidence in the Woodland area. The City will participate in future surveys of the Yolo Subsidence Network and will evaluate the results with other members of the WRA.

BMO-04 – Protect against the risk of impacts to surface water flows and quality caused by groundwater pumping.

The City currently does not use surface water, and there are no surface water flows within or adjacent to the City's service area. However, the City recognizes that the importance of protecting against impacts to surface water flows and surface water quality in the watershed. The City's objective is to work with basin stakeholders during integrated regional water management planning efforts to select alternatives that minimize the potential impacts to surface water flows and surface water quality caused by groundwater pumping.

BMO-05 – Protect against the risk of impacts to groundwater levels or groundwater quality caused by changes in surface water flows or surface water quality. Surface water deliveries are an important source of groundwater recharge in the Yolo Groundwater Sub-basin. Modeling studies indicate that, in the Central Valley as a whole, irrigation returns account for about 80 percent of the groundwater recharge on average (Williamson, et. al., 1989). Changes in the quantity of surface water delivered to the basin may affect both groundwater levels and groundwater quality. Changes in the sources of surface water may affect groundwater quality. The City’s objective is to work cooperatively with basin stakeholders during integrated regional water management planning efforts to select water supply alternatives that minimize the potential impacts to groundwater flows and groundwater quality caused by changes in surface water flows or surface water quality.

ES.5 GROUNDWATER MANAGEMENT PLAN COMPONENTS

The BMOs are linked to management actions that are planned or triggered to attain the BMOs and overall groundwater management goal (Figure ES-1). Management actions are addressed under the six components of the GWMP:

- Agency Coordination, Stakeholder Involvement and Public Outreach
- Monitoring Program
- Groundwater Sustainability
- Adaptive Management and Mitigation in Response to Climate Change
- Groundwater Protection
- Planning Integration

Each component of the GWMP addresses related groundwater management subject matter and recommended actions. For example, the monitoring program component addresses the related topics of groundwater elevation monitoring; groundwater quality monitoring; land subsidence monitoring; groundwater-surface water interaction monitoring; and data management, quality assurance and quality control. The groundwater protection component addresses well construction and destruction policies, wellhead protection policies, protection of recharge areas, management of sources of groundwater contamination, and control of saline water intrusion.

ES.6 ADVISORY COMMITTEE FORMATION

The Advisory Committee for this GWMP is comprised of the WRA Technical Committee, which includes representation by City of Woodland staff. The City plans to continue to designate City representatives to the WRA Technical Committee and Advisory Committee during implementation of this GWMP.



ES.7 ANNUAL GROUNDWATER MANAGEMENT REPORT

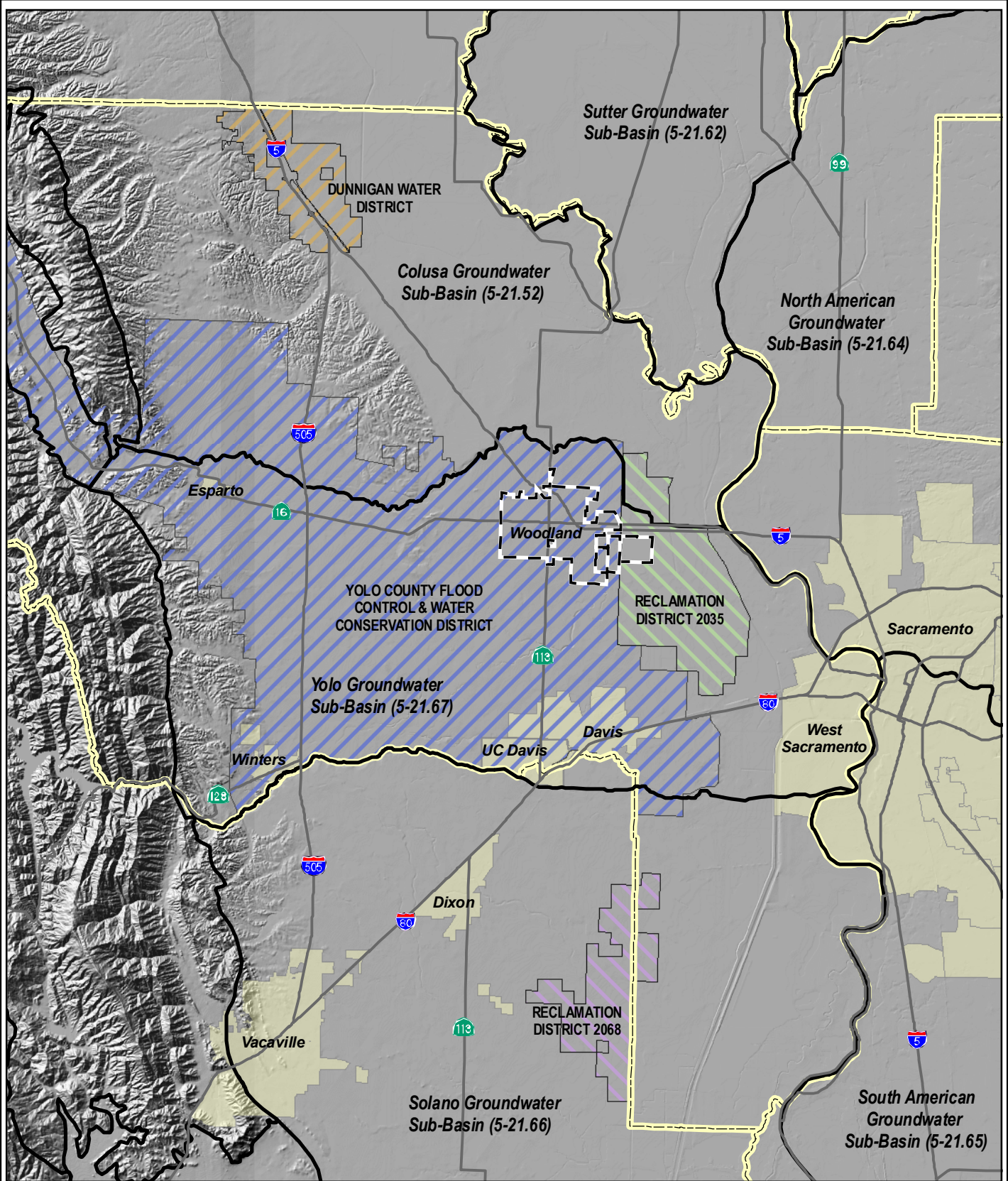
The City plans to annually produce a status report to document the progress of the GWMP implementation throughout the previous year and to review and confirm actions for the next year. The report will include information regarding inelastic land subsidence, when updates are available, groundwater quality, groundwater production, and groundwater levels in relation to the established BMOs. When the Woodland-Davis Clean Water Agency's Davis Woodland Water Supply Project (DWWSP) is implemented, the annual reports will document the effect that the addition of a municipal surface water supply has on the groundwater system through groundwater level, groundwater production, and groundwater quality monitoring.

ES.8 FUTURE GROUNDWATER MANAGEMENT PLAN UPDATES

Periodic GWMP updates will be required as knowledge of the Yolo Sub-basin increases and groundwater management strategies evolve. The City will periodically consider new groundwater management techniques to be incorporated into the GWMP. Over time, BMOs may need to be modified based on changing groundwater conditions, the completion of the DWWSP and the addition of an operable conjunctive use system, or the development of new key groundwater management objectives. If changes must be made, the City will formalize the changes in an updated GWMP. The City plans to update this GWMP every five years on approximately the same update cycle as the City's UWMP.

ES.9 FINANCING

The implementation of this GWMP will be funded by the City. Ongoing coordination activities will be performed by City staff using City funds. Most baseline data collection activities will also be funded by the City. The City plans to provide a proportional share of costs for other regional data collection efforts, such as land subsidence monitoring. State or federal funding may be pursued to support implementation of this GWMP.



LEGEND

- City Limit
- DWR Groundwater Basin
- Reclamation District 2035
- YCFC&WCD
- Reclamation District 2068
- Dunnigan Water District
- County Boundary

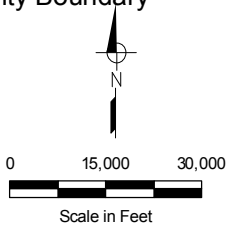


FIGURE ES-1

**City of Woodland
Groundwater Management Plan**

LOCATION MAP



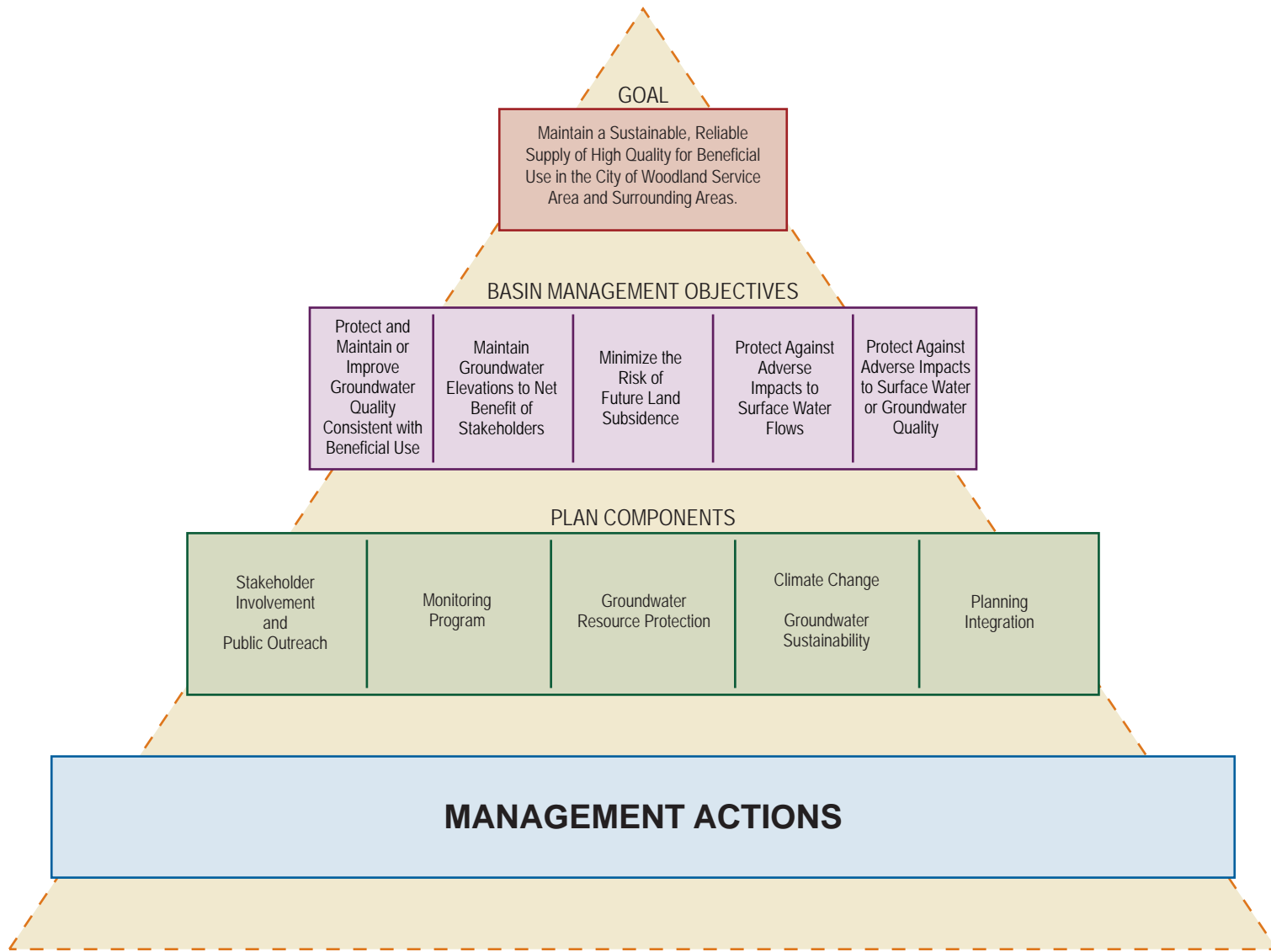


Figure ES-2
City of Woodland
Groundwater Management Plan
 GROUNDWATER MANAGEMENT COMPONENTS





March 7, 2011

Project No.: 204-00-08-18

Mr. Akin Okupe
Senior Civil Engineer
City of Woodland
655 N. Pioneer Avenue
Woodland CA 95776

SUBJECT: Response to Comments on the City of Woodland Draft Groundwater Management Plan from the Water Rate Advisory Committee

Dear Mr. Okupe:

This letter provides responses to comments on the City of Woodland's draft groundwater management plan received from members of the City of Woodland's water rate advisory committee. The water rate advisory committee provided comments orally at the March 1, 2011 City Council meeting. These comments were provided to City staff in writing on March 2, 2011. Attachment A contains the complete text of the water rate advisory committee's comments.

Comment 1 – Conservation. The City does not seem to have a strong conservation plan. We recognize that metering is helping.

- a. We would like to see a single, comprehensive source of information on the City web site; demonstration water-wise gardens on City property; programs like in Roseville where residents who agreed to conserve received special lawn signs, etc. There are WRAC members who are willing to help with this.
- b. A permanent time of day/day of week landscape irrigation plan should be a law and should be enforced.
- c. Further irrigation and water use restrictions should have clear triggers, e.g. well water level.
- d. Why is water recycling not even being considered? Can some of our wastewater be made available to agricultural producers?
- e. Water rates should include incentives for conservation.

Response 1. The City's groundwater management plan is one of several planning documents that the City is preparing. The groundwater management plan has a limited purpose and scope, and is intended to address specific management issues identified in the California Water Code, and California Department of Water Resources guidance documents. The groundwater management plan is intended to support the City's overall goal of working,

“...cooperatively with basin stakeholders and the public to maintain a sustainable, reliable, high-quality groundwater supply for beneficial use in the City service area and surrounding areas.”

The water supply referred to in this statement is groundwater. It follows that the primary focus of the groundwater management plan is on the groundwater basin, especially the portion of the basin overlain by the City of Woodland, although the plan seeks, and includes mechanisms for, cooperative management of the resource. Water conservation and recycling clearly relate to groundwater management because these initiatives seek to reduce water demands, including demands on groundwater resources. The groundwater management plan discusses water conservation and recycling primarily in the context of how these activities may affect future demands for groundwater.

Section 3.3.3.2, Water Recycling, states,

“There are currently no water recycling projects in the City. The City is in the early stages of evaluating recycled water use to offset potable water demands. Other potential supplies, including shallow irrigation wells in parks and other public landscape areas, are also being considered for this purpose.

Action: Continue to evaluate alternative supplies that could offset nonpotable demands currently met with drinking water sources.”

Section 3.3.3.4, Water Conservation, states,

“The City is also implementing a water meter program and has installed meters on many customer water connections. Many of these customers began receiving sample billings based on their metered consumption in the spring of 2010. The City plans to have virtually all of the water connections in the City metered by the end of 2012. Studies by the California Public Utilities Commission have shown that communities with metered water systems use 7 to 20 percent less water than non-metered areas. Therefore, the City can expect a 7 to 20 percent reduction in water consumption once the City-wide metering is complete.”

Action: The City will continue to implement its water meter project. The City will also continue to implement various programs to increase waste reduction, reuse, recycling, and promote the safe handling of household hazardous wastes. The City will continue to monitor and evaluate water usage to ensure that conservation measures are effective and the most representative demand trends are used to project future demands.

Other water planning initiatives undertaken by the City provide a broader platform for evaluating and planning water conservation measures and recycling. The City’s urban water management plan is scheduled to be completed by June 2011 and must be submitted to California Department of Water Resources by July 1, 2011. The adopted groundwater management plan needs to be attached to the urban water management plan, per California Water Code Section 10631. Recycled water will also be addressed in the City’s urban water management plan. The water focus study is a water planning document with a broader scope than the groundwater management plan. Recommendations from the water rate advisory committee will be considered during preparation of these documents.

The State of California approved Senate Bill 7 (SB 7), which requires water providers to reduce their per capita water use by 20 percent by the year 2020. For consistency with the California Public Utilities Commission findings regarding metering and the requirements of SB 7, a 20 percent reduction in per capita water use rates was assumed in the demand projections documented in Section 2.2.4.2 of the groundwater management plan. This assumption is consistent with the State-mandated requirements and is appropriate for the purposes of the groundwater management plan and urban water management plan.

The City has developed a water conservation planning goal and objectives for the 2010 through 2012 timeframe. The City's water conservation planning goal is,

“...to reduce water use 20% by 2020, measured in gallons per capita, as compared to a 10 year baseline of pre-metered use.”

This goal is supported by three objectives:

- Reduce City Water Usage
- Increase Public Education and Outreach
- Conserve Water through Landscaping Practices

Each objective has sub-objectives, which address residential and industrial water conservation, reductions in water system losses, public outreach and education, and water-efficient landscaping practices. Planned actions include updating the City's urban water management plan and adopting and revising the City Water Code to reflect new state legislation regarding water conservation including the Model Water Efficient Landscape Ordinance and SB 7. The City's 2010-2012 Water Conservation Plan goal and objectives are provided in Appendix B.

Comment 2 – Water Quality. Since nitrates are a significant problem, why not implement a fertilizer education program?

For ag producers that are major source in groundwater, work with Cooperative Extension. For landscape sources that contribute nitrates to storm water, work with landscapers and homeowners through the media and educational events.

Since salts are a significant problem, why not implement an educational program to encourage residents with water softeners to switch to potassium chloride instead of sodium chloride?

Response 2. The City can choose to implement an education program as a groundwater management action. This could address fertilizer, salt and nutrient best management practices in urban settings within the City and in agricultural areas in the surrounding areas. The University of California Cooperative Extension of Yolo County could provide a resource in this effort and Yolo County Flood Control & Water Conservation District could be approached as a cooperating entity. Activities could be discussed and coordinated through the Water Resources Association of Yolo County.

The revised groundwater management plan contains a Basin Management Objective (BMO) that would support the education program. BMO reads as follows,

“BMO-01 – Protect and maintain groundwater quality within the City service area for the benefit of basin groundwater users. Groundwater within the City’s service area is affected by nonpoint sources of nitrate and salts, and localized point sources of anthropogenic contaminants. Naturally occurring contaminants, resulting from dissolution of minerals comprising the aquifer skeleton, also affect groundwater quality. The City’s objective is to minimize the impact of these contaminants at the locations of individual municipal wells within its service area, and to support stakeholder efforts to protect beneficial uses in the groundwater sub-basin from adverse impacts to groundwater quality.

The City analyzes groundwater quality samples from its active production wells to comply with applicable standards in Title 22 of the CWC. The Department of Public Health (DPH) Title 22 program specifies the constituents to be tested, the detection limits for these constituents and reporting requirements. Sampling is conducted annually in a subset of the active wells such that each well is sampled on a three-year rotating cycle. Compliance with drinking water standards is a primary objective for the City. The City also uses the groundwater quality results to assess potential impacts to the municipal wastewater treatment plant, which is regulated under a Central Valley Regional Water Quality Control Board Waste Discharge Requirements Order. The primary constituents of concern for the wastewater discharge are selenium, boron and TDS. The water quality results will be evaluated on the same annual cycle under which the wells are sampled, such that each well will be evaluated every three years when new sample results are available. Temporal trends in the concentration of each constituent will be evaluated using a three-sample moving average comprised of the three most recent historical sample results for each well. Any increase in the concentration of a constituent of 20 percent or greater relative to the three-sample moving average will trigger evaluation of the need for potential actions, including:

- Consideration of possible agricultural and landscaping best management practices that could help control nitrate, nutrient and salt loading to the groundwater basin
- Additional monitoring, potentially on a more frequent basis
- Operational modifications affecting the pumping schedule and rate
- Well modifications to adjust the depth of pumping or seal zones with inferior water quality
- Well destruction, with possible replacement with a new well
- Replacement with a surface water supply

- Wellhead treatment, if feasible
- Destruction of abandoned wells

This BMO is supported by a range of groundwater management plan components addressing agency coordination, stakeholder involvement and public outreach, groundwater quality monitoring, groundwater sustainability, and groundwater protection.

The revised groundwater management plan also includes discussion of the Davis Woodland Water Supply Project (DWWSP), which is being undertaken by the Woodland-Davis Clean Water Agency (WDCWA). The WDCWA is a joint powers authority including the Cities of Woodland and Davis and UC Davis. Planned implementation of the DWWSP will provide the City with treated surface water from the Sacramento River in 2016. The City's use of groundwater will continue but at a significantly reduced rate. The salinity of the treated surface water will be much lower than the City's groundwater, and the anticipated proportions of surface water to groundwater make it unlikely that customers will want to continue to use water softeners. The overall salinity of the City's supply will be significantly reduced as a direct consequence of the DWWSP. The consequential phasing out of water softeners will also decrease salinity in the City's treated wastewater effluent.

Comment 3 – System Management. Adaptive management is mentioned in the plan, but how is it being done? Why does Yolo County do the permitting of City wells rather than the City? The thought here was that we would have more control over the process.

Response 3. Section 2.1.3, Climate Change, of the draft groundwater management plan defines adaptation and mitigation of climate change and documents published adaptive management strategies developed by the California Urban Water Association (CUWA). The CUWA adaptation and mitigation examples are listed in Table 2-2 of the groundwater management plan.

Section 3.3.4, Adaptive Management and Mitigation in Response to Climate Change, of the draft groundwater management plan provides a discussion of adaptive management strategies for the City of Woodland, including:

- Development of groundwater recharge, storage and conjunctive use projects
- Water transfers
- Development of regional water projects and partnerships
- Water conservation
- Optimization of local storage

The City Department of Public Works staff has made the determination that permitting for construction of new wells and destruction of existing wells is adequately specified in California Department of Water Resources documents and implemented by Yolo County. In addition to these existing requirements, the groundwater management plan addresses well construction and destruction under its groundwater protection component. Section 3.3.3.4 states,

Mr. Akin Okupe
March 7, 2011
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“The need for special well construction and destruction policies has not been identified within the City service area. Therefore, the construction and destruction standards put forth in CWC Section 13700 and detailed in DWR Bulletins 74-81 and 74-90 have been adopted as the applicable standards. These standards are enforced through the well construction and destruction permitting process administered by the Yolo County Department of Environmental Health.

Action: The City will ensure that any well construction or destruction projects that it undertakes will meet the applicable standards. The City will also include information on these standards in its education and outreach activities to private well owners within the City service area. When reviewing or approving land use plans, the City will endeavor to ensure that project proponents identify and properly destroy abandoned wells within the plan area as a condition of development.”

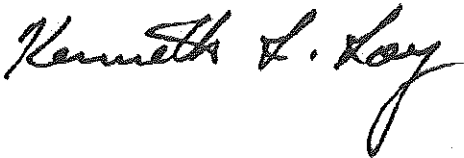
Comment 4 – Executive Summary. Requiring the consultants who write the plan to also prepare an Executive Summary written in lay terms would make the report more accessible to Woodland residents. See attached.

Response 4. The revised draft groundwater management plan includes an executive summary. The “City of Woodland Groundwater Management Plan Summary for City Residents” prepared by the water rate advisory committee is provided as Attachment C.

We appreciate water rate advisory committee’s interest in reviewing the draft groundwater management plan. We hope that the revisions made to the document and the response provided in this letter address the committee’s concerns and that the revised document provides the City of Woodland with the planning tools needed to address the range of groundwater management issues.

Sincerely,

WEST YOST ASSOCIATES



Kenneth L. Loy
Principal Hydrogeologist
P.G. #7008

KLL:nmp

attachments

Attachment A

City of Woodland Groundwater Management Plan Water Rate Advisory Committee Comments

Comments provided orally at the March 1, 2011 City Council Meeting and by email on March 2, 2011.

CONSERVATION

- The City does not seem to have a strong conservation plan.

*****We recognize that metering is helping. We would like to see a single, comprehensive source of information on the City web site; demonstration water-wise gardens on City property; programs like in Roseville where residents who agreed to conserve received special lawn signs, etc. There are WRAC members who are willing to help with this.*****
- A permanent time of day/day of week landscape irrigation plan should be a law and should be enforced.
- Further irrigation and water use restrictions should have clear triggers, e.g. well water level.
- Why is water recycling not even being considered? Can some of our wastewater be made available to agricultural producers?
- Water rates should include incentives for conservation.

WATER QUALITY

- Since nitrates are a significant problem, why not implement a fertilizer education program?

*****For ag producers that are major source in groundwater, work with Cooperative Extension. For landscape sources that contribute nitrates to storm water, work with landscapers and homeowners through the media and educational events*****
- Since salts are a significant problem, why not implement an educational program to encourage residents with water softeners to switch to potassium chloride instead of sodium chloride?

SYSTEM MANAGEMENT

- Adaptive management is mentioned in the plan, but how is it being done?
- Why does Yolo County do the permitting of City wells rather than the City?

*****The thought here was that we would have more control over the process*****

Requiring the consultants who write the plan to also prepare an Executive Summary written in lay terms would make the report more accessible to Woodland residents.

*****See attached*****

Attachment B

Water Conservation Plan 2010-2012

Goal

**To reduce water use
20% by 2020, measured in gallons per capita,
as compared to a 10 year baseline of pre-metered use.**

Objective 1:

Reduce City Water Usage

- Revise the Water Conservation Section of the Urban Water Management Plan to meet the updated California Urban Water Conservation Council (CUWCC) Best Management Practices (BMPs) and SBx7-7 reduction goals.
- Revise the City Water Code to represent new state legislation regarding water conservation including the Model Water Efficient Landscape Ordinance and SBx7-7.

Sub-objective 1.1: Reduce Residential Water Waste

- Provide assistance to aid residents in detecting leaks which is a top priority with the water meters being installed and sample bills going out. Residential assistance would require additional staff and/or interns.
- Install water meters.
- After installation of water meters, begin billing with conservation tiers.
- Continue current incentives and /or provide new incentives for water conservation which could include toilet rebates, washer rebates, weather-based irrigation system rebates, rain barrel rebates and/or "Cash for Grass" programs.

Sub-objective 1.2: Reduce CII (Commerical, Industrial, Institutional) Water Waste

- Establish a relationship with the Chamber of Commerce and attend Water Committee Meetings.
- Research CII rebates and other potential savings for CII customers.
- Look into programs offered by other municipalities.
- Offer water surveys to identify water savings and check for leaks (would require additional staff and/or hiring a contractor).

Sub-objective 1.3: Reduce City Department Water Waste

- System wide water audit (leak detection survey) on the water infrastructure within the City. Phase 1 area of town to begin in summer 2011 to determine leaks in the system and to better estimate City water loss.
- Survey of water use by City Departments.
- Follow progress of Parks Irrigation Grant.

Objective 2:

Increase Public Awareness of Water Issues

Sub-objective 2.1: Increase public awareness of water issues through outreach.

- Maintain and update the water conservation website with new water conservation topics, update links to water conservation pages and data, and offer water conservation materials as downloadable PDFs.
- Provide water conservation information for City e-newsletter (once a month).
- Offer a suite of topics that groups can choose from for presentations in their area on water conservation related issues.
- Water conservation displays at the Library and City Hall.
- Create a water survey to use at events-potentially model after EBMUDs water survey. After a resident completes the survey, they are given water saving information and devices.
- Have public outreach materials and/or booth at local events.

Sub-objective 2.2: Increase educational opportunities for school aged children.

- Purchase educational materials for elementary-aged children to be given out at local events and/or to classes.
- Develop a 4th/5th grade education program on water conservation for Woodland schools.
- Offer Project WET (Water Education Training) workshops for Woodland area. Potentially co-sponsor with the Yolo County Office of Education.
- Co-sponsor the ZunZun school assembly program featuring water conservation, stormwater, and recycling.
- Consider a program like the Mayor's water readers which was a partnership among City of Tampa, the Public Library System, and Borders Books & Music. 300 participating youth (ages 6 to 17) were rewarded for reading three books about water, received a certificate from the Mayor, citywide recognition and a gift from Borders.
- Offer the water drop patch for Girl Scouts and something similar for Boy Scouts or other groups. Girl Scouts worked on the patch and installed 148 storm drain markers in 2009.

Objective 3:

Conserve Water through Landscaping Practices

- Have demonstration sites for xeriscaping and native plant gardens. Potential at pond in Spring Lake and/or in the future at the new water treatment plant.
- Community water-wise awards: awards to people who redo their lawns with native plants.
- Water-wise Gardening Workshops in April/May each year. Develop partnerships with local nurseries to co-sponsor workshops to benefit the City and the nurseries. Have discount coupons from nurseries available at water conservation events. Hand out outdoor water conservation materials (two Sunset guides, soil moisture gauge, and hose nozzle).
- Landscape Irrigation Reviews. Include as part of leak detection assistance offered to high water users. Also consider offering to any interested residents in the future.
- Work with Community College and Master Gardeners on offering landscape workshops.
- Work with CDD on integrating the updated Model Water Efficient Landscape Ordinance into City Code.

Attachment C

City of Woodland Groundwater Management Plan Summary for City Residents Prepared by Members of the Water Rate Advisory Committee

The City of Woodland currently obtains its entire City water supply from twenty groundwater wells located throughout the City. By filing a Groundwater Management Plan with the State of California, we become eligible for grants that allow us to reduce costs, potentially saving City residents money.

The Groundwater Management Plan provides the framework for coordinating groundwater management activities among stakeholders. The plan identifies the management tools and objectives needed to guide efforts to effectively manage our groundwater as a safe and sustainable water supply.

Key concerns about the City's groundwater supply and steps taken by the City to address these include:

DECLINING GROUNDWATER QUALITY

The quality of our groundwater has been declining for several years. Woodland is under extreme regulatory pressure to have a higher-quality water supply by 2016, prior to the reconsideration of our wastewater discharge permit by the Regional Water Quality Control Board. While our water is safe to drink, it includes several components that are above the legally mandated level for wastewater discharge: boron, nitrate, selenium, chromium and Total Dissolved Solids (TDS). There is no way to cost-effectively treat our water to remove these.

The City has partnered with the City of Davis to develop a surface water supply drawn from the Sacramento River. This water supply will come on line in 2016 and will provide a high-quality water supply that meets State-mandated standards and fills most of our water needs. At that time our ground and surface water supplies will be integrated to ensure ample water supply and pressure during periods of peak demand.

LAND SUBSIDENCE DUE TO GROUNDWATER EXTRACTION

Inelastic land subsidence resulting from groundwater withdrawal can cause physical changes to our groundwater aquifers that render them unable to be recharged. To date this has had significant consequences in the Yolo Groundwater Sub-basin. The risk in each specific aquifer is determined by many factors, including the degree of new groundwater development, changing land use, and the mineral composition of the soil in the aquifer. The City's objective is to prevent or minimize future impacts from land subsidence by continuing to cooperate with other stakeholders to monitor rates of inelastic land subsidence.

Rates of land subsidence are being established through on-going county-wide monitoring. The City will continue to evaluate the results with other members of the WRA.

CHANGES IN GROUNDWATER LEVELS

Historical records show that the elevation of our groundwater declined from the 1950s to the 1970s but stabilized after that in response to regional water supply projects. Declines in groundwater levels are still a concern during drought years. It is much more expensive to pump water from lower levels, which increases system costs and strains equipment.

The City will consider several actions to maintain groundwater levels in dry years. These include outreach to encourage conservation, operational changes to rely least on wells most at risk, and construction of new wells. The implementation of the surface water supply described above will also alleviate pressure on existing groundwater supplies.

The full Groundwater Management Plan is available for viewing at City Hall or can be downloaded at www.cityofwoodland.org. Comments may be sent to xxxx or presented at the Woodland City Council meeting on yyyy.