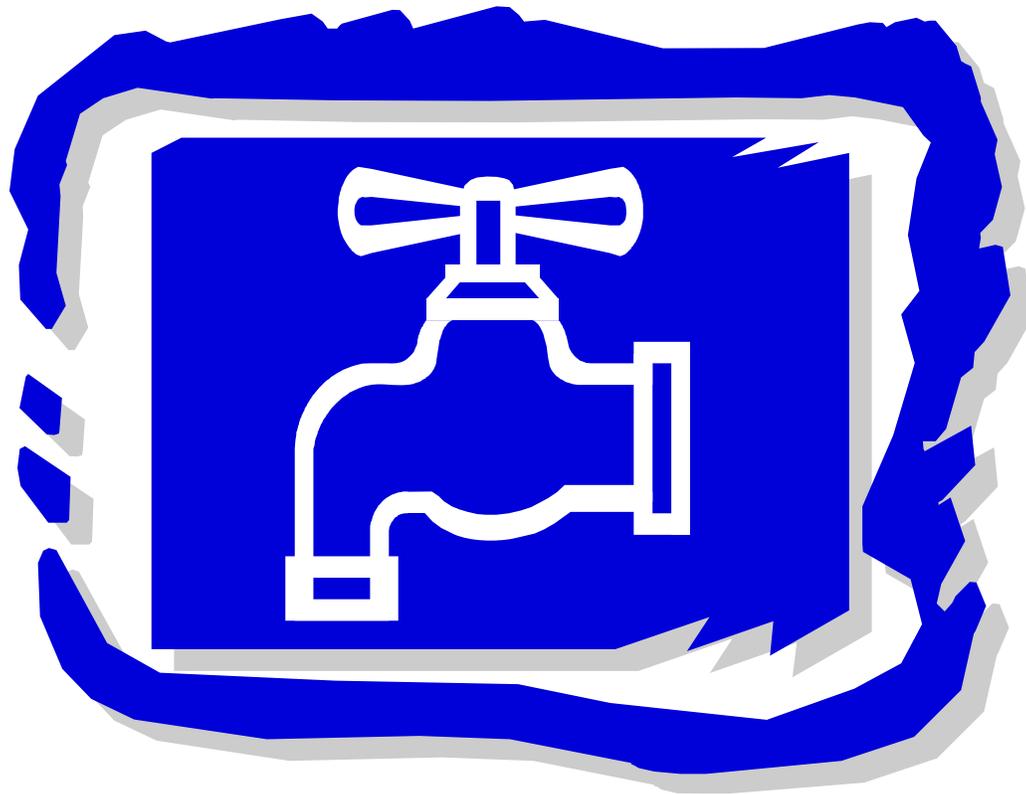


FINAL 2005 URBAN WATER MANAGEMENT PLAN



August 2007

CITY OF Wasco

2005

URBAN WATER MANAGEMENT

PLAN

August 2007

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Introduction

In 1984, the California Legislature enacted Assembly Bill 797, which is known as the Urban Water Management Planning Act (Act). This Act requires each urban water supplier with 3,000 or more connections, or which supplies at least 3,000 acre-feet per year (AFY) of water, to prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water. The Plan must be reviewed every five years and must be adopted after public review and hearing. It is then filed with the California Department of Water Resources (DWR) who provides a report to the legislature summarizing the status of all plans submitted.

One of the purposes of developing an Urban Water Management Plan (UWMP) is to evaluate whether a water supplier can meet the water demands of its water customers as projected over a 20- or 25-year period. This evaluation is accomplished through analysis of current and projected water supply and demand for normal or average conditions, as well as during water shortages.

The City of Wasco supplies potable water to a population of approximately 20,500 residents (2007).¹ The City's sole source of potable water is pumped from groundwater wells owned and operated by the City.

The outline of this UWMP generally follows the January 18, 2005 "Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan" developed by the DWR. Some sections of the outline presented in the guidelines have been combined or moved into a different order than the guidelines, but all the information requested in the UWMP guidelines and act are described within this document.

Public Participation and Plan Adoption

The City has encouraged public participation in the development of its Urban Water Management Plan. In accordance with the Act, the City of Wasco City Council held a public hearing on September 18, 2007. Thirty days prior to adoption, a notice of the public hearing was published in the local newspaper, notifying interested parties that the draft Plan was available at the City Hall for review. The Notice of Public Hearing/Notice of Availability and Proof of Publication are attached in Appendix A.

The Draft 2005 UWMP was presented to the City Council for its consideration. The City Council considered all comments received from interested parties, made modifications as appropriate, and adopted the 2005 Urban Water Management Plan on September 18, 2007. A copy of the adopting resolution is included in Appendix A. The Final 2005 UWMP incorporates minor, administrative revisions and it is available for public viewing at the Wasco City Hall.

¹ Not including prison population

Appropriate Level of Planning

The Act specifies the required content of each UWMP and allows for the level of detail provided in each UWMP to reflect the size and complexity of the water supplier. The Act requires projections in five-year increments for a minimum of 20 years. This UWMP considers a 25-year planning horizon.

Relationship of UWMP to other Planning Efforts

City of Wasco General Plan

Wasco's existing General Plan was completed and adopted in 2002. By state law, the General Plan must be reviewed and revised periodically to reflect new information and the inevitable changes to the community's needs, values, and vision of what the City should be. As part of the General Plan update, City staff should incorporate a build-out analysis, which among other things, is dependent upon future water supply and demand. The current General Plan is outdated and does not include water supply and demand projections.

City of Wasco 2007 Water Master Plan

The City of Wasco Water Master Plan was completed in April 2007. The master plan identifies water facilities to serve the City growth expected within the next 20 years and looks ahead to a longer-term growth of 50 years or more. The master plan develops an improvement plan consisting of water supply wells, transmission/distribution pipelines, storage and pumping facilities to provide domestic water service for future growth. The projected future water demands were based on land uses defined by the City's Planning Staff. The 2007 Water Master Plan is the most recent planning document. The water supply and demand projections contained in this UWMP are in turn based on the build-out analyses prepared under the 2007 Water Master Plan.

Senate Bills 221 and 610

In 2001, the California Legislature enacted two laws, Senate Bill (SB) 221 and SB 610, each designed to achieve greater coordination during the land use planning process between water suppliers and local land use agencies when considering certain large-scale development projects. SB 610 requires the preparation of a Water Supply Assessment (WSA) for any development whose approval is subject to the California Environmental Quality Act and which meets the definition of "project" in Water Code Section 10913, i.e., residential development projects of more than 500 dwelling units or other types of developments (e.g., hotels and motels, commercial buildings, industrial parks, etc.) using a comparable amount of water. The WSA must describe the proposed project's water demand over a 20-year period,

identify the sources of water available to meet that demand and include an assessment of whether or not those water supplies are, or will be sufficient to meet the demand for water associated with the proposed project, in addition to the demand of existing customers and other planned future development. If the conclusion is that water supplies are or will be insufficient, then the WSA must describe plans (if any) for acquiring additional water supplies, and the measures that are being undertaken to acquire and develop those supplies.

SB 221 is similar in many respects to SB 610. However, it applies only to residential projects of 500 units or more and requires the land use planning agency to include as a condition of approval of a tentative map, parcel or development agreement a requirement that "sufficient water supply" be available. Proof of a sufficient water supply must be based on a written verification from the public water system that will serve the development. SB 610 requires preparation of the WSA sufficiently early in the development review process to allow incorporation in the CEQA evaluation and documentation of the project. SB 221, by contrast, becomes operative when the City is considering approval of a tentative subdivision map. Under SB 610, the "water supplier" is understood to mean the City of Wasco, which is responsible for the public water system. The "governing body," as used in SB 610, refers to the City Council, which is required to approve the WSA and make required findings that adequate water supplies are available for urban growth to proceed.

The UWMP is the primary information and planning tool in assessing water supply adequacy and is coordinated closely with the City's Water Department. As noted above, to enable the City to comply with SB 221 and SB 610, the 2005 UWMP update and the City's 2007 Water Master Plan are utilizing the same land use build-out analyses and future water supply and demand projections. Future WSAs will rely on the data and information contained in those documents.

Senate Bill 1087

On October 7, 2005, SB 1087 was signed into law, requiring public agencies and private entities providing water or sewer services to grant priority for those services to proposed developments that include housing units for lower income households (Government Code Section 65589.7). The City's most current information on low-income housing is from the 2006. In 2006, the City had an estimated 948 families with income below the poverty level¹, but the data does not distinguished between Single and Multi Family, therefore associated water demands could not be determined. The City does not have projections for future low-income housing units; therefore associated water demands can not be determined for future low-income housing units.

¹ Source: Demographic Snapshot Report – www.wascoforbusiness.com.



Section 1 Agency Coordination

The City of Wasco prepared this update of its Urban Water Management Plan during the summer of 2007. The updated plan was presented to the City Council in September 2007, (see Appendix A), considered all comments received from interested parties, made modifications as appropriate, and adopted the 2005 Urban Water Management Plan. The Urban Water Management Plan as adopted will be submitted to the California Department of Water Resources within 30 days of Council approval.

Urban Water Management Plan Coordination

Coordination with appropriate City departments has occurred with preparation of this UWMP. City departments consulted include the Water Department, Public Works Department, Planning Department and the City Manager's Office.

The City coordinated the update of the plan with other agencies in the area that might have an interest in its preparation. The City notified local water retailers and public agencies of the City's intent to prepare this 2005 UWMP, as well as of the public meetings regarding the UWMP (see attached letters in Appendix A). Copies of this plan have been forwarded to Kern County Water Agency, the Shafter-Wasco Irrigation District and Semitropic Water Storage District for their review and comment.

Table 1-1 Coordination with Appropriate Agencies							
	Participated in UWMP development	Commented on the draft	Attended public meetings	Contacted for assistance	Received copy of draft	Sent notice of intention to update /adopt	Not Involved/ No Information
Kern County Water Agency					Yes	Yes	
Shafter-Wasco irrigation District					Yes	Yes	
Semitropic Water Storage District					Yes	Yes	

Urban Water Management Plan Preparation

This UWMP update was prepared by Helt Engineering, Inc., the Contract City Engineer for the City of Wasco. Helt Engineering, Inc. followed the California Department of Water Resources Guidebook recommended methodology to complete the UWMP.



Resource Maximization / Import Minimization Plan

The City has incorporated water management tools to maximize water resources. The City has been committed to integrating water conservation into future supply and demand solutions for both the water system and the wastewater treatment system. The City's main emphasis is in water conservation as detailed in the Demand Management Measures included elsewhere in this report.



Section 2 City of Wasco Service Area Information

A variety of demographic factors may affect water use, including current and projected population, climate, population density, and the mix of customer types. This section provides information on Wasco's service area characteristics, including a description of the service area, its population and climate.

Supplier Service Area

The City of Wasco, incorporated in 1945, provides water, sewer collection, wastewater treatment, storm drainage, road, and refuse service to the community. The original water system was developed in the 1920's under the authority of the Wasco Public Utilities District. The system consisted of groundwater wells and tower reservoir. The Wasco Public Utility District (District) operated and maintained the water and sewage collection and treatment systems within the City until 1989. At the time the district, assets were transferred to the City. The tower reservoir is no longer used; however, the water system has been improved and expanded since the original construction to meet current needs.

Water service is primarily domestic serving residential areas with various commercial customers. Approximately five percent of the current residential connections are metered and one third of commercial connections are metered. All industrial connections are metered. Larger agricultural water users typically have installed their own source wells and are not connected to the City's water distribution system. The Semitropic Water Storage District and the Shafter-Wasco Irrigation District provide water for irrigation and crops in the city and surrounding area. Therefore the City of Wasco is responsible for providing potable water for its residents and businesses, but not for irrigating agriculture.

Population and Demographics

The City's 2002 General Plan Update (General Plan) projects population through year 2050. The City's service area will be expanded into the City's sphere of influence. The UWMP uses population projections from the City's Water Master Plan, dated April 2007 and prepared by ECO:LOGIC Engineering. The 2007 Water Master Plan is the most recent water planning document.

The City of Wasco currently serves approximately 20,500 residents and growing. According to the 2007 Water Master Plan, the City has indicated that it expects a somewhat steady population growth of 1,137 people per year (based on 300 single family dwelling units and 3.79 people per dwelling unit). The estimated population based on the expected growth rates is summarized in Table 2-1.



Table 2-1 Population Projections						
	2005 ^(a)	2010 ^(b)	2015 ^(b)	2020 ^(b)	2025 ^(b)	2030 ^(b)
Service Area Population	17,611	23,996	29,681	35,366	41,051	46,736

^(a) Source: Wasco – DWR Public Water System Statistics for Calendar Year 2005. Not including prison population

^(b) Source: City of Wasco Water Master Plan, April 2007. Based on an addition of 300 single family dwelling units per year and 3.79 persons per single family dwelling unit.

Climate

The City of Wasco is located in the northern section of the County of Kern at the southern end of the San Joaquin Valley, about twenty-five miles northwest of Bakersfield. The climate is characterized by hot, dry summers and cooler, humid winters. Mean maximum temperatures range from 50° Fahrenheit in the winter to 100° Fahrenheit in the summer. Precipitation averages around 6.85 inches annually. Typically, the rainy season runs from November through April. Tule fog is common in the winter, sometimes lasting for extended periods. Prevailing winds are typically out of the northwest and average from 5 to 10 miles per hour. Table 2-2 provides climate data for the City of Wasco, including average maximum and minimum temperatures, rainfall and evapotranspiration (ETo). Evapotranspiration is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity.¹

Table 2-2 Climate													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Standard Monthly Average ETo ^(a)	1.25	2.07	3.85	5.69	7.48	7.98	8.23	7.4	5.78	4.11	2.04	1.18	57.06
Average Rainfall (inches) ^(b)	1.30	1.28	1.27	0.71	0.24	0.09	0.01	0.02	0.13	0.32	0.66	0.83	6.85
Average Maximum Temperature (°F) ^(b)	56.2	63.6	69.7	77.0	85.6	93.5	99.3	97.5	92.0	81.8	67.2	56.6	78.3
Average Minimum Temperature (°F) ^(b)	35.8	39.5	43.4	47.9	54.2	60.4	65.4	63.3	58.6	49.4	40.4	35.1	49.5

^(a) ETo data for the Shafter/USDA weather station. (CIMIS station 5).

^(b) NOAA Wasco weather station No. 049452. Period of Record: 7/1/1948 to 12/31/2006

¹ <http://www.cimis.water.ca.gov/cimis/welcome.jsp>. CIMIS – California Irrigation Management Information System, Department of Water Resources, Office of Water Use Efficiency.

Demographic and Economic Trends Affecting Water Management

The City expects continued residential and commercial growth and is in the process of annexing a 1,640 acre area for an industrial park, Rose City Industrial Park, on the east side of town. The City of Wasco is evaluating their water and wastewater infrastructure needs to serve planned City growth. The current City boundary encompasses approximately 8.5 square miles, about 900 acres of which are undeveloped. In April 2007 the City prepared the City of Wasco Water Master Plan. This master plan identifies water facilities to serve City growth expected within the next 20 years and looks ahead to longer-term growth horizon of 50 years or more.

Findings of the master plan report include the following:¹

- Over next 20 years, the City is expecting to increase its overall boundary service area from approximately 5,400 acres to 10,600 acres. Approximately 1,640 acres are proposed for an industrial park on the east side of town. The residential population is expected to increase from current (2006) population of 18,000 to 41,000 by 2026.
- Citywide annual water demands are expected to increase from approximately 4.1 MGD to 15.0 MGD in 2026.
- The water system needed to serve the build-out of the 20-year growth areas would include up to 18 additional wells, an expanded distribution system, the proposed 3 million gallon (MG) storage tank and two additional 1 MG storage tanks.
- The expected costs for the expanded system (wells, storage tanks, distribution mains) are \$84.1 million for the 20-year service area and \$39.6 million to extend service beyond the 20-year service area to the Long-Term service area. These are total project costs expressed in current dollars and include 40 percent for contingencies, engineering and administration costs.

Land Use and Population Projections Assumptions

The City provided land use assumptions expected within the service area boundaries for both 20-year growth and longer term City growth. Table 2-3 summarizes the current and expected future zoning information.¹

¹ City of Wasco Water Master Plan, April 2007.



Table 2-3 General Plan Land Use by Planning Horizon, Acres			
Land Use Assignment	Current Within City	20-Year Horizon	Long-Term Horizon
Senior		1,120	1,120
Rural-residential	110	20	2,470
Estate Residential	170	720	2,480
Very Low Residential		120	1,320
Single Family Home	1,670	3,360	4,750
Medium Density Residential	150	190	290
High Density Residential	10	20	70
Commercial	410	520	630
Industrial	850	2,330	2,430
Public Facilities	1,650	1,840	2,240
Parks	210	340	450
Agricultural	160		
Miscellaneous	40		
Total	5,430	10,580	18,250

Source: City of Wasco Water Master Plan, April 2007. Table 2-1

Table 2-4 estimates the potential population within each planning boundary at build out using City provided capita per dwelling unit density factors.

Table 2-4 Potential Maximum Population within Planning Boundaries				
General Plan Land Use Category	Density, People per DU	City Boundary	20-Year Horizon	Long-Term Horizon
Senior	1.50	-	8,570	8,570
Rural-residential	3.20	30	10	670
Estate Residential	3.20	450	1,950	6,750
Very Low Residential	3.20	-	640	7,170
Single Family Home	3.79	26,910	54,120	76,520
Multi Family Unit	3.79	4,850	6,140	9,360
Large Apartment	3.79	490	990	3,370
Total		32,730	72,420	112,410

Source: City of Wasco Water Master Plan, April 2007. Table 2-3

Wasco's Proposed Rose City Industrial Park¹

The City has proposed a 1,640 acre industrial park on the east side of town. All of the proposed industrial acreage has been allocated for industries similar to those already present within the City (i.e., warehouses, storage, etc.). The likely industries will include rail service industries that require warehouses and shipping facilities. These industries typically do not generate significant amounts of water or wastewater and are typically low water use facilities. The relative size of the industrial park may disproportionately increase the City's water demands compared to historical trends. Table 2-5 summarizes the proposed industries distribution of the proposed future Industrial Park development.

¹ City of Wasco Water Master Plan, April 2007.



Table 2-5 Industrial Park Development Distribution		
Location	Industry Type	Approximate Acreage
North of Poso Dr.	Warehouses, Storage, Bulk handling, or Manufacturing Office, Service Commercial, Car dealership(s), etc. Wet Manufacturing/Processing uses (i.e. bakery) Wet/dry industries (i.e. regional commercial, truck stop center)	317 outside of city limits and 250 acres within city limits Totalling 560 acres
South of Poso Dr.	Warehouses, Storage and distribution Centers Other Industries Ethanol Production Facility Plastic production manufacturing and other semi-dry facilities	1085
Total		1,640 outside of city limits and 250 acres within city limits totalling 1800 acres

Source: City of Wasco Planning Department

Most of the wet industries will be located in south of Poso Drive. The largest water consumer will be the Ethanol Production facility which could require up to 1.26 MGD. In order to meet this demand, it is anticipated that a dedicated well will be drilled by this industry.

Due to the difficulty in anticipating water needs for large consumption wet industries, the Wasco 2007 Water Master Plan identifies that said needs will be met through the drilling of dedicated wells at each respective wet industry. In projecting water demands for all other industries (dry, semi-dry) it is assumed that the current typical values, will still apply.

Rose City Industrial Park – Draft Environmental Impact Report¹

Currently the City of Wasco is in the process of preparing an Environmental Impact Report (EIR) to disclose the potential environmental effects of the proposed Rose City Industrial Park annexation to the City and the industrial parks ultimate development. According to the Draft EIR project description; the industrial park area at build out will be approximately 1,640 more or less acres. The industrial park has approximately 1,108 acres within the City of Wasco’s Sphere of Influence and approximately 530 acres outside of the City of Wasco’s Sphere of Influence, proposed for annexation to the City.

Of the Industrial Park’s 1,640 acres, the City has two specific project sponsors potentially committing to 320 acres for industrial development. The City has received an application for the establishment of a 160-acre plant operation with a maximum production capacity of 63 million gallons of denatured ethanol per

¹ Project Description for the Rose City Industrial Park – provided by Mr. Eric VonBerg, URS Corporation

year. Additionally, the City has received an inquiry to establish an additional 160-acre ethanol plant operation that will seek approval for the establishment of a plant operation with a maximum production capacity of 63 million gallons of denatured ethanol per year. The balance of the industrial park users will be uses identified in the Heavy Industrial Zone District as may be established by the City of Wasco. The industrial park's remaining 1,300 approximate acres are anticipated to be divided into 30-acre sites on average with an anticipated job generation of approximately 2 jobs per acre or 2,600 full time jobs. The industrial park at full development and operation is anticipated to create a minimum of 2,600 full time jobs benefiting the city and region.

There is some variance between the proposed industrial park's project description in the 2007 Water Master Plan and the project description in the Rose City Industrial Park Draft EIR. This UWMP utilizes the 2007 Water Master Plan's methodology of projecting future water demand. The 2007 Water Master Plan assumed that by year 2026 the industrial area would be fully built-out. This assumption was based on information received from the City planners.¹

¹ City of Wasco Water Master Plan, April 2007.



Section 3 Water Supply and Sources

The City of Wasco currently has only one source of water available to it, groundwater. Groundwater is drawn from the Kern County Subbasin aquifer by seven deep well turbine pumps.

Current and Planned Water Supplies

The following table summarizes the City's current water supply as well as future (planned) water supplies during normal water years through year 2030.

Table 3-1 Current and Planned Water Supplies						
Water Supply Sources	2005 ^(a)	2010	2015	2020	2025	2030
City produced groundwater	4,444	7,447	10,142	13,194	16,602	20,368
Recycled Water used for Agricultural Irrigation (adds to groundwater supply) ^(b)	1,900	3,092	3,824	4,556	5,289	6,021
Transfers/ Exchanges in or out	0	0	0	0	0	0
Desalination	0	0	0	0	0	0
Total	6,344	10,539	13,966	17,750	21,891	26,389

Units of Measure: acre-feet/year

^(a) Actual Data

^(b) Base on 115gpcpd. Source: City of Wasco – Wastewater Treatment Plant Expansion Project Report, Dec. 2005

Groundwater

The groundwater body from which the City extracts water has been labeled the Kern County Subbasin (5-22.14) by the California Department of Water Resources Bulletin 118-Update 2003 and is a subbasin of the Tulare Lake Basin (See Figure 1).

The Kern County Groundwater subbasin is bounded on the north by the Kern County line and the Tule Groundwater subbasin, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges. Principal rivers and streams include Kern River and Poso Creek. Active faults include the Edison, Pond-Poso, and White Wolf faults. Average precipitation values range from 5 in. at the subbasin interior to 9 to 13 in. at the subbasin margins to the east, south, and west.¹

The Tulare Lake Groundwater Basin is not an adjudicated groundwater basin, as defined by the California Water Plan Update, Bulletin 160-98, Figure 3-28 on page 3-54 and Table 3-16 on page 3-55.

¹ Tulare Lake Hydrologic Region, Kern County Subbasin: California's Groundwater Bulletin 118, Update 2003.

The California Water Plan Update, Bulletin 160-98 page 3-50, Table 3-15, lists the 1995 Level Overdraft for the Tulare Lake Region at 820 thousand acre-feet (taf). As shown in Table 3-15, groundwater overdraft is expected to decline to 670 taf during the 2020 average and drought years. During drought periods, water levels in these regions may decline. However, during wet periods, most of these basins recover, thus making application of overdraft or perennial yield concepts difficult.

About 70 percent of the region's overdraft occurs in the Kings-Kaweah-Tule Rivers planning subarea. In 1995 under average water year conditions, the region had 820 taf of groundwater overdraft. By 2020, average year groundwater extraction is forecasted to be about 5.1 maf for the region. Since groundwater provides a buffer for fluctuating year-to-year surface supplies, its availability is of great importance to the region. Although urban use is expected to increase about 410 taf by 2020, groundwater overdraft is expected to decrease 150 taf (from 820 taf to 670 taf) within the planning horizon due to declining agricultural use.¹

Recharge Areas

According to the DWR Bulletin 118-Update 2003, natural recharge is primarily from stream seepage along the eastern subbasin and the Kern River; recharge of applied irrigation water, however, is the largest contributor.

The City of Wasco uses wastewater effluent for agricultural irrigation on City-owned land. The irrigation practice helps to replenish the area groundwater table through deep percolation and reduces groundwater overdraft. The City currently has an active water conservation program including year-round watering restrictions, and prohibition of water waste. Through, the use of a "No-Waste" Ordinance, voluntary rationing on the part of the community and effective water conservation programs the City helps in the reduction of groundwater overdraft.

Groundwater Level Trends¹

The average subbasin water level is essentially unchanged from 1970 to 2000, after experiencing cumulative changes of approximately -15 feet through 1978, a 15-foot increase through 1988, and an 8-foot decrease through 1997. However, net water level changes in different portions of the subbasin were quite variable through the period 1970-2000. These changes ranged from increases of over 30 feet at the southeast valley margin and in the Lost Hills/Buttontwillow areas to decreases of over 25 and 50 feet in the Bakersfield area and McFarland/Shafter areas, respectively. The above information is a summary of unpublished DWR water level data.

¹ Tulare Lake Hydrologic Region, Kern County Subbasin: California's Groundwater Bulletin 118, Update 2003.

Groundwater Storage¹

Kern County Water Agency estimates the total water in storage to be 40,000,000 af and dewatered aquifer storage to be 10,000,000 af (Fryer 2002). It appears that these calculations consider areas of the subbasin which are known to overlay useable groundwater, which they report to be about 1,000,000 acres.

Groundwater Budget (Type A)¹

The budget presented below is based on data collected as part of DWR's Bulletin 160 preparation. The basis for calculations include a 1990 normalized year and land and water use data, with subsequent analysis by a DWR water budget spreadsheet to estimate overall applied water demands, agricultural groundwater pumpage, urban pumping demand, and other extraction data. As no data for subsurface inflow or outflow exists in Bulletin 160 data, these values were obtained from a 1977 groundwater model developed by DWR and the Kern County Water Agency (DWR 1977). Inflows to the subbasin include natural recharge of 150,000 af per year, artificial recharge of 308,000 af per year, applied water recharge 843,000 af per year, and a 1958-1966 average estimated subsurface inflow of 233,000 af per year (DWR 1977), for a total subbasin inflow of 1,534,000 af per year. Subbasin outflows are urban extraction of 154,000 af per year, agricultural extraction of 1,160,000 af per year, other extractions (oil industry related) of 86,333, and subsurface outflow was considered minimal, for a total subbasin outflow of 1,400,300 af per year. In addition to the above budget, KCWA has prepared a detailed long-term water balance from 1970 to 1998 which shows an average change in storage of minus 325,000 af per year (Fryer 2002). This analysis does not consider subsurface inflow.

Groundwater Quality¹

In general, groundwater quality throughout the region is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are high TDS, nitrate, arsenic, and organic compounds. Figure 2, which is a portion of Plate 2 of the Kern County Water Agency Water Supply Report 1997, illustrates the groundwater quality relative to TDS of unconfined aquifers.

The eastern Kern County Subbasin contains primarily calcium bicarbonate waters in the shallow zones, increasing in sodium with depth. Bicarbonate is replaced by sulfate and lesser chloride in an east to west trend across the subbasin. West side waters are primarily sodium sulfate to calcium-sodium sulfate type. The average TDS of groundwater is 400-450 milligram per liter (mg/L) with a range of 150 – 5,000 mg/L.

Shallow groundwater presents problems for agriculture in the western portion of the basin. High TDS, sodium chloride, and sulfate are associated with the axial trough of the subbasin. Elevated arsenic concentrations exist in some areas associated with lakebed deposits. Nitrate, DBCP, and EDB

¹ Tulare Lake Hydrologic Region, Kern County Subbasin: California's Groundwater Bulletin 118, Update 2003.

concentrations exceed MCLs in various areas of the basin. Specific data for municipal production wells are available in the DHS water quality database.

Groundwater Management¹

Recharge and in-lieu programs are operated by various water districts, the City of Bakersfield, and Kern County Water Agency. Buena Vista WSD is currently drafting an AB 255 Management Plan. Shafter-Wasco ID implemented an AB 255 management plan in June 1993. West Kern Water District adopted a groundwater management plan. Kern Delta WD adopted a plan on October 15, 1996. Rosedale-Rio Bravo WSD's AB 3030 plan was adopted on March 11, 1997. Arvin-Edison WSD adopted a plan. Cawelo WD adopted an AB 3030 management plan in 1994. While Wheeler Ridge-Maricopa WSD has not formally adopted an AB 255 or AB 3030 plan, it has implemented the groundwater management plan contained in its Project Report. Semitropic Water Storage District adopted a groundwater management plan in September 2003.

The City of Wasco has not adopted a groundwater management plan. Due to the City's budget constraints, the City has no plans to prepare a groundwater management plan at this time.

A form of groundwater management in California is court adjudication. In some California Groundwater basins, as the demand for groundwater exceeded supply, landowners and other parties turned to the courts to determine how much groundwater can rightfully be extracted by each user. The courts study available data to arrive at a distribution of the groundwater that is available each year, usually based on the California law of overlying use and appropriation. There are 19 court adjudications for groundwater basins in California, mostly in Southern California. ¹

The Kern County Subbasin has not been adjudicated.

¹ Tulare Lake Hydrologic Region, Kern County Subbasin: California's Groundwater Bulletin 118, Update 2003.

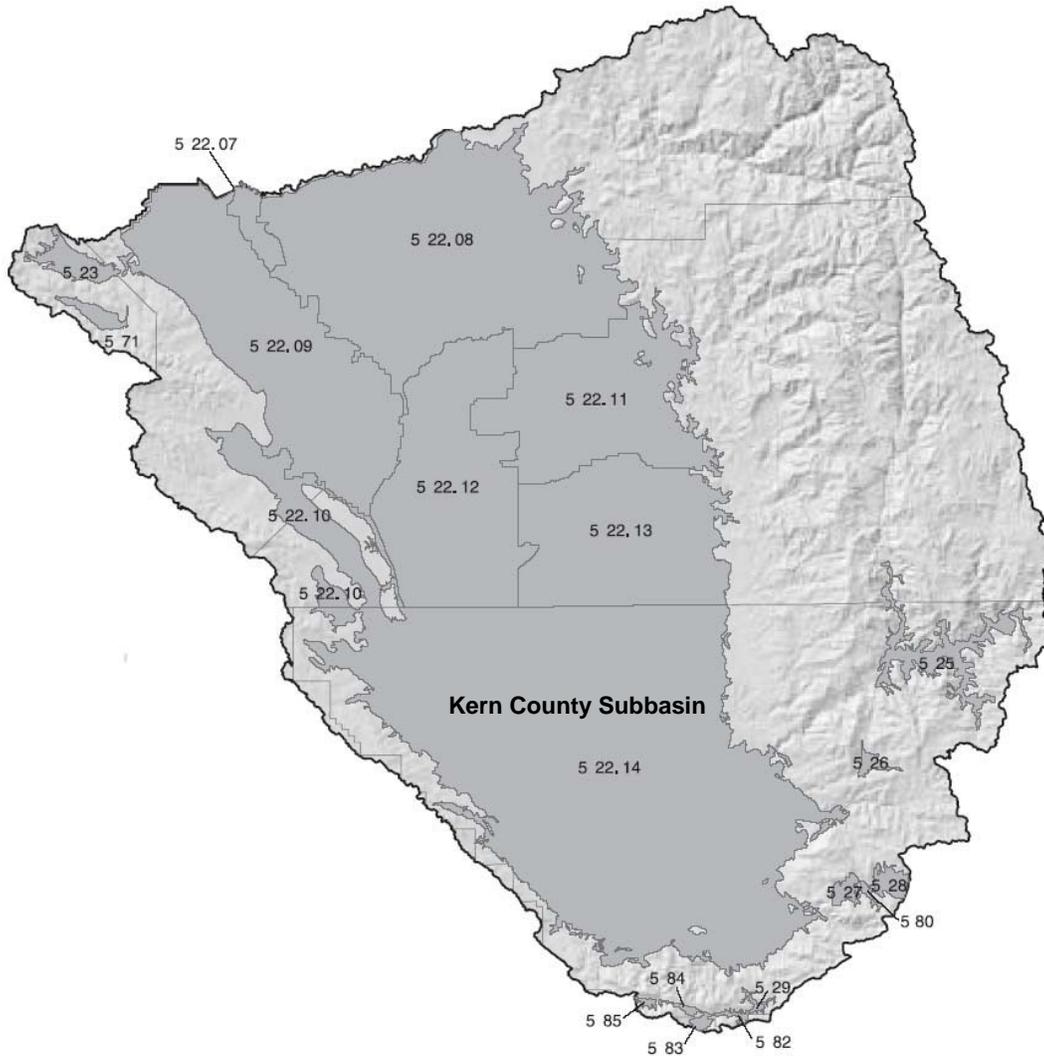


Figure 1. Tulare Lake Hydrologic Region

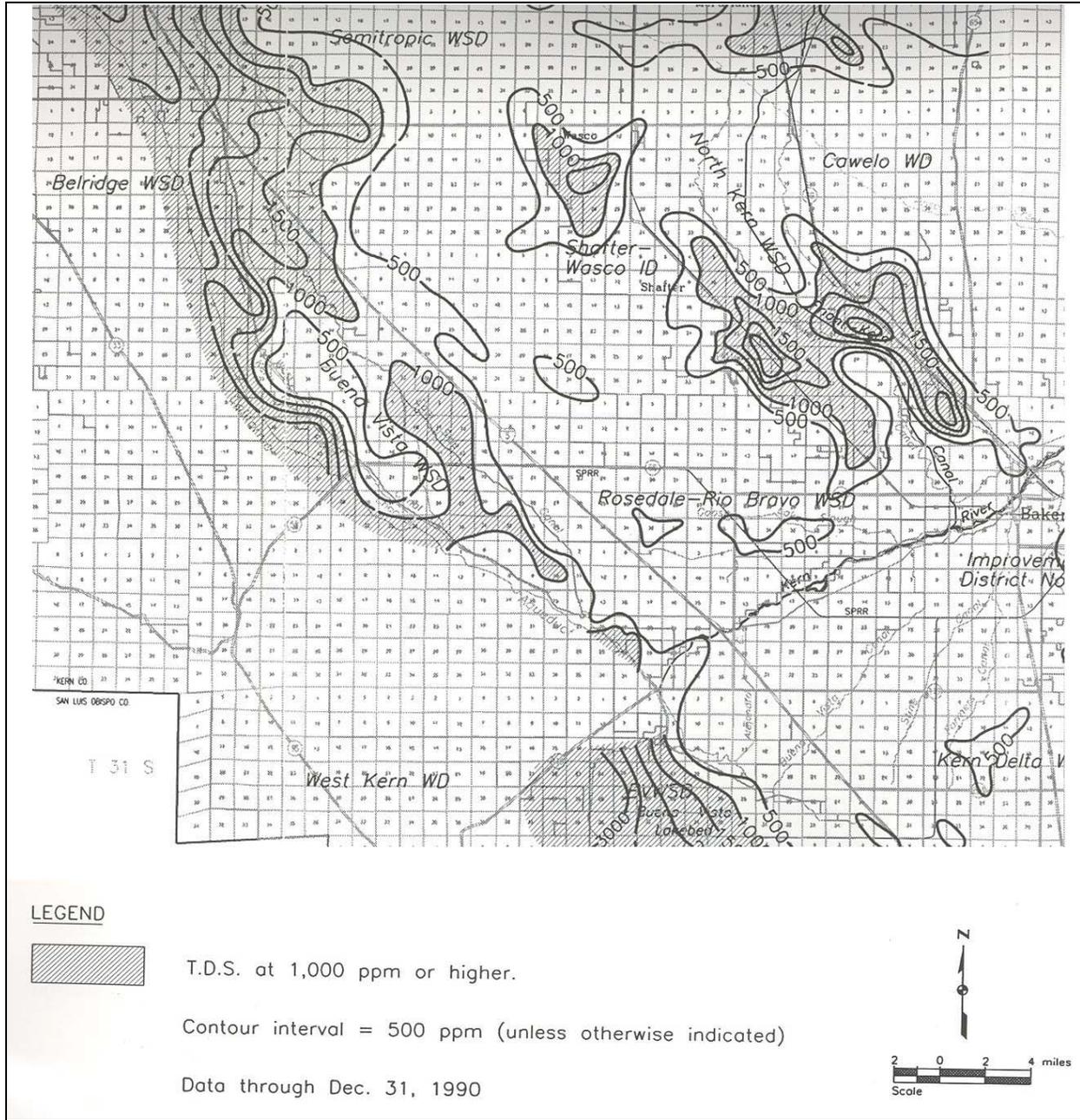


Figure 2. Groundwater Quality – Unconfined Aquifer
 Source: Kern County Water Agency, Water Supply Report 1997



The City of Wasco existing water system consists of eight wells and a distribution system. One well, Well #6, is currently inactive due to high concentrations of nitrate and DBCP concentrations that exceed drinking water standards. A second well, Well #2, is located on the lower most elevation zone within the distribution system and is equipped with a 200 horsepower pump. Due to its locations and size of pump, Well #2 is currently only operated to supply irrigation water to the Valley Rose Golf Course as it would over pressurize the local distribution system if maintained under constant operation. Water supply for domestic service and fire flow is currently supplied from the remaining six active wells.

The wells range in depth from 700 feet to 930 feet and range in capacity from 650 GPM to 1,700 GPM. The system has two pressure zones which dividing line is along Magnolia Ave. pressure zone division. Only three wells are equipped with backup generators and all wells have hydropneumatic tanks. Well 9 is the only well equipped with a variable frequency drive. Start and stop system pressure for each well varies depending on the seasonal demand throughout the system. However, wells are typically operated in such a way to maintain a pressure of 50 psi throughout the distribution system. The active wells are listed in Table 3-2, which shows the well locations, current status and production capacities. Figure 3 shows for the relative location of the water wells.

Table 3-2 City of Wasco Water Wells					
Well No.	Location	Status	Pumping Capacity ⁽¹⁾		
			GPM	MGD	AFY
5	City Yard - 8 th & F St.	Active	673	0.97	1,087
6	Santa Fe - H St. between Roberts & Rouse St.	Inactive	--	--	--
7	4 th & Poplar Ave.	Active	637	0.92	1,031
8	Poso Dr. between Aspen & Beckes St.	Active	1,036	1.49	1,669
9	16 th & G St.	Active	578	0.83	930
10	Iris St. & Griffith Ave.	Active	917	1.32	1,479
11	Oak & 11 th St.	Active	948	1.37	1,535
	Total Active Pumping Capacity		4,789	6.9	7,731
2	City Golf Course – Hwy 46 & Leonard Ave.	Active	1,568	2.26	2,538
	Total Standby Pumping Capacity		6,357	9.2	10,269

(1) Source: City provided - Pump Test Report, dated July 11, 2007

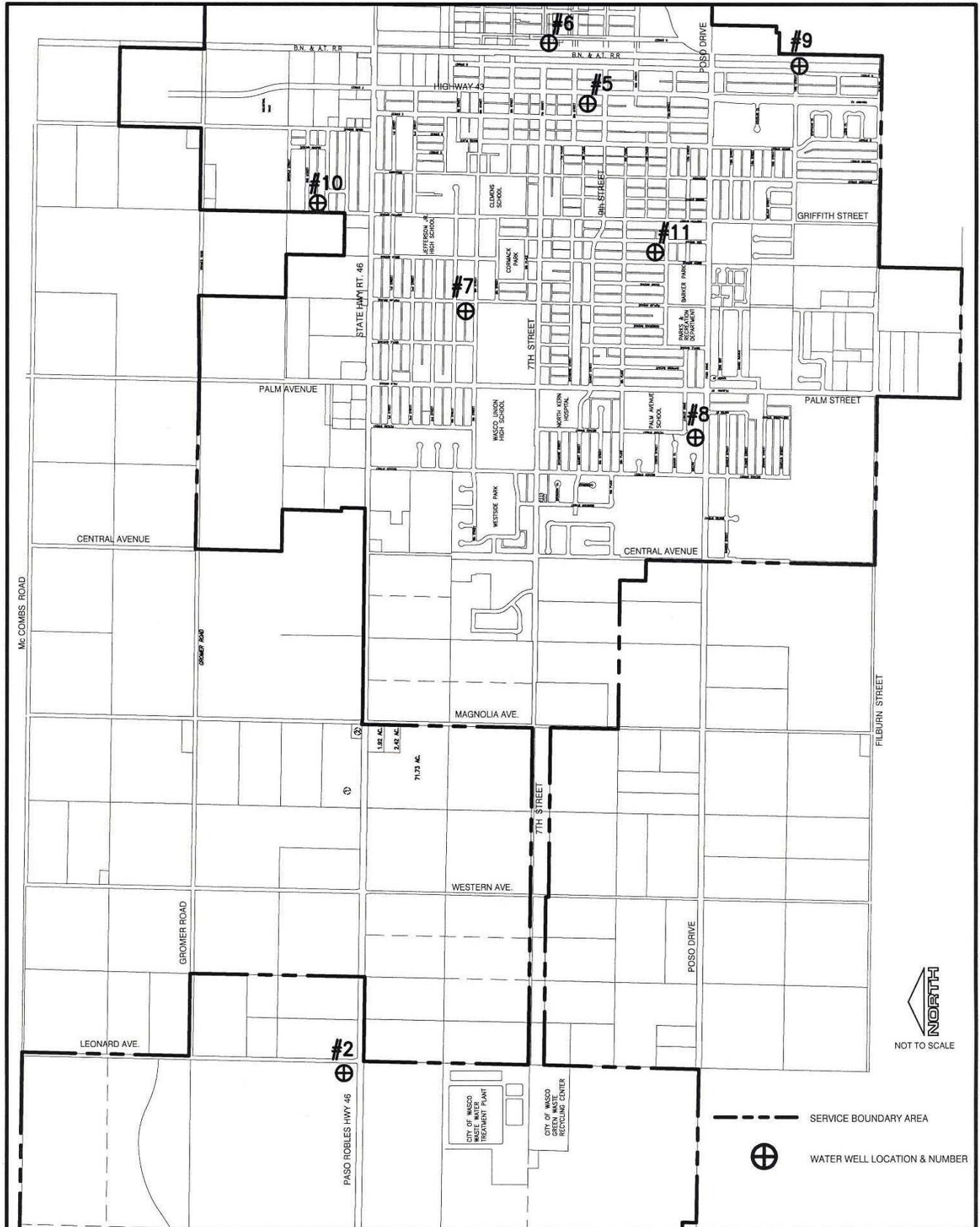


Figure 3. Wasco Water Wells Location



Table 3-3 shows the amount of groundwater pumped by the City of Wasco within the past five years.

Table 3-3 Amount of Groundwater Pumped					
Basin Name	2000	2001	2002	2003	2004
Kern County Subbasin	4,366	4,351	4,459	4,542	4,613
% of Total Water Supply	100%	100%	100%	100%	100%

Units of Measure: acre-feet/year

Table 3-4 shows the groundwater that is projected to be pumped by the City of Wasco.

Table 3-4 Amount of Groundwater Projected To Be Pumped						
Basin Name	2005 ^(a)	2010	2015	2020	2025	2030
Kern County Subbasin	4,444	7,447	10,142	13,194	16,602	20,368
% of Total Water Supply	100%	100%	100%	100%	100%	100%

Units of Measure: acre-feet/year. The amounts shown are based on amounts needed to meet demand.

^(a) Actual Data

City of Wasco Water Quality

Public water supplies must meet water quality standards established to protect the public health and to assure consumer acceptance. "Domestic Water Quality and Monitoring Regulations" as adopted by the State of California include bacteriological; general physical; and inorganic, organic, and general chemical monitoring, testing, and maximum contaminant level requirements applicable to public water supplies (Title 22 requirements). Monitoring and testing of the City's water supply has been carried out in accordance with applicable requirements.

A review of historical water quality data indicates that the City's water generally exceeds State Department of Health Services water quality criteria.¹

All active wells are sampled and tested for general mineral, general physical, bacteriological, inorganic, and organic chemical analyses in compliance with Title 22 requirements. The water quality information discussed in this section is from Wells 2, 5, 7a, 8a, 9, 10, and 11. Well 6 is currently inactive and will be included in future sampling.

¹ City of Wasco Water Master Plan, April 2007.

Overall water quality from active wells meets the water quality criteria, however the Department of Health Services has delineated three contaminants of concern for the City's wells including nitrate, Dibromochloropropane (DBCP) and Ethylenedibromide (EDB). These are also some bacteriological issues associated with some of the wells. These constituents are discussed below. The consumer confidence report for 2005 is included in Appendix C.

Bacteriological Quality

The City has experience positive bacteriological results in the past. In 2002, fecal coliform was detected in a sample collected in Well 2. Repeat samples collected in this well showed positive results for total coliform and negative results for fecal coliform. This well is currently not pumping into the distribution system. The causes for coliform in this well should be investigated. It may be possible to rehabilitate the well at a significant savings over the cost of a new well.

Organics

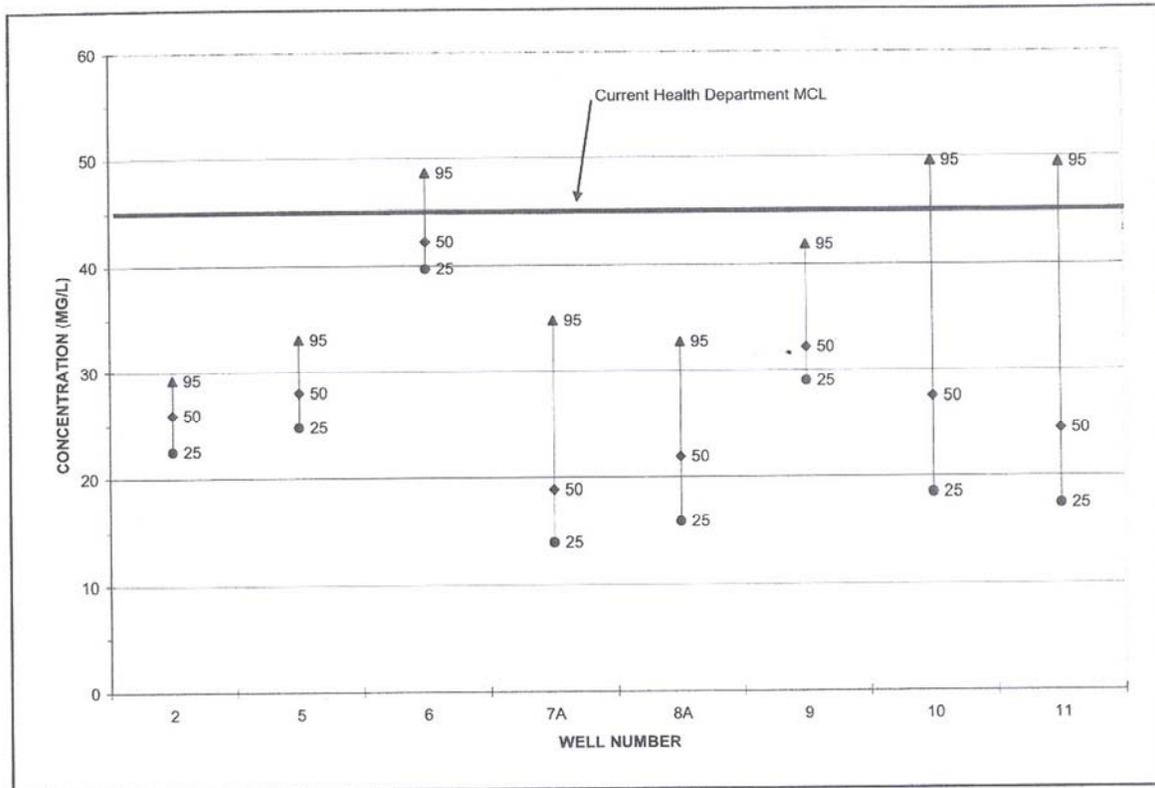
DBCP has been detected in samples collected in Wells 5, 8, and 11. The concentration measured have generally been less than one-half of the 0.0002 mg/L MCL. As a result, these wells are required to conduct quarterly sampling for DBCP.

In addition to DBCP, Well 11 has also shown detectable concentrations of EDB. The EDB concentration does not exceed the current MCL, however, it is slightly above the detection limit for reporting to the Department of Health Services (DHS). Therefore, in addition to DBCP, quarterly sampling for EDB is also required for this well.

Nitrate

The City has experienced periodic nitrate spikes in certain wells; however, staff have been able to remedy the problems by means of pumping to waste during well startup and increasing the well bowls depths. The maximum allowable concentration of nitrate is 45 mg/L (as nitrate). Well 6 has been removed from the system due to high nitrate concentrations rather than treating the water. Elevated nitrate concentrations have been observed in Well 11. The City since has lowered the bowl depth of this well hence changing the aquifer zone from which the majority of the water is pumped.

Figure 4 shows the historical nitrate concentration distribution observed in samples taken from each well since 1985. Extended bars indicate the range in values in nitrate concentration observed within each well.



Note: Values associated with each distribution bar indicate the percentage of samples obtained with nitrate concentrations at or below the indicated concentrations.

Figure 4. Groundwater Wells Nitrate Concentration Distribution

Source: City of Wasco Water Master Plan, April 2007 – Figure 4-2.

Recycled Water

Water recycling has been identified as an important demand management tool. The City owns and operates a wastewater treatment facility (WWTF) west of the community. The City is permitted to discharge its effluent to 605 acres of City-owned land that surrounds the WWTF to the south and west (160 acres percolation and storage plus 445 acres irrigation).¹ The irrigation practice helps to replenish the area groundwater table through deep percolation and reduces groundwater overdraft. Effluent generally flows by gravity with the use of booster pumps during high flows through several miles of pipeline and open ditches. It is expected that this practice will continue in the future and aid the groundwater basin recharge.

Currently, the WWTF produces approximately 1.7 million gallons per day (mgd) (5.2 acre-feet/day) of undisinfected, secondary treated effluent. The City land is permitted for 1.95 mgd. The effluent is used strictly for agricultural practices within the reuse area.¹

Desalination

Desalinated water is not a viable option for City water supply, because the ocean is not immediately adjacent to the City and brackish groundwater is not present.

¹ City of Wasco – Recycled Water Engineering Report City Farm Properties, August 2002.

Section 4 Reliability of Supply

The costs of demand management or supply augmentation options to reduce the frequency and severity of shortages are now high enough that city planners must look more carefully at the costs of unreliability to make the best possible estimate of the net benefit of taking specific actions, hence the term "reliability planning." Reliability is a measure of a water service system's expected success in managing water shortages.

To plan for long-term water supply reliability, planners examine an increasingly wide array of supply augmentation and demand reduction options to determine the best courses of action for meeting water service needs. Such options are generally evaluated using the water service reliability planning approach.

In addition to climate, other factors that can cause water supply shortages are earthquakes, chemical spills, and energy outages at treatment and pumping facilities. City Planners include the probability of catastrophic outages when using the reliability planning approach.

Reliability planning requires information about: (1) the expected frequency and severity of shortages; (2) how additional water management measures are likely to affect the frequency and severity of shortages; (3) how available contingency measures can reduce the impact of shortages when they occur.

Supply Reliability

The City of Wasco has never experienced a severe shortage of water supply, and it anticipates this condition will remain in the following years. The City's local groundwater, which is its solely source of supply, has reliably allowed the City to meet its historical water demands. The local aquifer yields are good and can be readily recharged by percolation in the Kern River channel and other sites. The City currently has an active water conservation program including year-round watering restrictions, and prohibition of water waste. By the use of a "No-Waste" Ordinance, voluntary rationing on the part of the community and effective water conservation programs the City is insured a reliable water supply that meets federal, state, and local standards.

In addition, since the City relies on groundwater alone, it is not directly affected by the reduction of the surface water deliveries in drought years and is buffered from the effects of potential short water shortages.



The most likely reasons the City would have a deficit are that wells could not be used because of contamination or repairs or an emergency occurs which limits the water system's ability to deliver the water. Another possibility is that eventually if not enough recharge is carried out there could be a shortage caused by falling water levels. Wells could dry up and in certain areas deeper wells may not be possible.

The data in Table 4-1 evaluates the reliability of the water supply during normal, single-dry, and multiple-dry water years. The analysis indicates that the supply reliability is adequate. The projected groundwater supply under normal, single-dry, and multiple-dry water years are expected to be 100% reliable. These numbers assume that the groundwater yield is not reduced due to water quality issues.

Table 4-1 Supply Reliability								
Water Supply	Normal Water Year	Single Dry Water Year	Multiple Dry Water Years					
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Groundwater	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444
% of Normal	100%	100%	100%	100%	100%	100%	100%	100%

Units of Measure: acre-feet/year

Based on experiences during past droughts, the community recognizes that it is better to voluntarily reduce usage when water supplies are limited. Through public awareness, reduction in water consumption is achieved.

Basis of Water Year Data

The water years used, were based on hydrologic data from 1970 to 1997¹. Based on the data compiled, the water years used for a normal (or average) water year, single-dry water year, and multiple-dry water years are listed on Table 4-2.

Table 4-2 Basis of Water Year Data		
Water Year Type	Base Year(s)	Historical Sequence
Normal Water Year	1985	1970 - 1997
Single-Dry Water Year	1994	
Multiple-Dry Water Years	1987 - 1992	

¹ Kern County Water Agency – Water Supply Report 1997, Figure 18.



Frequency and Magnitude of Supply Deficiencies

The local region experienced a prolonged drought from 1987 through 1992. In an average year, about 30 percent of California’s urban and agricultural water supplies come from groundwater pumping. Reliance on groundwater increases during droughts due to the reduced availability of surface water. Increased groundwater pumping during droughts results in increased lowering of water levels in groundwater basins. During the six years of the 1987-92 drought groundwater storage was reduced by about 919,000 acre-feet per year in Kern County. Between 1970 and 1997, about 15,100,000 AF was withdrawn from groundwater storage. During the same period, the balance between additions and extractions has replenished about 4,800,000 AF. The average change in storage since 1970 is about 368,000 AF per year. In volume of groundwater storage, the basin still stands below 1977 levels, although a definite upward trend continues.¹

The City of Wasco does not anticipate any water shortages in any average rainfall year through 2025. No extraordinary conservation measures, beyond the implementation of water conservation best management practices, are reflected in the dry-year scenarios.

Factors Resulting in Inconsistency of Supply

Since the City relies on groundwater alone, it is not directly affected by the reduction of the surface water deliveries in drought years and is buffered from the effects of potential short water shortages. Supplies are not expected to be impacted by long-term shortages due to legal or environmental factors.

Table 4-3 Factors Resulting in Inconsistency of Supply				
Name of Supply	Legal	Environmental	Water Quality	Climatic
Groundwater	None	None	None	None

On a short-term basis, shortages could result from system maintenance. The likeliest interruption would be as a result of loss of power for an extended time or facility failure at treatment and pumping facilities. In the event of a power outage, Wells #8, #9 and #10 are equipped with emergency generators as is the Supervisory Control and Data Acquisition (SCADA) system.

¹ Kern County Water Agency – Water Supply Report 1997

Plans to Supplement Water Sources

By 2010, the City of Wasco service area will require 7,447 ac-ft/yr, and by 2030, 20,368 ac-ft/yr will be required. Currently the combined capacity of the water wells in the City is 10,269 ac-ft/yr; assuming that the full safe yield can be obtained from the groundwater supplies.

In order to assure a safe and reliable water supply for the residents and business owners in the service area, the City is considering and planning the following improvements:

- Install several crucial pipeline inter-ties within the City.
- Construct a 3 million gallon reservoir and well.
- Upgrade Well #7 to 150hp with emergency generator and VFD.
- Upgrade Well #10 to 200hp and VFD.
- Purchase Well #12 (300hp with emergency generator and VFD) and connect it to exist system.
- Expansion of the Wastewater Treatment Plant from 3.0 mgd to 4.5 mgd.

The Water Department has indicated that Well #7 will have an emergency generator by 2008. The emergency generators would allow the pumping facilities to remain in operation during an extended power outage.

In the event, the groundwater basin experiences overdraft conditions during an extended water drought; the City would consider implementing the following conservation measures.

- Restricted irrigation, odd/even schedule
- Residential vehicle washing restrictions
- Toilet flushing restrictions
- Gray water (dish, bath, and laundry wastewater) reuse
- Other measures not yet identified

Additionally, the City should investigate and study the supply alternatives available for meeting increased future demands. These alternatives could include, drilling of new wells, converting agricultural wells to urban uses, initiating water transfers or exchanges, increasing conservation programs, and implementation of recycled water programs.



Transfer and Exchange Opportunities

Currently the City of Wasco does not participate in any water transfer or exchange activities with other entities. It is not anticipated that transfers or exchanges would occur in the near future. The City, however, realizes that during supply shortage years such activities have the potential to reduce the impacts to its customers. In the future, the City could explore transfer and exchange agreements with local farmers and other water districts. For instance, the City could deliver treated water to local agricultural districts' irrigation canal system in exchange for an equal amount of surface water.



Section 5 Past, Current and Projected Water Use

This section of the UWMP presents the actual water use and projected water demands at five year increments between 2005 and 2030. The City's 2002 General Plan Update projects population through year 2050. The City's service area will likely expand into the City's sphere of influence. The 2005 UWMP uses population projections from the City's Water Master Plan, dated April 2007 and prepared by ECO:LOGIC Engineering. The 2007 Water Master Plan is the most recent water planning document.

According to the 2007 Water Master Plan, water demands were developed by using City approved land uses for areas within the existing City limits, a proposed 20-year, and long-term boundaries. Existing and future land use was established from information received from the City's Planning Department. Additionally, water demands based on population projections were estimated by interpolating between the 2006 per capita consumption of 225 gallons per day and the calculated future 2026 per capita consumption of 367 gallons per day. For complete details on the methodology used to develop the projected water demands please refer to Section 3 of the City of Wasco 2007 Water Master Plan.

Table 5-1 shows the estimated water demands per capita, based on the projected population growth per the methodology developed in the City of Wasco 2007 Water Master Plan.

Table 5-1 Water Demand Based On Population Projections		
Year	Population	Average Per Capita Demand (gpcpd)
2005	17,611	255
2010	23,996	277
2015	29,681	305
2020	35,366	333
2025	41,051	361
2030	46,736	389

Source: City of Wasco – 2007 Water Master Plan

The 2007 Water Master Plan assumed that by year 2026 the industrial area would be fully built-out. This assumption was based on information received from the City planners.¹

Water Use by Customer Type

Table 5-2 shows that the City's gross water demand, was 4,444 acre-feet per year in 2005 and is projected to increase to 18,331 acre-feet per year in 2030. The number of water accounts was 3,955 in 2005 and is projected to increase to a total of 11,835 water accounts in 2030. The projections assume plumbing code requirements are implemented.

¹ City of Wasco Water Master Plan, April 2007.



Table 5-2 Past, Current and Projected Water Deliveries

Year		Water use Sectors	Single Family	Multi Family	Com-mercial/Instit-utional/Gov	Industrial	Land-scape	Agri-cultural	Other	Total
2000	Metered	# of Accts	24	40	85	11	7	-	-	167
		Deliveries AF/Y	28.3	277.29	325.48	134.44	n/a	-	-	765.51
	Unmetered	# of Accts	3,186	209	226	0	0	-	-	3621
		Deliveries AF/Y	n/a	n/a	n/a	-	n/a	-	-	3600.36
2005	Metered	# of Accts	25	45	56	19	12	-	14	171
		Deliveries AF/Y	26.46	370.32	239.17	204.45	188.15	-	25.78	1054.33
	Unmetered	# of Accts	3347	195	211	0	31	-	-	3784
		Deliveries AF/Y	n/a	n/a	n/a	-	n/a	-	-	3389.81
2010	Metered	# of Accts	2726	282	305	22	46	-	15	3396
		Deliveries AF/Y	1670	1043	745	1415	372	-	149	5394
	Unmetered	# of Accts	2105	-	-	-	-	-	-	2105
		Deliveries AF/Y	1308	-	-	-	-	-	-	1308
2015	Metered	# of Accts	6331	311	337	26	51	-	17	7073
		Deliveries AF/Y	4057	1420	1014	1927	507	-	203	9128
	Unmetered	# of Accts	-	-	-	-	-	-	-	0
		Deliveries AF/Y	-	-	-	-	-	-	-	0
2020	Metered	# of Accts	7831	344	372	30	56	-	18	8651
		Deliveries AF/Y	5278	1847	1319	2507	660	-	264	11875
	Unmetered	# of Accts	-	-	-	-	-	-	-	0
		Deliveries AF/Y	-	-	-	-	-	-	-	0
2025	Metered	# of Accts	9331	379	411	34	62	-	20	10237
		Deliveries AF/Y	6641	2324	1660	3154	830	-	332	14941
	Unmetered	# of Accts	-	-	-	-	-	-	-	0
		Deliveries AF/Y	-	-	-	-	-	-	-	0
2030	Metered	# of Accts	10831	419	453	40	69	-	23	11835
		Deliveries AF/Y	8147	2852	2037	3870	1018	-	407	18331
	Unmetered	# of Accts	-	-	-	-	-	-	-	0
		Deliveries AF/Y	-	-	-	-	-	-	-	0

Note: The City's most current information on low-income housing is from the 2006. In 2006, the City had an estimated 948 families with income below the poverty level, but the data does not distinguished between Single and Multi Family, therefore associated water demands could not be determined. The City does not have projections for future low-income housing units, therefore associated water demands can not be determined for future low-income housing units. Source: Demographic Snapshot Report – www.wascoforbusiness.com.

Residential Sector

In the City of Wasco, single-family residential customers average 3.79 persons per connection. Multi-family residential customers average 3.79 persons per housing unit, and average 10 units per multi-family complex. Total system per capita water use (excluding agricultural water use) averages 255 gallons per capita per day in 2005. Water efficiency improvements appear to be reducing per capita water use, which will prevent a return to post-drought levels.

Residential water consumption is composed of both indoor and outdoor uses. Indoor water use includes sanitation, bathing, laundry, cooking and drinking. Most outdoor water use is to meet landscaping irrigation requirements. Other minor outdoor uses include car washing, surface cleaning, and similar activities. Single-family residences generally contain larger landscaped areas, predominantly planted in turf, and require more water for outdoor application in comparison to other types of housing. The general characteristics of multifamily and mobile homes limit outdoor landscaping and water use, although some condominium and apartment developments do contain green belt areas.

The City expects a somewhat steady population growth of 1,137 people per year (based on 300 single family dwelling units and 3.9 people per dwelling unit).¹

Commercial Sector

The City has a complex mix of commercial customers, ranging from markets, restaurants, beauty shops, and gas stations to office buildings, regional shopping centers, and high-volume restaurants and other facilities serving the population. The sector is growing at about 2% per year, driven particularly by the need for services by the increasing permanent population. This trend is expected to continue through 2030.

Industrial Sector

The City has a small industrial sector, primarily centered on agriculture related industry. The industrial sector has not grown much in the last decade but has been growing at an increasing rate recently. It is expected to increase at about 3% in the next ten years due to increased interest and incentive in the industrial park site.

¹ City of Wasco Water Master Plan, April 2007.

Institutional/Governmental Sector

The City has a stable institutional/governmental sector, primarily local and county government, state prison, schools, public facilities, and a health care facility. This sector will keep pace with the growth of the city.

Landscape/Recreational Sector

There are four parks and a golf course within the City limits. These large landscape water users are supplied with landscape water by the Shafter-Wasco Irrigation District (SWID). The City only supplies the potable water to the public restrooms for the parks and golf course and the golf course clubhouse. Cormack Park is irrigated with City water only, while the golf course is irrigated with Well #2 when SWID allotment is used. The south side mini park is irrigated with City water only. Landscape and Recreational customer demand is expected to increase approximately 2% per year for the next 20 years, due to continued growth in population. Increased efficiency and landscape conversions at existing parks, golf courses, and cemeteries should help offset new demand resulting from projected increases in this sector.

Agricultural Sector

Trees and vines account for more than half of Kern County's gross agricultural value, reflecting the importance of these crops to the local economy. Agriculture is an important source of employment in Kern County. About 25 percent of all jobs in the county are agriculture-related. For some smaller communities, agriculture is nearly the sole source of employment. The City of Wasco currently has an agricultural employment rate of 75 percent.

Agricultural water for local farmers is supplied by the Shafter-Wasco Irrigation District. The City uses recycled water feed and fodder type crops irrigation on City-owned land. The farming operation is run by local farming interests on a competitive bidding basis. Effluent generally flows by gravity with the use of booster pumps during high flows through several miles of pipeline and open ditches. There are storage ponds at the WWTP and in the farmed area.

Sales to Other Agencies

Currently the City has no sales of water to other agencies. This is a distinct possibility in the future but the quantities of water are unknown at this time.

Additional Water Uses and Losses

Unaccounted for water is considered water that is produced and distributed but not sold or metered. Less than 5 percent of the residential and approximately 30 percent of the commercial/institutional services



within the system are metered. Due to the high number of unmetered services within the City, it is difficult to ascertain how much of the water produced is unaccounted.

To better understand the distribution of the water produced among its services, the City has conducted an audit study of its metered residential services. Results of the audit indicate that the average single-family residence water demand is approximately 600 gallons per day. This value is believed to be a reasonable estimate.¹

Table 5-3 summarizes the calculated produced water distribution throughout the City's services.

Table 5-3 04-05 Water Audit		
Category	Usage (Million Gallons)	Percentage
Residential	968.40	67.90
Non-Residential	163.65	11.47
City Government	15.40	1.08
Construction	2.20	0.15
Fires	2.16	0.15
Swimming Pools	0.10	0.001
Leaks	273.89	19.20

Source: City of Wasco Water Master Plan, April 2007. Table 3-8

It is estimated that approximately 19.2 percent of the water produced by the City is lost due to leaks, firefighting, swimming pools and filling of construction water trucks.

Table 5-4 shows unaccounted-for water which is defined to be the difference between water produced and water sold to customers. This differential between water supply and metered water use includes system flushing, firefighting, unmetered construction usage, unmetered swimming pool filling, system leaks, repair flushing, hydrant leaks, street sweeping and known leaks that are subsequently repaired. The City is committed to minimizing its unaccounted-for water and staying within the industry average of 10% loss (maximum).

Table 5-4 Additional Water Uses and Losses							
Water Use	2000	2005	2010	2015	2020	2025	2030
Unaccounted-for & losses	3,600	3,390	2,053	1,014	1,319	1,661	2,037
Total	3,600	3,390	2,053	1,014	1,319	1,661	2,037

Units of Measure: acre-feet/year

¹ City of Wasco Water Master Plan, April 2007.



Gross Water Demands

Table 5-5 summarizes the City’s total past, current, and projected water demands as determined in this section. The demand totals shown in this table will be used in the comparison of supplies and demands in this UWMP. The figures for 2000 and 2005 are actual water use amounts for the year. The gross water demand projections assume that State-mandated plumbing codes are being enforced and adhered to by all new development. As for existing water users, the table assumes a certain level of plumbing retrofits will be implemented.

Table 5-5 Total Water Use							
Water Use	2000	2005	2010	2015	2020	2025	2030
Customer demand total	766	1,054	5,394	9,128	11,875	14,941	18,331
Unaccounted-for & losses	3,600	3,390	2,053	1,014	1,319	1,661	2,037
Total	4,366	4,444	7,447	10,142	13,194	16,602	20,368

Units of Measure: acre-feet/year

Section 6 Demand Management Measures

The City of Wasco is committed to managing its water resources in the most responsible way possible while keeping costs to its customers to a minimum. To that end the City has for the past five years been actively trying to increase water conservation. Below are descriptions of current and future water management programs.

DMM 1 – Water Survey Programs for Single-Family Residential, and Multi-Family, Residential Customers

IMPLEMENTATION DESCRIPTION AND SCHEDULE: In order to determine typical water usage of residential customers, the City conducted a water meter audit from June 2005 until June of 2006 of thirty-nine single-family residential water meters. The results indicated an average daily usage of 600 gallons of usage per household, per day.

The City intends to continue the water audits in different neighborhoods of the City to identify water use in the various neighborhoods in order to recommend water saving tips to the City residents. The water audits will be performed on volunteer residents only.

BUDGET: No specific budget has been set-aside for this DMM at this time.

DMM 2 – Residential Plumbing Retrofit

IMPLEMENTATION DESCRIPTION AND SCHEDULE: The City Building Department requires all new construction to implement low flow devices such as toilets and showerheads. The City has approximately 3,200 pre-1992 water accounts. In order to get those customers to change over to low flow devices the City has to make low flow shower heads and faucet aerators available to customers at no cost. Due to the City's budget constraints, they cannot provide costly plumbing retrofits. In 2002, the City, in cooperation with Wasco High School voluntary groups distributed toilet tank displacement bags to residents that do not have low flow toilets. The City distributed approximately 500 – 1 gallon displacement bags. It is estimated that if all the distributed displacement bags were installed the water savings is approximately 2.24 acre-feet/year. The savings are based on 3.79 persons per household, flushing the toilet an average of 4 times a day per household.

The City will continue to require implementation of this DMM for all new construction.

BUDGET: No specific budget has been set-aside for this DMM at this time.



DMM 3 – System water audits, leak detection, and repair

IMPLEMENTATION DESCRIPTION AND SCHEDULE: In daily activities, City staff observes pavement conditions where existing water mains are located. Typically, leaks are detected as a result of localized deterioration of pavement adjacent to a water main. The City installed a water well SCADA system in 1994 to monitor the City's well. The system has allowed the City to identify leaks much faster than previous years.

The City has not conducted formal water audits of the distribution system.

BUDGET: No specific budget has been set-aside for this DMM at this time

DMM 4 – Metering with Commodity Rates for all New Connections and retrofit of existing connections.

IMPLEMENTATION DESCRIPTION AND SCHEDULE: The City requires all new construction to install water meters. Currently, less than 5 percent of the residential and approximately 30 percent of the commercial/institutional services within the system are metered. The City employs varying rate structures for metered and unmetered connections and uses. The pricing is intended to be fair and equitable for all users. In 2005 the City Council passed an Ordinance amending Section 13.08.20 of the Wasco Municipal Code related to the Schedule of rates for water. See Appendix B.

In order to comply with Assembly Bill No. 2572, the City has plans to implement an aggressive plan to retrofit existing unmetered connections with meters. Beginning on fiscal year 2008-2009 the City plans to retrofit 500 connections, more or less, per year with meters. Metered accounts may result in a 15% reduction in demand compared to non-metered accounts.

BUDGET: Currently, the City has approximately 3,300 unmetered connections. Using a \$1,000 installation cost per unit, total cost to meter all existing connections would be approximately \$3.3 million. The following table shows the planned number of retrofit meters installed and the associated costs for a five year period. No specific budget has been set-aside for this DMM at this time.

Meter Retrofit of Existing Unmetered Connections					
Planned	2008	2009	2010	2011	2012
# of unmetered accounts	3,105	2,605	2,105	1,605	1,105
# of retrofit meters installed	500	500	500	500	500
Projected Expenditures	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Projected water saving – AF/Y	50.4	50.4	50.4	50.4	50.4

Based on 15% water savings on a metered connection using 600 gallon per household as determined by the 2005-2006 water audit



DMM 5 – Large Landscape Conservation Programs and Incentives

IMPLEMENTATION DESCRIPTION AND SCHEDULE: There are four parks and a golf course within the City limits. The Shafter-Wasco Irrigation District supplies these large landscape water users with landscape water. The City only supplies the potable water to the public restrooms for the parks and golf course and the golf course clubhouse. Cormack Park is irrigated with City water only, while the golf course is irrigated with Well #2 when SWID allotment is used. The south side mini park is irrigated with City water only.

The City does not provide financial incentives to improve landscape water use.

BUDGET: No specific budget has been set-aside for this DMM at this time.

DMM 6 – High-Efficiency Washing Machine Rebate Programs

IMPLEMENTATION DESCRIPTION AND SCHEDULE: Currently the City does not offer a rebate for high - efficiency washing machines. Through the end of 2008, Pacific Gas and Electric Company is providing a \$35 or \$75 rebate on high - efficiency washers that have a water factor of 6 gallons per cubic foot of laundry and 4.5 gallons per cubic foot of laundry respectively.

The City has no plans to offer a rebate for high - efficiency washing machines.

BUDGET: No specific budget has been set-aside for this DMM at this time.

DMM 7 – Public Information Programs

IMPLEMENTATION DESCRIPTION AND SCHEDULE: The City plans to provide public information services and materials to remind the public about water and other resource issues and will have water conservation brochures available at the bill payment counter in the future. Additionally, the City will print water conservation messages on water bills and on the annual quality report. This DMM is schedule to begin implementation in fiscal year 2008.

Public Information - Planned	2008	2009	2010
Bill Inserts / Newsletters / Brochures	4,400	4,700	5,500
Projected expenditures - \$	2,000	2,000	2,000

BUDGET: No specific budget has been set-aside for this DMM at this time.

DMM 8 – School Education Programs

IMPLEMENTATION DESCRIPTION AND SCHEDULE: The City, in cooperation with the Wasco School District, plans to provide educational literature and video information to all teachers. The educational items will include water conservation topics, the hydrologic cycle and how the City's water is conserved through reclamation of treated wastewater.

BUDGET: No specific budget has been set-aside for this DMM at this time.

DMM 9 – Conservation Programs for Commercial, Industrial, and Institutional Accounts

IMPLEMENTATION DESCRIPTION AND SCHEDULE: Commercial, industrial and institutional customers are treated the same as residential customers. Therefore any demand reduction measures which are available and marketed to residential customers are also available for commercial, industrial and institutional customers. All new commercial and industrial projects are reviewed by the City and separate water meters are recommended for large landscape uses at commercial, industrial and institutional sites.

The City is planning to conduct water audits for commercial and industrial water users; however, water use data for the metered connections is collected through meter readings for billing purposes. Once the Urban Water Management Plan is adopted, the City staff will perform annual water audits; beginning with the large water users first.

BUDGET: No specific budget has been set-aside for this DMM at this time.

DMM 10 – Wholesale Agency Programs

The City is not a wholesale agency.

DMM 11 – Conservation Pricing

IMPLEMENTATION DESCRIPTION: The City employs varying rate structures for metered and unmetered connections and uses. Sewer use pricing is established similarly. The pricing is intended to be fair and equitable for all users. In 2005 the City Council passed an Ordinance amending Section 13.08.20 of the Wasco Municipal Code related to the Schedule of rates for water. See Appendix B. The City will re-evaluate the water rate structures within four (4) years and establish rate structures to encourage water conservation.

DMM 12 – Water Conservation Coordinator

IMPLEMENTATION DESCRIPTION AND SCHEDULE: The Water Department Superintendent has unofficially served as the Water Conservation Coordinator (WCC) for the City of Wasco. As Water Department Superintendent, he is responsible for the efficient operation of the water system. In carrying out these duties, water conservation and water waste issues are addressed daily. A WCC would formally be responsible for implementation of DMM for water conservation and would delegate those responsibilities either to staff or outside consultants. The Water Department Superintendent applies some of the DMM's to the City's operation within budgetary constraints.

The City will continue to implement this DMM

DMM 13 – Water Waste Prohibition

IMPLEMENTATION DESCRIPTION AND SCHEDULE: The City has a water waste prohibition ordinance in effect, Ordinance No. 58 of the Wasco Municipal Code, and actively enforces it. The ordinance levies fines and penalties for non compliance with the City's water conservation program or water wastage. The penalties include flow restrictors, termination of water service for exterior use or complete termination of water service. The City routinely patrols the City looking for violators during the summer months and also responds to complaints and issues citations when violations are noticed by City employees. See Appendix B for copies of the ordinance and a sample citation.

DMM 14 – Residential Ultra-low Flush Toilet Replacement Programs

IMPLEMENTATION DESCRIPTION AND SCHEDULE: As mentioned above, the City requires low-flow plumbing fixtures for new construction. It is cost prohibitive for the City to implement an incentive program to install ultra low flush toilets (1.6 gallons or less) involving rebates. There are an estimated 5,300 standard flush toilets within the City that can cost in excess of \$300,000 to replace.

BUDGET: No specific budget has been set-aside for this DMM at this time.



Section 7 Planned Water Supply Projects and Programs

In normal water supply years, the City should have adequate groundwater to meet its needs through 2030. Although it appears that the City can meet its water demands with the existing source wells for years to come, the existing wells may not meet future peaking demands during summer months.

In order to assure a safe and reliable water supply for the residents and business owners in the service area, the City is considering and planning the following improvements:

- Install several crucial pipeline inter-ties within the City.
- Construct a 3 million gallon reservoir and well.
- Upgrade Well #7 to 150hp with emergency generator and VFD.
- Upgrade Well #10 to 200hp and VFD.
- Purchase Well #12 (300hp with emergency generator and VFD) and connected to exist system.
- Expansion of the Wastewater Treatment Plant from 3.0 mgd to 4.5 mgd.

The Water Department has indicated that Well #7 will have an emergency generator by 2008. The emergency generators would allow the pumping facilities to remain in operation during an extended power outage.

The proposed 3 MG reservoir and well would help to meet future peaking demands during summer months. The new reservoir and well would also provide improvements in terms of operational flexibility, and would enable the City to operate some of its production wells during off-peak electricity consumption hours. The City is applying for a grant in 2007 to construct the reservoir and expects to begin construction of the reservoir and new well by 2008.

Table 7-1 Future Water Supply Projects					
Project Name	Normal Year AF to Agency	Single Dry Year AF to Agency	Multiple-Dry Years AF to Agency		
			Year 1	Year 2	Year 3
New 3 MG Reservoir and Well	1,775	1,775	1,775	1,775	1,775
Upgrade Well #7	1,775	1,775	1,775	1,775	1,775

Assumed new and upgraded wells will produce a minimum of 1,100 gallons per minute (GPM)

The water system needed to serve the build-out of the 20-year growth areas would include up to 18 additional wells, an expanded distribution system, the proposed 3 million gallon (MG) storage tank and two

additional 1 MG storage tanks.

Additionally, the City should investigate and study the supply alternatives available for meeting increased future demands. These alternatives could include, drilling of new wells, converting agricultural wells to urban uses, initiating water transfers or exchanges, increasing conservation programs, and implementation of recycled water programs.

Development of Desalinated Water

Because the City of Wasco is located in the San Joaquin Valley, there are no opportunities to develop desalination of ocean water or brackish ocean water. In addition the groundwater is of adequate quality and desalination is not necessary.

Wholesale Water

Currently, the City does not receive or plan to receive wholesale water.

Determination of DMM Implementation

See DMM Section on pages 35 through 39.



Section 8 Water Shortage Contingency Plan

The UWMP requires a Water Shortage Emergency Plan be prepared to address methods to react to an emergency situation, which reduces supply by up to 50% of water available to the City. Conservation measures encouraged or required during an emergency shortage are temporary measures to last only for the duration of the emergency shortage. This UWMP looks at different stages of action for a 15%, 25%, 35% and 50% shortage of supply. Each of these stages is discussed below.

Stages of Action

The City of Wasco has four triggering levels which correspond to four water shortage stages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage. The water shortage stages have reduction in consumption goals varying from 15% to 50%. Stage 1, with a target of 15% reduction, is effective whenever there is an overdraft of the groundwater table or when available water production is within plus 10% of estimated monthly peak hourly demands. Overdraft is defined as a decline in the water table as determined by the average of the depth to water in all of the City's wells from the previous year. Stage 2, with a target of between 15% and 25% reduction, is effective whenever overdraft of the groundwater table is in its second or more consecutive year or the available water production is 10% less than the estimated monthly peak hourly demands. Stage 3, with a target of between 25% and 35% reduction, is effective whenever the available water production is 20% less than the estimated monthly peak hourly demand. Stage 4, with a target of between 35% and 50% reduction, is effective whenever the available water production is 35% less than the estimated monthly peak hourly demand. Table 8-1 shows the shortage stages, the initiating conditions and the reduction goals.

Table 8-1 Water Supply Stages and Conditions		
Stage No.	Water Supply Conditions	% Shortage
1 (Voluntary)	Overdraft of groundwater or available water production is within plus 10% of estimated monthly peak hour demands	Up to 15%
2 (Mandatory)	Overdraft of groundwater is in its second or more consecutive year or available water production is 10% less than the estimated monthly peak hour demands	15 – 25%
3 (Mandatory)	Available water production is 20% less than the estimated monthly peak hour demand	25 - 35%
4 (Mandatory)	Available water production is 35% less than the estimated monthly peak hour demand	35 - 50%



Estimate of Minimum Supply for Next Three Years

This component of the Water Shortage Contingency Plan requires the City to quantify the minimum water supply available during the next three years based on the driest multiple-year historic sequence for its water supplies. The local region experienced a prolonged drought from 1987 through 1992.¹ The driest three years sequence during that period occurred in 1990 to 1992. As discussed in Section 4, there is no water supply shortage expected during the next 25 years during a multiple-year drought. Table 8-2 below illustrates that if there were to be a drought over the next three years of the same severity of the drought which occurred in 1990 to 1992, there would not be a water supply shortage expected.

Table 8-2 Three-Year Estimated Minimum Water Supply				
Source	Year 1 2006	Year 2 2007	Year 3 2008	Normal
Groundwater	4,584	6,019	6,473	4,444
Total	4,584	6,019	6,473	4,444

Note(s): Supply amount for 2006 is actual data. The supply estimates provided for years 2007 through 2008 were derived from straight line projections from 2007 to 2010 projections.

Catastrophic Supply Interruption Plan

In the event of non-drought related events that interrupt the City's ability to provide water immediate measures need to be planned that will allow the City to provide a minimum amount of water to customers.

Possible catastrophes include a regional power outage, terrorism event at selected locations or a natural disaster which affects selected facilities.

Table 8-3 Preparation Actions for a Catastrophe	
Possible Catastrophe	Summary of Actions
Regional power outage	Activate emergency backup power and provide public notice through broadcasts of emergency and ask customers to reduce consumption to essential uses
Earthquake	Utilize emergency backup power if utility provided power is interrupted. Immediately implement Stage 3 or Stage 4 demand reduction program
Terrorism event	Make use of alternate production facilities as available

Prohibitions, Penalties, and Consumption Reduction Methods

The first step in a demand reduction program is to prohibit wasteful practices and provide enforcement

¹ Kern County Water Agency – Water Supply Report 1997, Figure 18.



methods. The current City ordinance regulates wastage of water and provides penalties for wastage and failure to comply with any water conservation program the City enacts. The penalties range from a warning, to fines, to flow restrictors or discontinuance of service.

Table 8-4 Mandatory Prohibitions	
Examples of Prohibitions	Stage When Prohibitions Becomes Mandatory
Washing cars without a shutoff valve on hose	Stage 1
Excessive irrigation run-off	Stage 1
Outdoor water use on a non-watering day	Stage 2
Broken sprinklers or other leaks	Stage 3
No vehicle washing	Stage 4

Table 8-5 Consumption Reduction Methods		
Consumption Reduction Method	Stage When Method Takes Effect	Projected Reduction (%)
Voluntary rationing	Stage 1	10%
Mandatory Irrigation Conservation Program	Stage 2 & 3	20% - 30%
No new connections	Stage 4	None, but no increase
No refilling of pools	Stage 3, & 4	1%
Customer allotments/Rate Changes	Stage 4	25% - 40%

Table 8-6 Penalties and Charges	
Penalty or Charge	Stage When Penalty Takes Effect
Penalty for excess use	Stage 2
Charge for excess use	Stage 3
Installation of Flow-Restricting Devices	Stage 4

Any customer violating the regulations and restrictions on water use set forth in the "No Waste" Ordinance shall receive an oral warning for the first such violation. Upon a second violation, the customer shall receive written warning (See Appendix B). Upon a third violation, the customer shall receive a written warning and the City may cause a meter to be installed in the service. If a meter is placed, the violator shall pay the cost of the installation and removal. Any willful violation occurring subsequent to the issuance of the third written warning shall constitute a misdemeanor and may be referred to the County Sheriff Department for prosecution. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the City.



Analysis of Revenue Impacts of Reduced Sales During Shortages

The City of Wasco has not conducted a formal study on the financial impacts of the water shortage contingency plan. However, all surplus revenues that the City collects are currently used to fund the Rate Stabilization Fund, conservation, recycling, and other capital improvements. The City estimated projected ranges of water sales by shortage stage to best understand the impact each level of shortage will have on projected revenues and expenditures by each shortage stage.

This analysis is undertaken first with no additional water purchases and no rate increases and then with a 25% rate increase at Stage 2; 50% at Stage 3, and a 100% increase at Stage 4. To cover increased expenses and decreased sales, rate increases would need to be "severe".

Establishment of a Rate Stabilization Fund

Below is an explanation of the City's efforts to establish a Rate Stabilization Fund:

The City is continually making improvements to the water system to benefit our customers. These improvements may be reflected in rate structure adjustments.

In order to mitigate the financial impacts of a water shortage, the City is establishing an Emergency Fund. The goal is to maintain the fund at 75% of normal water department revenue. This fund will be used to stabilize rates during periods of water shortage or disasters affecting the water supply. The City will not have to increase rates as much or as often during a prolonged or severe shortage.

However, even with the emergency fund, rate increases will be necessary during a prolonged water shortage. As described in this Plan, a Stage 2 shortage will be accompanied by a 15 – 25% reduction in water deliveries while a Stage 3 will be accompanied by a 25 - 35% reduction. The experiences of California water purveyors during the 1990-91 drought shortage demonstrated that actual water use reductions by customers are usually considerably larger than those requested by the supplier. During the 1990-91 drought shortage it was also politically difficult for many agencies to adopt the rate increases necessitated by a 20% to 50% reduction in sales. When a Water Shortage Emergency is declared, the supply shortage will trigger the appropriate Rationing Stage and rate increase.

Water rates increase by the following percentages when the indicated Stages are implemented:

Stage 1 no rate increase

Stage 2	25% increase over pre-shortage rates
Stage 3	50% increase over pre-shortage rates
Stage 4	100% increase over pre-shortage rates

End of the Water Shortage Emergency

15% increase over pre-shortage rates (This rate increase should be re-evaluated every two years).

Most California water agencies, which experienced water shortages, have found that customer gpcd has not nor is it expected to return to pre-shortage levels. After a shortage, water department expenses are expected to drop below pre-shortage levels but water sales are not expected to rebound. In anticipation of reduced sales, after a declared shortage ends, the City's rates will be set for one year at 115% of the pre-shortage rates. Any excess revenues collected as a result of this rate adjustment will be used to re-establish the Rate Stabilization Fund.

Draft Ordinance/Resolution and Use Monitoring Procedure

Water use prohibitions and enforcement mechanisms must be approved by City Council resolution. A Draft Water Shortage Emergency Resolution is presented in Appendix B. The resolution can be modified depending on the severity of the drought and can be approved quickly, should an emergency arise. It is not currently approved, as specific conditions of each emergency will likely be added in as each emergency arises.

Water Use Monitoring Mechanisms

Under normal water supply conditions, potable water production figures are recorded daily.

During a Stage 1 or Stage 2 water shortage, weekly production figures shall reported to the City Manager. The City Manager shall compare the weekly production to the target weekly production to verify that the reduction goal is being met. Monthly reports shall be sent to the City Council. If reduction goals are not met, the City Manager will notify the City Council so that corrective action can be taken.

During a Stage 3 or Stage 4 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the City Manager.

During emergency shortages, production figures shall be reported hourly to the City Manager daily. Daily reports shall also be provided to the City Council.



Section 9 Recycled Water Plan

This section of the UWMP provides information regarding the potential for recycled water to be used as a water supply source in the service area.

The City hired the services of Carollo Engineers to develop a Recycled Water Engineering Report for the City Farm Properties, back in August 2002. Table 9-1 summarizes the agencies and intercity departments that the City coordinated with, in developing its recycled engineering report.

Table 9-1 Participating Agencies	
Agency	Role in Plan Development
California Department of Health Services	Guidance and review of recycled water reuse regulations
Wasco Public Works	Planning, and grant application
Wasco Planning	CEQA review

Wastewater Quantity, Quality and Current Uses

Wastewater Collection and Treatment System

The City owns and operates a wastewater treatment facility located west of the community. The present wastewater treatment facilities were originally constructed in 1937. The Facilities have since enlarged and/or modified on a number of occasions. The last three expansions were completed in 1979 under a Clean Water Grant, in 1988 under a Farmers Home Administration Loan, and in 1999 under a State Revolving Fund loan.¹

The current plant facilities consist of headworks with a Parshall flume, one mechanical bar screen, and flow meter, aerated grit chamber, two primary clarifiers, two plastic media trickling filters, two secondary clarifiers, two smaller benthonite-lined aerated ponds and one large (25 acre) unlined storage pond, three anaerobic sludge digesters, four unlined sludge drying beds, and three 15-acre effluent disposal ponds. The WWTP also has a septage receiving station and laboratory, which is only used for process sampling. The design capacity of the existing plant is 3.0 mgd.¹

The major pipelines in the sewage collection system range from 6-inches to 18-inches in diameter. The main pipelines that carry wastewater to the treatment facilities are a parallel 15-inch and 24-inch diameter

¹ City of Wasco – Wastewater Treatment Plan Expansion Project Report, Dec. 2005



interceptor lines, which run from Broadway and then westerly along Seventh Avenue, and an additional 24-inch interceptor line running west on Filburn and north on Magnolia.

The City is currently permitted by the RWQCB to discharge effluent to City-owned property. Discharge to City land is governed by Waste Discharge Requirements (WDR) Order No. R5-2002-0198. The City is permitted to discharge its effluent to 605 acres of City-owned land that surrounds the WWTF to the south and west (160 acres percolation and storage plus 445 acres irrigation).¹ The irrigation practice helps to replenish the area groundwater table through deep percolation and reduces groundwater overdraft. Effluent generally flows by gravity with the use of booster pumps during high flows through several miles of pipeline and open ditches. It is expected that this practice will continue in the future and aid the groundwater basin recharge.

Wastewater Collected and Recycled Water Produced

The following table presents the current and projected amount of wastewater to be collected and treated to 2030 for the City of Wasco.

Table 9-2 Wastewater Collected and Treated							
	2000	2005	2010	2015	2020	2025	2030
Wastewater Collected and Treated	2,511	1,900	3,092	3,824	4,556	5,289	6,021
Quantity That Meets Recycled Water Standard	2,511	1,900	3,092	3,824	4,556	5,289	6,021

Notes: (1) Units of Measure: Acre-feet/Year
 (2) Year 2000 and 2005 is actual data.
 (3) Projections from 2010 through 2030 based on 115gpcpd per City of Wasco – Wastewater Treatment Plant Expansion Project Report, Dec. 2005. The 115gpcpd was applied to population growth per City of Wasco – Water Master Plan, April 2007.

Currently, the WWTP produces approximately 1.7 million gallons per day (mgd) (5.2 acre-feet/day) of undisinfected, secondary treated effluent. The City land is permitted for 1.95 mgd. The effluent is used strictly for agricultural practices within the reuse area. The crops, which have consisted of corn, cotton, sugar beets, blackeye beans, and alfalfa, are irrigated by the flood and furrow method. The sugar beets undergo commercial pathogens destroying process.¹

¹ City of Wasco – Recycled Water Engineering Report City Farm Properties, August 2002.



Table 9-3 Recycled Water Uses - Actual		
Method	Treatment Level	2005
Agriculture (groundwater recharge through deep percolation)	Secondary	1,900
Landscape	--	0
Wildlife Habitat	--	0
Wetlands	--	0
Industrial	--	0
Total		1,900

Units of Measure: Acre-feet/Year

Potential and Projected Use, Optimization Plan with Incentives

Potential recycled water markets are locations where recycled water could replace potable water use. These potential markets are typically landscape or agricultural irrigation systems, or possibly industrial water users. Many of these potential uses require the recycled water to undergo certain treatment processes to meet the water quality standards. Wastewater reclamation for domestic uses is not cost effective for the City. A market study and a comprehensive field survey are needed to identify the use characteristics of potential recycled water customers. At this time the City of Wasco does not have the funds to conduct such studies.

Table 9-4 Recycled Water Uses - Potential						
Method	Treatment Level	2010	2015	2020	2025	2030
Agriculture (groundwater recharge through deep percolation)	Secondary	3,092	3,824	4,556	5,289	6,021
Landscape	--	0	0	0	0	0
Wildlife Habitat	--	0	0	0	0	0
Wetlands	--	0	0	0	0	0
Industrial	--	0	0	0	0	0
Total		3,092	3,824	4,556	5,289	6,021

Units of Measure: Acre-feet/Year

Actions Taken to Encourage Use of Recycled Water

In August 2002, the City hired the services of Carollo Engineers to develop a Recycled Water Engineering Report for the City Farm Properties. Additionally, Carollo Engineers prepared the Wastewater Treatment Plant Expansion Project Report in December 2005, for the City of Wasco.

As part of the wastewater treatment plant expansion, the City of Wasco plans to construct the facilities necessary to reliably transfer final effluent to the City owned farmland and to the existing and new percolation/evaporation ponds. The effluent reclamation facilities include the addition of a new effluent pump station, 2.8 miles of new 24-inch diameter effluent pipeline leading to the existing and new ponds, and 1,200 linear feet of 12-inch diameter effluent pipe leading to 55 acres owned by the city that currently can only be irrigated with irrigation water.

Currently, the City is delivering 1,900 AFY of recycled water for feed and fodder type crops irrigation on City-owned land. By 2030, the City is expected to deliver 6,021 AFY for agricultural irrigation. The irrigation practice helps to offset potable water use, and helps to replenish the area groundwater table through deep percolation.

Plan for Optimizing the Use of Recycled Water

To optimize the use of recycled water, cost/benefit analysis must be conducted for each project component. Encouraging and optimizing recycled water use in the City of Wasco, service area involves a combination of financial incentives, city policies, staff assistance and training opportunities.

At this time, it is not economically feasible for the City of Wasco to conduct technical and/or economic feasibility studies. Additionally, due to the City's budget constraints, the City cannot provide financial incentives to their water customers.



Section 10 Water Quality Impacts on Reliability

A review of historical water quality data indicates that the City's water generally exceeds State Department of Health Services water quality criteria. The City has experience periodic nitrate spikes in certain wells; however, staff have been able to remedy the problems.

Wasco's groundwater supply is of excellent quality for drinking water purposes. No widespread problems have arisen from industrial or agricultural contamination. The City tests the drinking water quality for many constituents as required by State and Federal Regulations. In 2002, a source water assessment was conducted for each well site, by Visalia District office of Department of Health Services (DHS) with the assistance of City's staff. Nitrates, 1,2,3-Trichloropropane, Dibromochloropropane (DBCP), and Dichloromethane have been detected in the City's water quality monitoring. In general as testing methods become more discerning and regulations become more stringent, it can be expected that sources will need additional treatment to stay in compliance.

Groundwater will continue to be treated to drinking water standards, and no groundwater quality deficiencies are foreseen to occur in the next 25 years. Table 10-1 summarizes the current and projected water supply changes due to water quality.

Table 10-1 Current and Projected Water Supply Changes due to Water Quality – Percentage						
Water Source	2005	2010	2015	2020	2025	2030
Groundwater	0	0	0	0	0	0



Section 11 Water Service Reliability

Projected Normal Water Year Supply and Demand Comparison

The City's groundwater wells can supply 10,269 AF/Y, which is beyond the current projected demand of 6,020 AF/Y in 2007. The City plans to upgrade its existing water supply wells to provide its future groundwater supplies; and plans to construct new wells as the need arises.

Table 11-1 Projected Normal Water Year Supply					
	2010	2015	2020	2025	2030
Supply	7,447	10,142	13,194	16,602	20,368
% of Normal Year*	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

* from Table 4-2. Base year for normal water year

Table 11-2 Projected Normal Water Year Demand					
	2010	2015	2020	2025	2030
Demand	7,447	10,142	13,194	16,602	20,368
% of Year 2005	168%	228%	297%	374%	458%

Units of Measure: Acre-feet/Year

Table 11-3 Projected Normal Year Supply and Demand Comparison					
	2010	2015	2020	2025	2030
Supply totals	7,447	10,142	13,194	16,602	20,368
Demand totals	7,447	10,142	13,194	16,602	20,368
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



Projected Single-Dry-Year Supply and Demand Comparison

Since the City’s entire potable water demand is met with groundwater supplies, it is not directly affected by the reduction of the surface water deliveries in drought years and is buffered from the effects of potential water shortages. The City does not anticipate any water shortages in the dry-year scenarios analyzed. No extraordinary conservation measures, beyond DMM implementation, are reflected in the demand projections.

Table 11-4 Projected Single Dry Year Supply					
	2010	2015	2020	2025	2030
Supply	7,447	10,142	13,194	16,602	20,368
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-5 Projected Single Dry Year Demand					
	2010	2015	2020	2025	2030
Demand	7,447	10,142	13,194	16,602	20,368
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-6 Projected Single Dry Year Supply and Demand Comparison					
	2010	2015	2020	2025	2030
Supply totals	7,447	10,142	13,194	16,602	20,368
Demand totals	7,447	10,142	13,194	16,602	20,368
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



Projected Multiple-Dry-Year Supply and Demand Comparison

Since the City's entire potable water demand is met with groundwater supplies, it is not directly affected by the reduction of the surface water deliveries in drought years and is buffered from the effects of potential water shortages. The City does not anticipate any water shortages in the multiple dry-year scenarios analyzed. No extraordinary conservation measures, beyond DMM implementation, are reflected in the demand projections.

Table 11-7 Projected Supply During Multiple Dry Year Period Ending in 2010					
	2006	2007	2008	2009	2010
Supply	4,584	6,019	6,473	6,966	7,447
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-8 Projected Demand During Multiple Dry Year Period Ending in 2010					
	2006	2007	2008	2009	2010
Demand	4,584	6,019	6,473	6,966	7,447
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-9 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2010					
	2006	2007	2008	2009	2010
Supply totals	4,584	6,019	6,473	6,966	7,447
Demand totals	4,584	6,019	6,473	6,966	7,447
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



Table 11-10 Projected Supply During Multiple Dry Year Period Ending in 2015					
	2011	2012	2013	2014	2015
Supply	7,968	8,505	9,027	9,594	10,142
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-11 Projected Demand During Multiple Dry Year Period Ending in 2015					
	2011	2012	2013	2014	2015
Demand	7,968	8,505	9,027	9,594	10,142
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-12 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2015					
	2011	2012	2013	2014	2015
Supply totals	7,968	8,505	9,027	9,594	10,142
Demand totals	7,968	8,505	9,027	9,594	10,142
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



Table 11-13 Projected Supply During Multiple Dry Year Period Ending in 2020					
	2016	2017	2018	2019	2020
Supply	10,738	11,349	11,938	12,578	13,194
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-14 Projected Demand During Multiple Dry Year Period Ending in 2020					
	2016	2017	2018	2019	2020
Demand	10,738	11,349	11,938	12,578	13,194
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-15 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2020					
	2016	2017	2018	2019	2020
Supply totals	10,738	11,349	11,938	12,578	13,194
Demand totals	10,738	11,349	11,938	12,578	13,194
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



Table 11-16 Projected Supply During Multiple Dry Year Period Ending in 2025					
	2021	2022	2023	2024	2025
Supply	13,863	14,548	15,205	15,919	16,602
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-17 Projected Demand During Multiple Dry Year Period Ending in 2025					
	2021	2022	2023	2024	2025
Demand	13,863	14,548	15,205	15,919	16,602
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-18 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2025					
	2021	2022	2023	2024	2025
Supply totals	13,863	14,548	15,205	15,919	16,602
Demand totals	13,863	14,548	15,205	15,919	16,602
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



Table 11-19 Projected Supply During Multiple Dry Year Period Ending in 2030					
	2026	2027	2028	2029	2030
Supply	17,346	18,105	18,829	19,617	20,368
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-20 Projected Demand During Multiple Dry Year Period Ending in 2030					
	2026	2027	2028	2029	2030
Demand	17,346	18,105	18,829	19,617	20,368
% of Normal Year	100%	100%	100%	100%	100%

Units of Measure: Acre-feet/Year

Table 11-21 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2030					
	2026	2027	2028	2029	2030
Supply totals	17,346	18,105	18,829	19,617	20,368
Demand totals	17,346	18,105	18,829	19,617	20,368
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Units of Measure: Acre-feet/Year



APPENDIX A

Notice of Public Hearing/Notice of Availability

Proof of Publication

Resolution to Adopt the Urban Water Management Plan

Notice of Intent Letters to Agencies



Notice of Public Hearing/Notice of Availability

NOTICE OF PUBLIC HEARING NOTICE OF AVAILABILITY FOR PUBLIC REVIEW OF THE URBAN WATER MANAGEMENT PLAN UPDATE

NOTICE IS HEREBY GIVEN that the City of Wasco is in the process of updating its existing Urban Water Management Plan and is seeking public input.

The Urban Water Management Plan will lay the foundation for meeting Wasco's future water supply needs. A copy of the Draft 2005 Urban Water Management Plan is on file at the City Hall, 746 8th Street, and is available for public review.

NOTICE IS FURTHER GIVEN that the City Council of the City of Wasco at its meeting on Tuesday, September 18, 2007, at 7:00 p.m., will hold a public hearing in the Council Chambers located at 746 8th Street, Wasco, California 93280. All interested parties are invited to attend said hearing and express opinions or submit evidence for or against the Plan. Written comments can be delivered to the City of Wasco, at, or prior to the public hearing. If a citizen wishes to challenge the nature of the above actions in court, they may be limited to raising only those issues they or someone else raised at the public hearing described in this notice. If the City Council concurs with the findings presented, it will adopt the Urban Water Management Plan at that time.

For further information, please call the City Projects Manager at (661) 758-7219.

Published: Wasco Tribune August 15, 2007.



Proof of Publication

Aug 31 2007 15:49

SHAFTER PRESS

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p. 2

PROOF OF PUBLICATION

(2015.5 C.C.P.)
(GENERAL FORM)

STATE OF CALIFORNIA }
County of Kern } ss.

I, the undersigned, am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the chief clerk/publisher of *The Wasco Tribune*, a newspaper of general circulation, printed and published weekly, in the City of Wasco, County of Kern, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court order number 1838950, of the County of Kern; that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and in any supplement thereof on the following dates, to-wit: August 15, 2007

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Sandra Valle
(Signature)

Executed on August 15, 2007
at Wasco, California

PUBLIC NOTICE

NOTICE OF PUBLIC HEARING NOTICE OF AVAILABILITY FOR PUBLIC REVIEW OF THE URBAN WATER MANAGE- MENT PLAN UPDATE

NOTICE IS HEREBY GIVEN that the City of Wasco is in the process of updating its existing Urban Water Management Plan and is seeking public input. The Urban Water Management Plan will lay the foundation for meeting Wasco's future water supply needs. A copy of the Draft 2005 Urban Water Management Plan is on file at the City Hall, 748 Bth Street, and is available for public review.

NOTICE IS FURTHER GIVEN that the City Council of the City of Wasco at its meeting on Tuesday, September 18, 2007, at 7:00 p.m., will hold a public hearing in the Council Chambers located at 748 Bth Street, Wasco, California 93280. All interested parties are invited to attend said hearing and express opinions or submit evidence for or against the Plan. Written comments can be delivered to the City of Wasco, at, or prior to the public hearing. If a citizen wishes to challenge the nature of the above actions in court, they may be limited to raising only those issues they or someone else raised at the public hearing described in this notice. If the City Council concurs with the findings presented, it will adopt the Urban Water Management Plan at that time.

For further information, please call the City Projects Manager at (818) 758-7219.
Publish: *Wasco Tribune* August 15, 2007.

The WASCO TRIBUNE
P.O. Box Y Phone (661) 758-3063
Wasco, California 93280



Resolution to Adopt the Urban Water Management Plan

RESOLUTION NO. 2007-2467

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF WASCO ADOPTING THE 2005 URBAN WATER MANAGEMENT PLAN

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF WASCO AS FOLLOWS:

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the City of Wasco (City) is an urban supplier of water providing water to a population over 20,000; and

WHEREAS, the Plan shall be periodically reviewed at least once every five years, and that the City shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, the Plan must be adopted after public review and hearing, and filed with California Department of Water Resources within thirty days of adoption; and

WHEREAS, the City has therefore, prepared and circulated for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the City Council on September 18, 2007, and

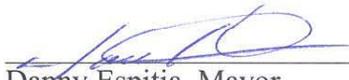
WHEREAS, the City of Wasco did prepare and shall file said Plan with the California Department of Water Resources.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Wasco as follows:

1. The 2005 Urban Water Management Plan is hereby adopted and ordered filed with the City Clerk; the City Manager is hereby authorized and directed to file the 2005 Urban Water Management Plan with the California Department of Water Resources within 30 days after this date; and
2. The City Manager is hereby authorized and directed to implement the Water Conservation Programs as set forth in the 2005 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the City Council regarding necessary procedures, rules, and regulations to carry out effective and equitable water conservation and water recycling programs; and
3. In a water shortage, the City Manager is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implement necessary elements of the Plan; and
4. The City Manager shall recommend to the City Council additional regulations to carry out

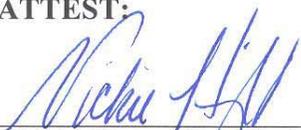
effective and equitable allocation of water resources.

PASSED AND ADOPTED, by the City Council of the City of Wasco, County of Kern, State of California on September 18, 2007.



Danny Espitia, Mayor

ATTEST:



Vickie Hight, City Clerk

I, Vickie Hight, City Clerk of the City Council of the City of Wasco, do hereby certify that the foregoing resolution was duly adopted by the City Council of said City at a regular meeting held on September 18, 2007, and that it was so adopted by the following vote:

AYES: Espitia, Hively, Wegman, West

NOES: None

ABSTAIN: None

ABSENT: Cortez

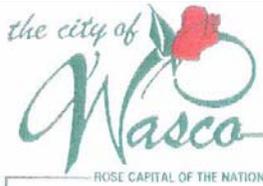


Vickie Hight, City Clerk



Notice of Intent Letters to Agencies

	746 8th Street P.O. Box 190 Wasco, California 93280 Fax (661) 758-5411									
July 20, 2007										
Kern County Water Agency Attn: James M. Beck, P.O. Box 58 Bakersfield, CA 93302										
SUBJECT: NOTICE OF 2005 URBAN WATER MANAGEMENT PLAN UPDATE										
<p>The City of Wasco has begun the process of updating its Urban Water Management Plan pursuant to the California Urban Water Management Plan Act (Water Code Section 10610 – 10657). We invite your agency to participate in reviewing our current Plan, which was last updated in 2004, especially as it relates to opportunities to expand conservation measures and the use of recycled water in the region.</p> <p>A final draft will be available by Sep. 20, 2007, followed by a public hearing and City Council action prior to Dec. 31, 2007. If you have any questions about our Plan, or the process for updating it, please contact Juan M Pantoja at (661) 323-6045 or jpantoja@heltengineering.com.</p>										
Sincerely,										
										
Gerald F. Helt City Engineer										
cc: Bob Wren – City Project Manager										
<i>— The City with a rosy future —</i>										
Engineering	Building	Planning & Zoning	Police Services	Public Works	City Administration	City Clerk Personnel	Animal Control	Dial-a-Ride	Finance	Utilities
758-7208	758-7250	758-7210	758-7266	758-7270	758-7200	758-7215	758-7240	758-7222	758-7235	758-7230



746 8th Street P.O. Box 190 Wasco, California 93280

Fax (661) 758-5411

July 20, 2007

Shafter-Wasco Irrigation District (SWID)
Attn: Ron Sutton
16294 Hwy 43
P.O. Box 1168
Wasco, CA 93280

SUBJECT: NOTICE OF 2005 URBAN WATER MANAGEMENT PLAN UPDATE

The City of Wasco has begun the process of updating its Urban Water Management Plan pursuant to the California Urban Water Management Plan Act (Water Code Section 10610 – 10657). We invite your agency to participate in reviewing our current Plan, which was last updated in 2004, especially as it relates to opportunities to expand conservation measures and the use of recycled water in the region.

A final draft will be available by Sep. 20, 2007, followed by a public hearing and City Council action prior to Dec. 31, 2007. If you have any questions about our Plan, or the process for updating it, please contact Juan M Pantoja at (661) 323-6045 or jpantoja@heltengineering.com.

Sincerely,



Gerald F. Helt
City Engineer

cc: Bob Wren – City Project Manager

— *The City with a rosy future* —



Engineering	Building	Planning & Zoning	Police Services	Public Works	City Administration	City Clerk Personnel	Animal Control	Dial-a-Ride	Finance	Utilities
758-7208	758-7250	758-7210	758-7266	758-7270	758-7200	758-7215	758-7240	758-7222	758-7235	758-7230



746 8th Street P.O. Box 190 Wasco, California 93280

Fax (661) 758-5411

July 20, 2007

Semitropic Water Storage District
Attn: Paul Oshel, District Engineer
P.O. Box Z
Wasco, CA 93280

SUBJECT: NOTICE OF 2005 URBAN WATER MANAGEMENT PLAN UPDATE

The City of Wasco has begun the process of updating its Urban Water Management Plan pursuant to the California Urban Water Management Plan Act (Water Code Section 10610 – 10657). We invite your agency to participate in reviewing our current Plan, which was last updated in 2004, especially as it relates to opportunities to expand conservation measures and the use of recycled water in the region.

A final draft will be available by Sep. 20, 2007, followed by a public hearing and City Council action prior to Dec. 31, 2007. If you have any questions about our Plan, or the process for updating it, please contact Juan M Pantoja at (661) 323-6045 or jpantoja@heltengineering.com.

Sincerely,



Gerald F. Helt
City Engineer

cc: Bob Wren – City Project Manager

— *The City with a rosy future* —



Engineering	Building	Planning & Zoning	Police Services	Public Works	City Administration	City Clerk Personnel	Animal Control	Dial-a-Ride	Finance	Utilities
758-7208	758-7250	758-7210	758-7266	758-7270	758-7200	758-7215	758-7240	758-7222	758-7235	758-7230

APPENDIX B

No-Waste Ordinance

Ordinance Related to the Schedule of Rates for Water

Citation for Water Waste Violators

Draft Resolution to Declare a Water Shortage Emergency

No-Waste Ordinance

ORDINANCE NO. 58

AN ORDINANCE OF THE CITY OF WASCO, PROHIBITING THE OBSTRUCTING, INTERFERING OR INJURY TO STREETS, ALLEYS, OR SIDEWALKS, BY ALLOWING WATER TO ACCUMULATE, STAND, OR RUN UPON SAME; MAKING THE VIOLATION THEREOF A MISDEMEANOR; AND PROVIDING A PENALTY THEREFOR.

The City Council of the City of Wasco does ordain as follows:

SECTION 1

It shall be unlawful for any person, corporation, or persons to allow any water hydrant, water hose, water sprinkler, drain pipe, or similar container or means of conveying water or other liquid substance, to flow or run in such a manner as to cause water or other liquid substance to accumulate, collect, gather, or run upon any street, sidewalk, or alley, within the city limits of the City of Wasco, so as to injure same or obstruct or interfere with the free travel thereon, or to permit such water to run in or upon said street, alley, or sidewalk at any time; except that it shall not be unlawful to clean any sidewalk or portion thereof with water.

SECTION 2

Any person violating any of the provisions of this Ordinance shall upon conviction hereunder be punished by a fine not exceeding Fifty Dollars (\$50.00), or by imprisonment in the County Jail of the County of Kern, State of California, not exceeding sixty (60) days, or by both such fine and imprisonment.

SECTION 3

This Ordinance is hereby declared to be an Ordinance for the immediate preservation of the public peace, safety and welfare, and facts constituting its urgency are

as follows: The numerous abuses and invasion of right of citizens and residents of the City of Wasco by persons conducting the practice herein prohibited have been detrimental to the general peace, safety and welfare, and immediate prohibitions of such practice is required in the interest of maintaining the general welfare.

SECTION 4

This Ordinance shall take effect immediately upon its final passage and adoption, and within fifteen (15) days thereafter shall be published once in the Wasco News, a newspaper of general circulation, published and circulated in the City of Wasco, together with the names of the members of the City Council voting for and against the same.

FRANK BARKER,
Mayor Pro Tem of the
City of Wasco.

ATTEST:

C. B. ROBERTS, City Clerk.

I, C. B. ROBERTS, City Clerk of the City of Wasco and ex-officio clerk of the City Council of said City, do hereby certify that the foregoing is a full, true and correct copy of Ordinance No. 58 of the City of Wasco, which was introduced at a regular meeting of said Council held on the 7th day of October, 1953, and finally passed not less than five (5) days thereafter on the 21st day of October, 1953, by the following vote:

AYES: Frank Barker, J. Ray Baker, Roy M. Bradley, Merwyn R. Voth.

NOES: None.

ABSENT: H. L. Wilkinson.

I further certify that said ordinance was thereupon signed by the Mayor Pro Tem of the City of Wasco.

C. B. ROBERTS,
City Clerk of the
City of Wasco.
(October 29, 1953)

Ordinance Related to the Schedule of Rates for Water

ORDINANCE NO. 2005- 498

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF WASCO
AMENDING SECTION 13.08.020 OF THE WASCO MUNICIPAL CODE
RELATED TO THE SCHEDULE OF RATES FOR WATER**

The City Council of the City of Wasco does ordain as follows:

Section 1. Section 13.08.020 of the Wasco Municipal Code is amended as set forth in Exhibit "A":

Section 2. If any section, subsection, subdivision, sentence, clause, phrase or portion of this ordinance, or the application thereof to any person or place, is for any reason held to be unconstitutional or invalid by the decision of a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance or its application to other persons or places.

Section 3. The City Clerk is ordered to publish this Ordinance in accordance with law, in a newspaper of general circulation in the City.

SIGNED AND ADOPTED this 5th of July, 2005


Cherylee Wegman, Mayor
City of Wasco, California

PASSED AND ADOPTED this 5th of July, 2005, by the following vote:

AYES: Mayor Wegman, Council Members Pearson, Cortez & Espitia

NOES: NONE

ABSENT: Councilmember West

ABSTAIN: NONE


Dru Gibson, City Clerk
City of Wasco, California

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EXHIBIT "A"

13.08.020 Schedule of Rates

A. The following schedule of rates shall govern all charges for water supplied by the city through its distribution system to any person and water user as defined in this chapter:

1. Bakeries, a minimum charge of \$26.86 per month;
2. Barbershops and/or barbershops in conjunction with beauty shops, a minimum charge of \$22.39 per month;
3. Beauty shops, separate from barbershops, a minimum charge of \$26.86 per month;
4. Churches and public halls, a minimum charge of \$22.39 per month;
5. Fountains, lunchrooms, cafes, restaurants and pool halls, a minimum charge of \$26.86 per month;
6. Garages and service stations, with washracks, a minimum charge of \$44.70 per month;
7. Garages and service stations, without washracks, a minimum charge of \$31.89 per month;
8. Hotels, motels, rooming or lodging houses, a minimum charge of \$25.41 per month, with an additional charge of \$4.58 per guest room;
9. Laundries, a minimum charge of \$44.70 per month;
10. Machine shops, a minimum charge of \$22.39 per month;
11. Offices, a minimum charge of \$22.39 per month;
12. Dry goods, hardware, and furniture stores, a minimum charge of \$22.39 per month;
13. Doctors and dentists, a minimum charge of \$26.86 per month;
14. Markets, grocery and/or butcher shops, a minimum charge of \$26.86 per month;
15. Post office, a minimum charge of \$31.89 per month;

B. The charge and/or rate for water supplied to and for places not herein specifically mentioned and for users outside the City boundaries, shall be determined by the Director

of Public Works based on empirical data supplied by the new business and/or by widely used engineering reference manuals, and further consistent with other rates herein approved by the Council. The Director of Public Works shall then be responsible to notify the City Council of such new water rate at its next regularly scheduled meeting.

C. Single dwellings on lots having one to fifty feet frontage, a minimum charge of \$22.39 per month; fifty-one to seventy-five feet of frontage \$25.21 per month; seventy-six to one hundred feet frontage, \$26.86 per month; frontage greater than one hundred feet shall be fixed by resolution of the City Council

D. When more than one dwelling is situated on resident's property, a minimum charge of \$22.39 per month for each dwelling;

E. The foregoing minimum rates for resident's property covers a lot of depth from one to one hundred fifty feet; lots of a depth in excess of one hundred fifty feet shall be specifically rated in the same manner as prescribed in Section B of this section.

F. Each cabin, house trailer and/or rental, if on a separate property from a resident's property, shall have a minimum charge of \$10.17 per month each; if the same property with a dwelling, the charge shall be the same and in addition to the minimum charge applying to the dwelling.

G. For each dwelling and/or apartment in courts, the minimum charge shall be \$21.72 per month for each housekeeping unit.

H. For trees and shrubs only, on vacant lots having a maximum of fifty feet frontage and one hundred fifty feet in depth, there shall be a charge of \$10.17 per month. Vacant lots of large size or for other use shall be specially rated in the same manner as prescribed in Section B. When user has more than one connection, he shall be charged \$5.70 for each additional connection.

I. When and if water furnished to any person and/or user is run through and measured by a water meter, then the monthly charge for water so measured and furnished shall be as follows;

1. For the first five hundred cubic feet, \$2.07 per one hundred cubic feet;
2. For the next one thousand five hundred cubic feet \$1.23 per one hundred cubic feet;
3. For the next two thousand cubic feet, \$1.17 per one hundred cubic feet;
4. For all amounts in excess of four thousand cubic feet, \$.99 per one hundred cubic feet;
5. When water is so measured and furnished, a minimum charge shall be made of \$22.39 per month or \$12.81 for each living unit.

J. All new water services installed shall be metered, and the costs of the water services installed shall be metered, and the costs of the meter and installation thereof shall be borne by the owner or subdivider of the premises served.

K. On all commercial uses, other than multifamily residential, in addition to the minimum charge, when property exceeds fifty feet in frontage, there shall be an additional charge for parcels fifty-one to seventy-five feet frontage of \$5.70 per month, and for seventy-six to one hundred feet frontage, an additionally charge of \$11.14 per month.

L. For businesses or uses whether identified in, or not provided for, in this chapter, and whom do not have an existing water meter the city herein reserves the right to install, or have installed by its contracting agent a water meter to measure the water furnished. If such a meter is installed, the charge of the meter may be placed on the users monthly water bill, and thereby provide reimbursement to the city.

M. In addition to the foregoing rates, every person or water user who has upon his premises an evaporative water cooler shall pay, in addition to the regular monthly bill, \$4.47 per three thousand five hundred cubic feet of air per minute, which is being operated or set up to operate without suitable return pump or satisfactorily arranged so that the water used in conjunction with the cooler is not recirculated in the cooler. For every cooler which size exceeds three thousand five hundred cubic feet of air per minute, which is separate or set up to operate without a suitable return pump or satisfactorily arranged so that the cooling water is not recirculated, there shall be an additional charge of \$6.69 per month.

N. For every heating pump, air conditioning system or refrigeration-type air cooler which requires water in its operation, which the heating pump, air conditioning system or refrigeration-type cooler does not have a suitable return pump or satisfactory water return system, there shall be a charge of \$15.61 per month for each unit ton capacity.



Citation for Water Waste Violators

NO 404

CITY OF WASCO

DEPT. OF CODE ENFORCEMENT

WARNING NOTICE

Issued To: _____

Date: _____

Address: _____

Time: _____

This is to inform you that you are in violation of the City of Wasco Municipal Code Chapter 12.08 Section 12.08.10 and Ordinance No. 94 of the Wasco Public Utility District as adopted by the City of Wasco concerning water waste on your premises.

Please be more careful in the future and cooperate with us in conserving all water as possible, by making sure that open hoses are not left running unattended; that all faucets are closed before you retire for the night; that all leaky hydrants are promptly repaired and pumps installed on evaporative coolers.

Under the Provisions of Ordinance 12.08.20 it is unlawful for anyone to allow excessive water to run upon any street, sidewalk or alley within the city limits of the City of Wasco. Convicted violators of the Ordinance are subject to a fine not exceeding \$50.00 or imprisonment in the County Jail not exceeding 60 days or by both such fine and imprisonment.

Thank you for your cooperation. If you have any questions please call 758-7285.

COMMENTS: _____

ISSUED BY: _____



Draft Resolution to Declare a Water Shortage Emergency

DRAFT RESOLUTION NO. _____

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF WASCO
TO DECLARE A WATER SHORTAGE EMERGENCY**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF WASCO AS FOLLOWS:

WHEREAS, PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Council finds, determines and declares as follows:

- (a) The City is the water purveyor for the property owners and inhabitants of Wasco;
- (b) The demand for water service is not expected to lessen.
- (c) When the combined total amount of water supply available to the City from all sources falls at or below the Stage 2 triggering levels described in the current Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until precipitation and inflow dramatically increases or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Wasco hereby directs the City Manager to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate. After the declaration of a water shortage emergency, the City Manager is directed to determine the appropriate Rationing Stage and implement the City's Water Shortage Emergency Response.

FURTHERMORE, the Council shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

PASSED AND ADOPTED, by the City Council of the City of Wasco, County of Kern, State of California on _____:

Name , Mayor

ATTEST:

Name , City Clerk

I, _____, City Clerk of the City Council of the City of Wasco, do hereby certify that the foregoing resolution was duly adopted by the City Council of said City at a regular meeting held on _____, and that it was so adopted by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

Name , City Clerk



APPENDIX C

2005 Consumer Confidence Report

2005 Consumer Confidence Report

Water System Name: **CITY OF WASCO**

Report Date: **April 21, 2006**

We test the drinking water quality for many constituents as required by State and Federal Regulations. This report shows the results of our monitoring for the period of January 1 - December 31, 2005.

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

Type of water source(s) in use: Groundwater

Name & location of source(s): Seven deep well turbine pumps from the Poso Creek Aquifer.

Drinking Water Source Assessment information: A source water assessment was conducted for Each well site in 2003. The results of this assessment indicate that our water sources are most Vulnerable to the following activities: Chemical, petroleum processing/storage, automobile body shops, gas stations, repair shops, farm machinery repair, septic systems, sewer collection systems, underground storage tanks, historic gas stations.

Time and place of regularly scheduled board meetings for public participation: 7:00 p.m. on the 1st And 3rd Tuesday of each month at 746 8th Street.

For more information, contact Stacie Lopez

Phone: (661) 758-7250

TERMS USED IN THIS REPORT:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Primary Drinking Water Standards (PDWS): MCLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards (SDWS): MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.

ND: not detectable at testing limit

ppm: parts per million or milligrams per liter (mg/L)

ppb: parts per billion or micrograms per liter (ug/L)

ppt: parts per trillion or nanograms per liter (ng/L)

pCi/L: picocuries per liter (a measure of radiation)

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Variations and Exemptions: Department permission to exceed an MCL or not comply with a treatment technique under certain conditions.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- *Radioactive contaminants*, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA and the state Department of Health Services (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Tables 1, 2, 3, 4, and 5 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The Department requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, are more than one year old.

TABLE 1 - SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORM BACTERIA

Microbiological Contaminants (to be completed only if there was a detection of bacteria)	Highest No. of detections 2005	No. of months in violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria	(In a mo.) -0-	-0-	More than 1 sample in a month with a detection	0	Naturally present in the environment
Fecal Coliform or <i>E. coli</i>	(In the year) -0-	-0-	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or <i>E. coli</i>	0	Human and animal fecal waste

TABLE 2 - SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper (to be completed only if there was a detection of lead or copper in the last sample set)	No. of samples collected 2005	90 th percentile level detected	No. Sites exceeding AL	AL	MCLG	Typical Source of Contaminant
Lead (ppb)	35	0.8	-0-	15	2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper (ppb)	35	28	-0-	1300	170	Internal corrosion of household water plumbing systems; erosion of natural deposits; leaching from wood preservatives.

TABLE 3 - SAMPLING RESULTS FOR SODIUM AND HARDNESS

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
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Sodium (ppm)	2004	28.7	27-30			Generally found in ground and surface water
Hardness (ppm)	2004	66.8	44-92			Generally found in ground and surface water

* Any violation of an MCL or AL is asterisked. Additional information regarding the violation is provided on the next page.

TABLE 4 - DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Arsenic (PPB)	2004	1.8	ND-3.1	50		Erosion on natural products; runoff from orchards, glass and electronics production wastes
Nitrate (PPM)	2005	28.5	12- *54	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion or natural deposits
Dibromochloropropane (PPT)	2005	60.4	ND-130	200	1.7	Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes and tree fruit
Ethylene dibromide (PPT)	2005	8.8	ND-25	50		Discharge from petroleum refineries; underground gas tank leaks; banned nematocide that may still be present in soils due to runoff and leaching from grain and fruit crops
Gross Alpha (Pci/L)	2002	0.8	-1.00-2.01	15		Erosion of natural deposits

TABLE 5 - DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Sulfate (PPM)	2004	23.7	16-34	500		Runoff/leaching from natural deposits; industrial wastes
Chloride (PPM)	2004	10.8	8.3-15	500		Runoff/leaching from natural deposits; seawater influence
Specific Conductance (umho/cm)	2004	282.5	231-337	1600		Substances that form ions when in water; seawater influence
Total Dissolved Solids (PPM)	2004	188.5	155-218	1000		Runoff/leaching from natural deposits

TABLE 6 - DETECTION OF UNREGULATED CONTAMINANTS

Chemical or Constituent	Sample Date	Level Detected	Range of Detection	Action Level
Chromium, Hexavalant (PPB)	2002	4.1	3.4-5.3	
Vanadium (PPB)	2002	10.5	8-13	15
1,2,3-Trichloropropane (PPT)	2005	162.4	29-460	5
CHLORATE (PPB)	2003	21		200

* Any violation of an MCL or AL is in bold type. Additional information regarding the violation is provided below.



ROSE CAPITAL OF THE NATION
DEPARTMENT OF PUBLIC WORKS
764 "E" Street • Wasco, CA 93280
(661) 758-7250

2005 Consumer Confidence Report

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HELT ENGINEERING, INC.

Additional General Information On Drinking Water

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

MCL's are set at very stringent levels to understand the possible health effects described for many regulated Constituents, a person would have to drink 2 liters of water every day at the MCL Level for a lifetime to have a one-in-a-million chance of having the described health effect.

Summary Information for Contaminants Exceeding an MCL or AL, or a Violation of any Treatment or Monitoring and Reporting Requirements

Nitrate: Nitrate in drinking water at levels above 45 mg/L is a health risk for infants of less Than six months of age. Such nitrate levels in drinking water can interfere with the capacity of The infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of Breath and blueness of the skin. Nitrate levels above 45 mg/L may also affect the ability of The blood to carry oxygen in other individuals, such as pregnant women and those with certain Specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should Ask advice from your health care provider. Nitrate levels may rise quickly for short periods of Time because of rainfall or agricultural activity.

*All nitrate samples exceeding the MCL were collected from pump sites that were not in use at The time. These pumps were only activated for a few minutes in order to collect the samples.

The City's Water Department is committed to providing a safe and dependable water supply to every tap. Water Department staff receive extensive training and are certified by the State of California Department of Health Services as Water Distribution System Operators.

We are continually making improvements to the water system to benefit our customers. These improvements may be reflected in rate structure adjustments.

Thank you for your cooperation.

The City of Wasco Water Department