

Attachment 7 – Economic Analysis – Water Supply costs and Benefits

Introduction

The Economic Analysis in this attachment reviews the costs and benefits of each project included in this application, and of the group as a whole. In the event that the \$13.3 million grant is not awarded but the \$6.7 million grant is awarded, several projects would be modified, either through scope, cost share, or its inclusion in the grant application. In this event (as described in **Attachments 3 and 4**), the CID South and Highland Basin Project would be reduced in scope, the City of Fresno Meter Project would have an adjusted cost share, and the Bakman W.C. Meter Project would be removed from the project list.

To address this, there are two sets of economic analysis tables in this attachment for the Consolidated ID and City of Fresno projects, reflecting their respective changes due to reduced funding.

Project 1: Consolidated Irrigation District South and Highland Basin

Average Annual Project Extraction

From the project’s feasibility study included in **Attachment 3b**, the annual average project extraction is estimated to be approximately 2,500 acre-feet. The project yield of 2,500 acre-feet will be made available to agencies and other project partners in the Kings River region. For the agencies entering into a purchase agreement with CID for supply from this project, these costs are considered the avoided costs of acquiring alternative water supplies.

In order to estimate the market value of the water yielded by this project, a review of potential markets, state-wide water supply issues, and recent water sales in the area was conducted.

Marketability

Potential Markets

Opportunities exist to transfer supplies, generally during dry years. However, there are growing municipal users that are looking for additional supplies every year. Potential markets include the Kings River Water Association (KRWA) service area. Should CID partner with FID, there is the ability to transfer water to other Central Valley Project (CVP) users through FID’s CVP contract, including the Westside districts and State Water Project users through the Cross-Valley Canal. With the San Joaquin River (SJR) restoration underway, there is also a new dynamic to the ability to transfer water. Conceivably, water could be transferred using the SJR to get water directly to the Westside. Additionally, with the recirculation concept water released from Friant would be pumped into the California Aqueduct.

Recent Sales History

As with any commodity when supplies are low, prices increase, and when supplies are high, prices decrease. The recent drought and delta pumping restrictions have limited supplies to the south of the delta water users on the federal and state systems. Recent sales have yielded wholesale prices between \$300 and \$500 per acre-foot. (Note: as this document was prepared, another CVP district has developed and is initiating a banking program.) A copy of the recent proposal is included in **Attachment 7a**. A summary is presented below in **Table 7-1** of recent sales.

Table 7-1. Summary of Recent Water Sales

Year	Supply From	Supply To	Price (\$/AF)	Volume (AF)
2010	Ag – East side	Ag – West side	275	30,000
2010	Ag – East side	Ag – West side	200	15,000
2009	Ag – East side	Ag – West side	400	12,000
2009	Ag – East side	Ag – East side	50	5,000
2009	Ag – West side	Ag – West side	400	12,000
2009	Ag – East side	Ag – West side	100	10,000
2009	Ag	Urban	500+	14,000
2009	Ag	Urban	500+	3,000

From the information provided it is clear that water demand continues to cause the value of water to rise. The price that has been paid in recent years varies from about \$100/AF in normal years to a high of \$400/AF in the most recent dry year. It is questionable whether the \$400/AF is an anomaly or is sustainable given current agricultural economics.

Urban demand continues to expand. Cities, municipalities, and developers continue to search and acquire water supplies for new development. As shown in **Table 7-1**, the price for dependable supplies to urban uses is greater than that for agriculture, continues to rise, and is expected to continue into the future.

Based on this comparison, a value of \$225 per acre-foot was assumed as the project benefit. It should be noted that this amount is considered conservative, as the proposed project will provide dry-year supply.

Administration Costs

The project will have nominal administrative costs averaging \$10,000/year. This estimate is based on costs to administer similar groundwater banks.

Pumping Costs

Groundwater pumping costs are estimated to be \$47/acre-foot. This unit price is based on an estimated pumping cost in an April 2007 report entitled "Demand Response Technical Audit for Kings County Water District", included as **Attachment 7b**.

Maintenance Costs

Maintenance costs were assumed to be 0.5% of capital cost. This is believed to be reasonable based on experience at existing banking facilities.

Replacement Costs

For estimating purposes, it is assumed that well pumps will need to be replaced after 25 years. The costs for these improvements are included in the economic analysis. Pipeline and turnout improvements are expected to last the duration of the economic analysis (50 years).

Monitoring costs

A cost of \$20,000/year was assumed. This cost is based on costs to monitor existing banking facilities of this size. Costs associated with monitoring include site visitations for data collection, Groundwater Monitoring Committee meetings, and summarization of data collected into an annual report.

Period of Analysis

The economic evaluation is based on a 50-year analysis period. The 50-year period was utilized in order to match the assumed project life.

Inflation and Escalation

The inflation rates provided by DWR were utilized.

Discount Rate

The discount rates required by DWR were utilized.

Dollar Value Base Year

All benefits and costs are expressed in year 2009 dollars, as required.

Cost of Source Water

The water supply will come from existing entitlements, therefore no water purchase costs are assumed for CID.

In addition to water supply benefits, the project will also provide water quality benefits. The surface water is usually of higher quality than groundwater, and the mixing of the two due to the project's recharge operations would improve groundwater quality. The project will also incorporate on-going groundwater quality monitoring within the vicinity of the project to ensure the project does not negatively effect, but instead, improve groundwater quality in the area.

Project 2: City of Clovis SWTP Expansion

The City of Clovis has estimated that it will require \$4,250,000.00 to complete the Expansion of the existing Plant. The monies will pay for administration costs, final design costs, construction costs, and construction administration. DWR Economic Table 7 is a summary of the costs and included in this attachment section. These costs were detailed in **Attachment 3** – Work Plan, Tasks.

Annual Water Supply Costs

The City of Clovis has estimated that in addition to the construction cost of \$4,250,000, the expansion will incur an annual operation and maintenance cost of \$200,000. The cost includes the operation and maintenance of the total Plant treatment capacity (includes both the original capacity and the Expansion capacity). The City estimates that replacement of the micro-filtration and other equipment will occur over 7-10 years; the cost of replacement has been estimated as \$1,953,556 every ten (10) years. This cost has been divided equally over the project life (\$195,356.60 per year). There are no added administration costs for the project due to the expansion being the same processes/treatments as the existing plant. There is no water purchase costs associated with the Expansion Project since the existing water supply contract between FID and the City includes the Expansion surface water that is being banked until the Expansion is constructed.

The project life was estimated out to 50 years for the economic analysis. Over the project life of 50 years, it is estimated that the Expansion will cost the City a total of \$8,855,226.00. DWR Economic Table 11 is included in this attachment section.

Annual Water Supply Benefits

The City of Clovis has estimated the costs savings for the reduction of pumped groundwater from the known costs of pump operation and maintenance in a per acre-foot basis of the existing operational wells owned by the City. This cost was determined to be \$104.75 per acre-foot pumped. Since the City will be reducing the pumping quantity by the expanded capacity of 7,711 ac-ft per year, the City will be saving an estimated \$807,727.00 per year. Over the 50 year project life, it is estimated that the City will be saving a total of \$10,656,346.00. DWR Economic Tables 12 and 15 are included in this attachment section.

See **Attachment 10** for the project benefit-cost analysis.

Project 3: Fresno County Drummond Jensen Ave Sewer Connection Study

Introduction

The objective of the project is to reduce nitrate groundwater contamination in the Drummond Jensen Avenue neighborhood and to ensure the groundwater is safe for residents to drink. A small portion of the neighborhood is on a public drinking water system, but many cannot afford the connection fees. As a result, most households are still relying on private domestic water wells for drinking water. However, with each home having its own septic system and forced to locate its well near the septic system (due to the small size of the parcels), the well water being used by each home is contaminated with high nitrate levels and unsafe to drink.

The City of Fresno's Nitrate Management Plan (NMP) (**Attachment 3k**) is the result of the City's on-going goal of reducing groundwater contamination by providing city sanitary sewer systems to residences in "county islands", or other areas within or adjacent to the City's sphere of influence that still use private septic systems.

The portion of the project to be funded by this grant consists only of the feasibility study and preparation of bid/construction documents for the new sewer design. However, this economic analysis is for the entire project, including design, construction, and implementation of the new sewer system.

Economic Costs

The project design and environmental budget was discussed in **Attachment 4**. The estimated conceptual construction costs of the sewer system are also included in **Attachment 4** and are estimated to be approximately \$476,400. The annual costs of the project are summarized in Table 11, attached at the end of this section. Annual costs of the project include administration costs, operation and maintenance costs, the cost of replacement as necessary, and any other ongoing costs associated with this project.

Administration costs:

The project administration costs will be approximately \$15,000 during construction. However, after construction, the project's on-going administration costs will be negligible in the viewpoint of the City of Fresno. Adding an extra 30+/- sanitary sewer connections to the city-wide system will likely create no additional administrative burden on the city.

Operation Costs:

The annual operational costs of the project are anticipated to be approximately 2% of the capital construction costs of \$476,400, or approximately \$9,500 per year.

Maintenance Costs:

The annual maintenance costs of the project are anticipated to be approximately 2% of the capital construction costs of \$476,400, or approximately \$9,500 per year.

Replacement Costs:

The expected life of new sewer system, including its pipes and manholes is 30 years.

Monitoring costs:

No extra on-going monitoring costs are associated with this project. The necessary groundwater quality monitoring is already being performed by the City of Fresno as part of its on-going groundwater monitoring program.

Period of Analysis:

The economic evaluation is based on a 50-year analysis period.

Inflation and Escalation:

The inflation rates provided by DWR were utilized.

Discount Rate:

The discount rates required by DWR were utilized.

Dollar Value Base Year:

All benefits and costs are expressed in year 2009 dollars, as required.

As shown in the conceptual construction costs included in **Attachment 4**, the conceptual design of the sewer system would likely consist of 8-inch diameter PVC pipe, with 3-inch diameter PVC service laterals to each residence. Manholes would be constructed near the bends/intersections of the pipe and two main sewer line laterals would be construction, one for each street in the neighborhood. The new sewer lines would tie into the City of Fresno's existing 60-inch diameter PVC-lined concrete pipe within Peach Avenue.

In addition, the project would also replace the aging asphalt streets within the neighborhood. The trenching required to construct the pipelines would remove most of the asphalt in the neighborhood streets. Since the existing asphalt is approximately 30 years old and is failing, all of the existing asphalt will be removed and replaced.

Project Benefits

The installation of the proposed sewer system will provide a number of benefits, not only to the Drummond Jensen Avenue neighborhood, but to the Upper Kings Subbasin and Fresno region as a whole. The benefits of the project are paramount when considering the health risks associated with continued use of the existing water source as currently contaminated with

nitrate. The health effects of the community will be compromised without any action to remedy the current situation. In addition to water quality issues, the raw sewage on the ground surface due to failed septic systems within the neighborhood creates a health hazard for the neighborhood's residents, pets, other animals, and plant life, not to mention contributing to air and soil pollution in a residential area.

Though it cannot be directly tied to solely the Drummond Jensen Avenue neighborhood, the City of Fresno has considered the development of costly nitrate contamination plume removal projects. Such a project considered includes a \$5 million groundwater recharge project that would recharge surface water into the aquifer in the southeast region of Fresno while using wells to extract shallow groundwater contaminated with nitrates. As discussed in the City of Fresno Nitrate Management Plan (**Attachment 3k**), a project of this magnitude would have an estimated annual contaminated groundwater extraction capability of 12,000 to 15,000. A project like this could be used to improve groundwater quality in the southeast Fresno region. By reducing the number of private septic systems within the Fresno region, the need for costly projects like this would be reduced.

Project 4: East Orosi CSD Water Well Rehabilitation Project

Introduction

The objective of the project is to provide a reliable source of good, clean and safe drinking water that is affordable to the residents of the community of East Orosi. Three project alternatives were considered in order to determine the most feasible and cost effective solution to pursue. The East Orosi Safe Drinking Water Project Report (**Attachment 3o**) discusses these alternatives and their associated costs. The portion of the project discussed in this application is the first of three potential project alternatives. The second and third alternatives could be pursued to achieve the same goals of the project but at much greater cost.

Well Rehabilitation Costs

This involves remediation work on the water system's two active wells to unplug well casing perforations that would provide a higher percentage of water from the deeper stratas where nitrate levels are lower. This work would provide both improved water quality as well as increasing water quantity to deal with sporadic low pressure conditions in summer months. The nitrate level in water produced from these wells has been marginally over or under the MCL. Therefore, opening perforations and pumping water from deeper stratas will be an effective and less costly method of resolving the nitrate issue with each well as compared to constructing two entirely new wells. The pump from Well # 1 was pulled and the casing "videoed" on March 10, 2005. At that time it was discovered that a large percentage of perforations were plugged and that the air vent pipe had broken off and was lodged in roughly the bottom 50 feet of the well (see Figure 7). This made it impossible to clean the casing's lower perforations. The upper perforations were cleaned, the pump was replaced and, unfortunately, there was no noticeable difference in nitrate levels from water pumped from this well.

A recent study review by geologist Kenneth Schmidt (**Attachment 3n**) was prepared and provided a construction cost estimate of \$137,000 for the well rehabilitation. The project's administration and preparation of construction documents is anticipated to be performed at no charge by non-profit agencies.

Cost of Constructing Two New Wells

An alternative project to accomplish the same goals would be to construct two entirely new production wells to replace the two existing wells. This alternative project involves drilling and developing two new water wells in an aquifer that would have a lower concentration of nitrate and is free from other harmful constituents. As shown in the cost estimates contained in the East Orosi Safe Drinking Water Project Report (**Attachment 3o**), this project would include the construction and analysis of two test wells, full development of each well with new pumps,

installation of new piping manifolds and tanks, and an estimated 5,000 feet of transmission line to connect the new wells back to the East Orosi CSD water system. As shown in the cost estimate contained in Table 2 of the East Orosi Safe Drinking Water Project Report, the estimated total project cost to provide all of the improvements for this alternative project is approximately \$2,314,300.

Economic Costs

The project budget was discussed in **Attachment 4** and addresses the implementation of the well rehabilitation. The annual costs of the project are summarized in Table 11, attached at the end of this section. Annual costs of the project include administration costs, operation and maintenance costs, the cost of replacement as necessary, and any other ongoing costs associated with this project.

Administration costs:

The project administrative costs will be approximately about \$15,000 during construction. However, after construction, the project's administration costs will be no different than what East Orosi CSD currently experiences to operate its wells. The project would add no additional costs.

Operation costs:

The operational costs of the project are anticipated to be no different than what East Orosi CSD currently experiences. The project would add no additional costs.

Maintenance Costs:

The maintenance costs of the project are anticipated to be no different than what East Orosi CSD currently experiences. The project would add no additional costs.

Replacement Costs:

The expected life of new production wells (casing and annular seal) is 30 years. The expected life of the well pump and equipment is 10 years. The estimated life of a rehabilitated well is 30 years.

Monitoring costs:

No extra on-going monitoring costs are associated with this project. Pressure readings, periodic groundwater quality monitoring, and associated administrative costs are included in administration costs above.

Period of Analysis:

The economic evaluation is based on a 50-year analysis period.

Inflation and Escalation:

The inflation rates provided by DWR were utilized.

Discount Rate:

The discount rates required by DWR were utilized.

Dollar Value Base Year:

All benefits and costs are expressed in year 2009 dollars, as required.

Project Benefits

The benefits of the project are paramount when considering the health risks associated with continued use of the existing water source as currently contaminated with nitrate. The health effects of the community will be compromised without any action to remedy the current situation.

Summary

It is clear that the well rehabilitation is much less expensive than the alternative project of constructing two new production wells. The well rehabilitation is estimated to be approximately 7% of the estimated construction cost of the two new wells. The on-going operating and maintenance costs of both projects would be similar to what East Orosi CSD is currently experiencing. In addition, with the construction of two new wells, the residents of East Orosi would likely be faced with increased water utility costs to pay for the wells, which the residents may not be able to afford without financial assistance.

For the economic analysis, the benefits of the avoided well construction project are included in Table 16 – Water Quality and Other Expected Benefits. It is assumed that the well rehabilitation project would avoid the construction of two new wells for the remainder of the anticipated life of the rehabilitated well (30 years).

Project 5: City of Fresno Residential Water Meter Project (Area IV)

Project Life Cycle Cost

Capital Investment Cost

The installation of 10,000 residential water meters has a construction cost of \$6,165,000 and a cost of \$650,000 for Construction Administration.

Construction costs are broken-down into three primary components:

1. Service retrofit and install meter Boxes: $10,000 \times \$422 = \$4,220,000$
2. Purchase and install meters and AMR equipment: $10,000 \times \$193 = \$1,930,000$
3. Purchase and install System collectors: $3 \times 5,000 = \$15,000$

Total construction cost = \$6,165,000

Construction Administration costs consist of project management, inspection, and administration. The City has retained the services of Valli Cooper and Fred Sharp Inspection to perform the majority of these functions. Using a value of 10% for these services and rounding upward, the costs for construction administration was taken to be \$650,000. The overall capital cost for project construction is then \$6,815,000.

Reoccurring Annual Costs

After the meters and AMR system have been installed, there will be ongoing costs associated with the administration, operation, maintenance, and eventual replacement of this equipment. The expected life of this system is approximately 20 years. At the end of this time period the meters will no longer be operating at optimum reading efficiency and will require replacement. Additionally, the electronics associated with the AMR equipment will be old and obsolete also requiring replacement.

Ongoing annual costs that will result from the project include:

1. Administration: This function will essentially be conducted the Water Division's Meter Shop Supervisor and a supporting Administrative Clerk. It is approximated that the Meter Shop Supervisor and Clerk will dedicate one-half of their time to the administration for all residential, commercial, industrial, and irrigation meters annually. Of this time, 82% of all meters in the city will residential and applicable to the costs for this project. Of this value, one-eleventh will be directly attributed to the project itself. Salaries for the Meter Shop Supervisor and Administration Clerk are \$79,500 and \$33,780, respectively. Applying the above described factors results with a combined annual administration cost of \$5,150 for the installed 10,000 meters.

2. Operations: This function will primarily be supported by the Water Division's Water Systems Telemetry & Distribution Control Specialist. It is approximated that this position will dedicate one-third of their time to operations for all residential, commercial, industrial, and irrigation meters annually. Of this time, 82% of all meters in the city will residential and applicable to the costs for this project. Of this value, one-eleventh will be directly attributed to the project itself. The Annual salary for this position is \$63,216. Applying the previously described factors an annual cost of \$1,570 will be attributed to operation of the installed 10,000 meters.
3. Maintenance: This function will be performed by the Water Division's Water Systems Telemetry & Distribution Control Technician. It is approximated that this position will dedicate the same amount of time as operations requires. The annual salary for this position is \$57,444. Applying the previously described factors an annual cost of \$1,427 will be attributed to operation of the installed 10,000 meters.
4. Replacement: At the end of the useful life of the project, the meters and AMR equipment will have to be replaced. The present day replacement cost for the Meter, AMR equipment, and inspection costs is \$2,595,000. Accounting for inflation over the twenty year period at 3% and then discounting at 6% results in a present value of replacement at \$1,307,049.

Cumulative Project Life Cycle Cost

The total life cycle cost of a project is the sum of both capital investment and reoccurring annual costs. The cumulative cost then of this project over its entire life expectancy is anticipated to be \$7,484,309.

Expected Water Supply Benefits

Water Supply Conservation and Use Efficiency

Through the use of water meters and charging for this commodity based on a volumetric rate, service customers will realize the value of this resource and use it wisely. The anticipated reduction in residential water consumption is expected to be 10%. For about the last nineteen years residential water consumption has averaged 300 gpcd. An expected 10% reduction would realize a savings of 30 gpcd. The average household in the City has approximately three people. The annual water savings is then 1,008 acre-feet. A project benefit is thus the conservation of the resource and its associated cost savings. In that the groundwater aquifer is in a state of overdraft, indicating this use is not sustainable, the value of water is then best made to that of surface water which is available though presently under utilized. The value of this water is the cost of raw surface water and the cost to treat it to make it potable. The cost for the City's United States Bureau of Reclamation Central Valley Project water is \$95.86 per acre-foot. The cost for treatment is \$145.79 per acre-foot. The total cost for treated surface water is then

\$241.65 per acre-foot. The annual benefit savings from conservation and efficient use is then \$243,580.

Resource Restoration and Environmental Stewardship

A significant though difficult to quantify benefit of the project is the restoration of the groundwater aquifer. The elimination of groundwater pump and expansion of conjunctive use allows the groundwater aquifer to become a sustainable resource in the City's water portfolio. It cannot be over stated that the transition from a state of groundwater overdraft to one that has a balance between replenishment and extraction makes this a resource in perpetuity. As so many communities struggle with an over reliance on groundwater without appropriately addressing replenishment, this project strengthens the City's ability to support economic growth, improve water resource management and environmental stewardship.

Drought Resilience

As the groundwater aquifer recovers from being in a condition of overdraft, it also becomes an increasingly important resource during periods of sustained drought. The State of California has and will continue to experience periods of multiple years of drought. During these periods, surface water supplies become scarce and water purveyors must rely on groundwater to meet demands. The restoration of the groundwater system affords the City the opportunity to extract more groundwater when experiencing these dry conditions. Once the drought has subsided, the City would then be able to meet a majority of the demands with surface water supplies and permit the groundwater system to again replenish and be available for the next drought cycle.

Project 6: Bakman Water Company Water Meter Installation Project

Economic costs

The project budget was discussed in **Attachment 4**. The annual costs of the project will be described in this section, and are summarized in Table 11, attached at the end of this section. Annual costs of the project include administration costs, operation and maintenance costs, the cost of replacement as necessary, and any other ongoing costs associated with this project.

Administration costs:

The project administrative costs will average about \$10,000/year. This estimate is based on costs to administer the meter reading program and processing of water usage rates.

Operation costs:

There are no anticipated operation costs associated with this project.

Maintenance Costs:

The water meters are assumed to be maintenance free for 20 years. All of the meters will receive maintenance over a 2-year period after 20 years, costing approximately \$10,000 per year. Beyond that point, a minimal amount of maintenance is assumed to be required for the following 20 year period.

Replacement Costs:

The expected life of the water meters is 50 years, and therefore replacement of water meters is not expected over the 50 year lifecycle.

Monitoring costs:

No monitoring costs are associated with this project. Meter readings and associated administrative costs are included in administration costs above.

Period of Analysis:

The economic evaluation is based on a 50-year analysis period.

Inflation and Escalation:

The inflation rates provided by DWR were utilized.

Discount Rate:

The discount rates required by DWR were utilized.

Dollar Value Base Year:

All benefits and costs are expressed in year 2009 dollars, as required.

Project Benefits

The installation of water meters will provide a number of benefits, not only to Bakman, but to the Upper Kings Subbasin as a whole. The purpose of the water metering project is to comply with State of California AB 2572 requirements to meter the water delivered to all water users. The project will benefit Bakman by reducing the cost of energy because it will use less energy to pump potable water; it will benefit the consumers by paying less for water if they reduce their consumption; and it will benefit the region, because it will help conserve water for future use. The reduced demand associated with this project will also reduce energy usage and lessen the need to deepen wells in the future, lower pumps, or install new wells.

Reduced Pumping Costs

The three year average annual groundwater pumping cost experienced by Bakman W.C. is approximately \$258,200 (**Attachment 7c**). Assuming a 10% water conservation rate equates to a 10% reduction in groundwater pumping, groundwater pumping cost savings are estimated to be \$25,800 per year (or approximately \$61/AF with a total annual water conservation of 420 AF).

Water Supply

This project is anticipated to reduce water consumption within Bakman by 10%, or approximately 420 acre-feet per year. Local area supplies for potable water are between \$200 and \$300 per acre-foot. For estimating benefits, an assumed value of \$250/AF was used. This number is based on the assumption that Bakman's alternatives are limited based on limited groundwater supply and treatment required for contamination plumes in the area. Construction of a surface water treatment plant would be considerably more expensive, especially considering Bakman would have to secure a surface water supply. Project water supply benefits are summarized in Tables 12 and 15.

Table 11- Annual Cost of Project
 (All costs should be in 2009 Dollars)
 Project: Consolidated Irrigation District - South & Highland Basin Project - Full Funding

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation (Pumping)	(d) Maintenance	(e) Replacement	(f) Other (Monitoring)	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011	\$1,200,000						\$1,200,000	0.890	\$1,067,996
2012	\$3,427,000	\$10,000	\$117,500	\$17,000		\$20,000	\$3,591,500	0.840	\$3,015,493
2013		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.792	\$130,299
2014		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.747	\$122,924
2015		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.705	\$115,966
2016		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.665	\$109,402
2017		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.627	\$103,209
2018		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.592	\$97,367
2019		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.558	\$91,856
2020		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.527	\$86,657
2021		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.497	\$81,751
2022		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.469	\$77,124
2023		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.442	\$72,759
2024		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.417	\$68,640
2025		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.394	\$64,755
2026		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.371	\$61,089
2027		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.350	\$57,632
2028		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.331	\$54,369
2029		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.312	\$51,292
2030		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.294	\$48,389
2031		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.278	\$45,650
2032		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.262	\$43,066
2033		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.247	\$40,628
2034		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.233	\$38,328
2035		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.220	\$36,159
2036		\$10,000	\$117,500	\$17,000	\$600,000	\$20,000	\$764,500	0.207	\$158,533
2037		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.196	\$32,181
2038		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.185	\$30,360
2039		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.174	\$28,641
2040		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.164	\$27,020
2041		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.155	\$25,490
2042		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.146	\$24,048
2043		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.138	\$22,686
2044		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.130	\$21,402
2045		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.123	\$20,191
2046		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.116	\$19,048
2047		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.109	\$17,970

Table 11- Annual Cost of Project (All costs should be in 2009 Dollars) Project: Consolidated Irrigation District - South & Highland Basin Project - Full Funding									
	Initial Costs	Operations and Maintenance Costs ⁽¹⁾						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation (Pumping)	Maintenance	Replacement	Other (Monitoring)	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs(g) x (h)
2048		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.103	\$16,953
2049		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.097	\$15,993
2050		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.092	\$15,088
2051		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.087	\$14,234
2052		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.082	\$13,428
2053		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.077	\$12,668
2054		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.073	\$11,951
2055		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.069	\$11,274
2056		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.065	\$10,636
2057		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.061	\$10,034
2058		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.058	\$9,466
2059		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.054	\$8,930
2060		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.051	\$8,425
2061		\$10,000	\$117,500	\$17,000		\$20,000	\$164,500	0.048	\$7,948
2062		\$10,000	\$117,500	\$17,000	\$600,000	\$20,000	\$764,500	0.046	\$34,847
Project Life									
Total Present Value of Discounted Costs (Sum of Column (i))									\$6,412,245
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									
Comments: - Assumes 50 year project life. - Operation (Pumping) costs assume \$47/AF for 2,500 AF/yr. - Annual maintenance costs are assumed to be 0.5% of initial capital costs (land plus facilities) (\$3,421,000). - Replacement costs assume recovery well replacement every 25 years.									

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project
 (All costs should be in 2009 Dollars)
 Project: Consolidated Irrigation District - South & Highland Basin Project - Reduced Funding

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation (Pumping)	(d) Maintenance	(e) Replacement	(f) Other (Monitoring)	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011	\$1,200,000						\$1,200,000	0.890	\$1,067,996
2012	\$2,000,000	\$10,000	\$56,400	\$11,000		\$20,000	\$2,097,400	0.840	\$1,761,017
2013		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.792	\$77,150
2014		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.747	\$72,783
2015		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.705	\$68,663
2016		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.665	\$64,777
2017		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.627	\$61,110
2018		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.592	\$57,651
2019		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.558	\$54,388
2020		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.527	\$51,309
2021		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.497	\$48,405
2022		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.469	\$45,665
2023		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.442	\$43,080
2024		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.417	\$40,642
2025		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.394	\$38,341
2026		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.371	\$36,171
2027		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.350	\$34,123
2028		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.331	\$32,192
2029		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.312	\$30,370
2030		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.294	\$28,651
2031		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.278	\$27,029
2032		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.262	\$25,499
2033		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.247	\$24,056
2034		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.233	\$22,694
2035		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.220	\$21,409
2036		\$10,000	\$56,400	\$11,000	\$300,000	\$20,000	\$397,400	0.207	\$82,408
2037		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.196	\$19,054
2038		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.185	\$17,976
2039		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.174	\$16,958
2040		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.164	\$15,998
2041		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.155	\$15,093
2042		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.146	\$14,239
2043		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.138	\$13,433
2044		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.130	\$12,672
2045		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.123	\$11,955
2046		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.116	\$11,278
2047		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.109	\$10,640

Table 11- Annual Cost of Project (All costs should be in 2009 Dollars) Project: Consolidated Irrigation District - South & Highland Basin Project - Reduced Funding									
	Initial Costs	Operations and Maintenance Costs ⁽¹⁾						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation (Pumping)	Maintenance	Replacement	Other (Monitoring)	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs(g) x (h)
2048		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.103	\$10,038
2049		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.097	\$9,469
2050		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.092	\$8,933
2051		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.087	\$8,428
2052		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.082	\$7,951
2053		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.077	\$7,501
2054		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.073	\$7,076
2055		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.069	\$6,676
2056		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.065	\$6,298
2057		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.061	\$5,941
2058		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.058	\$5,605
2059		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.054	\$5,288
2060		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.051	\$4,988
2061		\$10,000	\$56,400	\$11,000		\$20,000	\$97,400	0.048	\$4,706
2062		\$10,000	\$56,400	\$11,000	\$300,000	\$20,000	\$397,400	0.046	\$18,114
Project Life									
Total Present Value of Discounted Costs (Sum of Column (i)) Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									\$4,193,886
Comments: - Assumes 50 year project life. - Operation (Pumping) costs assume \$47/AF for 1,200 AF/yr. - Annual maintenance costs are assumed to be 0.5% of initial capital costs (land plus facilities) (\$2,251,000). - Replacement costs assume recovery well replacement every 25 years.									

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project
 (All costs should be in 2009 Dollars)
 Project Title: City of Clovis Surface Water Treatment Plant Expansion

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs(g) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011	\$291,100	\$0	\$0	\$0	\$0	\$0	\$291,100	0.890	\$259,079
2012	\$3,918,900	\$0	\$0	\$0	\$0	\$0	\$3,918,900	0.840	\$3,291,876
2013	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.792	\$313,122
2014	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.747	\$295,331
2015	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.705	\$278,726
2016	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.665	\$262,911
2017	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.627	\$247,888
2018	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.592	\$234,051
2019	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.558	\$220,608
2020	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.527	\$208,352
2021	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.497	\$196,492
2022	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.469	\$185,422
2023	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.442	\$174,747
2024	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.417	\$164,863
2025	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.394	\$155,770
2026	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.371	\$146,677
2027	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.350	\$138,374
2028	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.331	\$130,863
2029	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.312	\$123,351
2030	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.294	\$116,235
2031	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.278	\$109,909
2032	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.262	\$103,583
2033	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.247	\$97,653
2034	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.233	\$92,118
2035	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.220	\$86,978
2036	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.207	\$81,839
2037	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.196	\$77,490
2038	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.185	\$73,141
2039	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.174	\$68,792
2040	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.164	\$64,838
2041	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.155	\$61,280
2042	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.146	\$57,722
2043	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.138	\$54,559
2044	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.130	\$51,396
2045	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.123	\$48,629
2046	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.116	\$45,861
2047	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.109	\$43,094
2048	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.103	\$40,722
2049	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.097	\$38,349
2050	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.092	\$36,373
2051	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.087	\$34,396
2052	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.082	\$32,419
2053	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.077	\$30,442
2054	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.073	\$28,861
2055	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.069	\$27,280
2056	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.065	\$25,698
2057	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.061	\$24,117
2058	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.058	\$22,931
2059	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.055	\$21,745
2060	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.052	\$20,558
2061	\$0	\$0	\$100,000	\$100,000	\$195,356	\$0	\$395,356	0.049	\$19,372
Total Present Value of Discounted Costs (Sum of Column (i))									\$8,766,881
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									

Comments:

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project
 (All costs should be in 2009 Dollars)
 Project: Drummond & Jensen Sewer Connection Study

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	(f) Other	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011	\$119,090	\$0	\$0	\$0	\$0	\$0	\$119,090	0.890	\$105,990
2012							\$0	0.840	\$0
2013							\$0	0.785	
2014							\$0	0.732	
2015							\$0	0.678	
2016							\$0	0.625	
2017							\$0	0.572	
2018							\$0	0.519	
2019							\$0	0.465	
2020							\$0	0.412	
2021							\$0	0.359	
2022							\$0	0.305	
2023							\$0	0.252	
2024							\$0	0.199	
2025							\$0	0.145	
2026							\$0	0.092	
2027							\$0	0.039	
2028							\$0	-0.014	
2029							\$0	-0.068	
2030							\$0	-0.121	
2031							\$0	-0.174	
2032							\$0	-0.228	
2033							\$0	-0.281	
2034							\$0	-0.334	
2035							\$0	-0.388	
2036							\$0	-0.441	
2037							\$0	-0.494	
2038							\$0	-0.548	

2039							\$0	-0.601	
2040							\$0	-0.654	
2041							\$0	-0.707	
2042							\$0	-0.761	
2043							\$0	-0.814	
2044							\$0	-0.867	
2045							\$0	-0.921	
2046							\$0	-0.974	
2047							\$0	-1.027	
2048							\$0	-1.081	
2049							\$0	-1.134	
2050							\$0	-1.187	
2051							\$0	-1.240	
2052							\$0	-1.294	
2053							\$0	-1.347	
2054							\$0	-1.400	
2055							\$0	-1.454	
2056							\$0	-1.507	
2057							\$0	-1.560	
2058							\$0	-1.614	
2059							\$0	-1.667	
2060							\$0	-1.720	
2061							\$0	-1.773	
2062							\$0	-1.827	
Project Life								...	
Total Present Value of Discounted Costs (Sum of Column (i))									\$105,990
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									
Comments: As this phase of the project is for planning only, there will be no associated costs for operation and maintenance. The construction phase of the project will have O&M costs, but they will be negligible as a very small neighborhood (28 homes) will be connected to the wastewater collection & treatment system of the City of Fresno, with a population of over 400,000.									

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project

(All costs should be in 2009 Dollars)

Project: East Orosi Water Supply Sustainability Project

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs(g) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011							\$0	0.889	\$0
2012	\$137,000						\$137,000	0.839	\$114,927
2013							\$0	0.791	\$0
2014							\$0	0.746	\$0
2015							\$0	0.704	\$0
2016							\$0	0.664	\$0
2017							\$0	0.626	\$0
2018							\$0	0.590	\$0
2019							\$0	0.557	\$0
2020							\$0	0.525	\$0
2021							\$0	0.495	\$0
2022							\$0	0.467	\$0
2023							\$0	0.440	\$0
2024							\$0	0.415	\$0
2025							\$0	0.392	\$0
2026							\$0	0.370	\$0
2027							\$0	0.349	\$0
2028							\$0	0.329	\$0
2029							\$0	0.310	\$0
2030							\$0	0.292	\$0
2031							\$0	0.276	\$0
2032							\$0	0.260	\$0
2033							\$0	0.245	\$0
2034							\$0	0.231	\$0
2035							\$0	0.218	\$0
2036							\$0	0.206	\$0
2037							\$0	0.194	\$0
2038							\$0	0.183	\$0
2039							\$0	0.173	\$0

2040							\$0	0.163	\$0
2041							\$0	0.154	\$0
2042							\$0	0.145	\$0
Project Life								...	
Total Present Value of Discounted Costs (Sum of Column (i))									\$114,927
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									
Comments: As this project is a well rehabilitation project, the project will add no additional administrative, operation, maintenance, or replacement costs compared to current East Orosi CSD well operations.									

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project
 (All costs should be in 2009 Dollars)
 Project: City of Fresno Residential Water Meter Project - Area 4

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	(f) Other	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)
2009		\$0	\$0	\$0	\$0	\$0	\$0	1.000	\$0
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.943	\$0
2011	\$6,815,000	\$5,150	\$1,570	\$1,427	\$0	\$0	\$6,823,147	0.890	\$6,072,601
2012		\$5,305	\$1,617	\$1,470	\$0	\$0	\$8,391	0.840	\$7,049
2013		\$5,464	\$1,666	\$1,514	\$0	\$0	\$8,643	0.792	\$6,845
2014		\$5,628	\$1,716	\$1,559	\$0	\$0	\$8,902	0.747	\$6,650
2015		\$5,796	\$1,767	\$1,606	\$0	\$0	\$9,170	0.705	\$6,465
2016		\$5,970	\$1,820	\$1,654	\$0	\$0	\$9,445	0.665	\$6,281
2017		\$6,149	\$1,875	\$1,704	\$0	\$0	\$9,728	0.627	\$6,099
2018		\$6,334	\$1,931	\$1,755	\$0	\$0	\$10,020	0.592	\$5,932
2019		\$6,524	\$1,989	\$1,808	\$0	\$0	\$10,320	0.558	\$5,759
2020		\$6,720	\$2,048	\$1,862	\$0	\$0	\$10,630	0.527	\$5,602
2021		\$6,921	\$2,110	\$1,918	\$0	\$0	\$10,949	0.497	\$5,442
2022		\$7,129	\$2,173	\$1,975	\$0	\$0	\$11,277	0.469	\$5,289
2023		\$7,343	\$2,238	\$2,035	\$0	\$0	\$11,616	0.442	\$5,134
2024		\$7,563	\$2,306	\$2,096	\$0	\$0	\$11,964	0.417	\$4,989
2025		\$7,790	\$2,375	\$2,158	\$0	\$0	\$12,323	0.394	\$4,855
2026		\$8,024	\$2,446	\$2,223	\$0	\$0	\$12,693	0.371	\$4,709
2027		\$8,264	\$2,519	\$2,290	\$0	\$0	\$13,074	0.350	\$4,576
2028		\$8,512	\$2,595	\$2,359	\$0	\$0	\$13,466	0.331	\$4,457
2029		\$8,768	\$2,673	\$2,429	\$0	\$0	\$13,870	0.312	\$4,327
2030		\$9,031	\$2,753	\$2,502	\$0	\$0	\$14,286	0.294	\$4,200
2031		\$9,301	\$2,836	\$2,577	\$4,686,900	\$0	\$4,701,614	0.278	\$1,307,049
Project Life								...	
Total Present Value of Discounted Costs (Sum of Column (i))									\$7,484,309
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									

Comments: The contract agreement between the City and the manufacturer of the water meters covers a warranty of 20 years. Other associated O&M costs would be covered by water rates.

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project

(All costs should be in 2009 Dollars)

Project: City of Fresno Residential Water Meter Project - Area 4 - Reduced Funding

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	(f) Other	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)
2009		\$0	\$0	\$0	\$0	\$0	\$0	1.000	\$0
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.943	\$0
2011	\$6,815,000	\$5,150	\$1,570	\$1,427	\$0	\$0	\$6,823,147	0.890	\$6,072,601
2012		\$5,305	\$1,617	\$1,470	\$0	\$0	\$8,391	0.840	\$7,049
2013		\$5,464	\$1,666	\$1,514	\$0	\$0	\$8,643	0.792	\$6,845
2014		\$5,628	\$1,716	\$1,559	\$0	\$0	\$8,902	0.747	\$6,650
2015		\$5,796	\$1,767	\$1,606	\$0	\$0	\$9,170	0.705	\$6,465
2016		\$5,970	\$1,820	\$1,654	\$0	\$0	\$9,445	0.665	\$6,281
2017		\$6,149	\$1,875	\$1,704	\$0	\$0	\$9,728	0.627	\$6,099
2018		\$6,334	\$1,931	\$1,755	\$0	\$0	\$10,020	0.592	\$5,932
2019		\$6,524	\$1,989	\$1,808	\$0	\$0	\$10,320	0.558	\$5,759
2020		\$6,720	\$2,048	\$1,862	\$0	\$0	\$10,630	0.527	\$5,602
2021		\$6,921	\$2,110	\$1,918	\$0	\$0	\$10,949	0.497	\$5,442
2022		\$7,129	\$2,173	\$1,975	\$0	\$0	\$11,277	0.469	\$5,289
2023		\$7,343	\$2,238	\$2,035	\$0	\$0	\$11,616	0.442	\$5,134
2024		\$7,563	\$2,306	\$2,096	\$0	\$0	\$11,964	0.417	\$4,989
2025		\$7,790	\$2,375	\$2,158	\$0	\$0	\$12,323	0.394	\$4,855
2026		\$8,024	\$2,446	\$2,223	\$0	\$0	\$12,693	0.371	\$4,709
2027		\$8,264	\$2,519	\$2,290	\$0	\$0	\$13,074	0.350	\$4,576
2028		\$8,512	\$2,595	\$2,359	\$0	\$0	\$13,466	0.331	\$4,457
2029		\$8,768	\$2,673	\$2,429	\$0	\$0	\$13,870	0.312	\$4,327
2030		\$9,031	\$2,753	\$2,502	\$0	\$0	\$14,286	0.294	\$4,200
2031		\$9,301	\$2,836	\$2,577	\$4,686,900	\$0	\$4,701,614	0.278	\$1,307,049
Project Life								...	
Total Present Value of Discounted Costs (Sum of Column (i))									\$7,484,309
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									
<p>Comments: The contract agreement between the City and the manufacturer of the water meters covers a warranty of 20 years. Other associated O&M costs would be covered by water rates.</p>									

(1) The incremental change in O&M costs attributable to the project.

Table 11- Annual Cost of Project

(All costs should be in 2009 Dollars)

Project: Bakman Water Company Water Meter Installation

	Initial Costs	Operations and Maintenance Costs ⁽¹⁾					Discounting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	(f) Other	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011	\$1,000,000						\$1,000,000	0.890	\$890,000
2012	\$1,950,000	\$10,000	\$0	\$0	\$0	\$0	\$1,960,000	0.840	\$1,646,400
2013		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.792	\$7,920
2014		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.747	\$7,470
2015		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.705	\$7,050
2016		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.665	\$6,650
2017		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.627	\$6,270
2018		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.592	\$5,920
2019		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.558	\$5,580
2020		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.527	\$5,270
2021		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.497	\$4,970
2022		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.469	\$4,690
2023		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.442	\$4,420
2024		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.417	\$4,170
2025		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.394	\$3,940
2026		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.371	\$3,710
2027		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.350	\$3,500
2028		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.331	\$3,310
2029		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.312	\$3,120
2030		\$10,000	\$0	\$0	\$0	\$0	\$10,000	0.294	\$2,940
2031		\$10,000	\$0	\$10,000	\$0	\$0	\$20,000	0.278	\$5,560
2032		\$10,000	\$0	\$10,000	\$0	\$0	\$20,000	0.262	\$5,240
2033		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.247	\$2,519
2034		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.233	\$2,377
2035		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.220	\$2,244
2036		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.207	\$2,111
2037		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.196	\$1,999
2038		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.185	\$1,887
2039		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.174	\$1,775

2040		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.164	\$1,673
2041		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.155	\$1,581
2042		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.146	\$1,489
2043		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.138	\$1,408
2044		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.130	\$1,326
2045		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.123	\$1,255
2046		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.116	\$1,183
2047		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.109	\$1,112
2048		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.103	\$1,051
2049		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.097	\$989
2050		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.092	\$938
2051		\$10,000	\$0	\$10,000	\$0	\$0	\$20,000	0.087	\$1,740
2052		\$10,000	\$0	\$10,000	\$0	\$0	\$20,000	0.082	\$1,640
2053		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.077	\$785
2054		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.073	\$745
2055		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.069	\$704
2056		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.065	\$663
2057		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.061	\$622
2058		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.058	\$592
2059		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.055	\$561
2060		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.052	\$530
2061		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.049	\$500
2062		\$10,000	\$0	\$200	\$0	\$0	\$10,200	0.046	\$469
Total Present Value of Discounted Costs (Sum of Column (i))									\$2,676,568
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									
Comments:									

(1) The incremental change in O&M costs attributable to the project.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: Consolidated Irrigation District - South & Highland Basin Project - Full Funding

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit \$ Value (1)	Annual \$ Value (f) x (g) (1)	Discount Factor (1)	Discounted Benefits (h) x (i) (1)
2009					0		\$0	1.000	\$0
2010					0		\$0	0.943	\$0
2011					0		\$0	0.890	\$0
2012	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.840	\$472,286
2013	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.792	\$445,553
2014	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.747	\$420,333
2015	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.705	\$396,540
2016	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.665	\$374,095
2017	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.627	\$352,919
2018	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.592	\$332,943
2019	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.558	\$314,097
2020	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.527	\$296,318
2021	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.497	\$279,545
2022	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.469	\$263,722
2023	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.442	\$248,794
2024	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.417	\$234,712
2025	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.394	\$221,426
2026	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.371	\$208,892
2027	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.350	\$197,068
2028	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.331	\$185,914
2029	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.312	\$175,390
2030	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.294	\$165,462
2031	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.278	\$156,097
2032	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.262	\$147,261
2033	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.247	\$138,925
2034	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.233	\$131,062
2035	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.220	\$123,643
2036	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.207	\$116,644

2037	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.196	\$110,042
2038	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.185	\$103,813
2039	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.174	\$97,937
2040	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.164	\$92,393
2041	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.155	\$87,164
2042	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.146	\$82,230
2043	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.138	\$77,575
2044	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.130	\$73,184
2045	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.123	\$69,042
2046	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.116	\$65,134
2047	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.109	\$61,447
2048	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.103	\$57,969
2049	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.097	\$54,687
2050	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.092	\$51,592
2051	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.087	\$48,672
2052	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.082	\$45,917
2053	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.077	\$43,318
2054	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.073	\$40,866
2055	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.069	\$38,553
2056	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.065	\$36,370
2057	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.061	\$34,312
2058	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.058	\$32,369
2059	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.054	\$30,537
2060	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.051	\$28,809
2061	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.048	\$27,178
2062	Water Sales	AF	0	2500	2500	\$225	\$562,500	0.046	\$25,640
Project Life								...	
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$7,916,390
Comments: - Assumes an average of 2,500 AF of banked water is sold at \$225/AF each year.									

⁽¹⁾ Complete these columns if dollar value is being claimed for the benefit.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: Consolidated Irrigation District - South & Highland Basin Project - Reduced Funding

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit \$ Value (1)	Annual \$ Value (f) x (g) (1)	Discount Factor (1)	Discounted Benefits (h) x (i) (1)
2009					0		\$0	1.000	\$0
2010					0		\$0	0.943	\$0
2011					0		\$0	0.890	\$0
2012	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.840	\$226,697
2013	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.792	\$213,865
2014	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.747	\$201,760
2015	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.705	\$190,339
2016	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.665	\$179,565
2017	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.627	\$169,401
2018	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.592	\$159,813
2019	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.558	\$150,767
2020	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.527	\$142,233
2021	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.497	\$134,182
2022	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.469	\$126,587
2023	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.442	\$119,421
2024	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.417	\$112,662
2025	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.394	\$106,284
2026	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.371	\$100,268
2027	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.350	\$94,593
2028	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.331	\$89,239
2029	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.312	\$84,187
2030	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.294	\$79,422
2031	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.278	\$74,926
2032	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.262	\$70,685
2033	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.247	\$66,684
2034	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.233	\$62,910
2035	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.220	\$59,349
2036	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.207	\$55,989

2037	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.196	\$52,820
2038	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.185	\$49,830
2039	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.174	\$47,010
2040	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.164	\$44,349
2041	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.155	\$41,838
2042	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.146	\$39,470
2043	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.138	\$37,236
2044	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.130	\$35,128
2045	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.123	\$33,140
2046	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.116	\$31,264
2047	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.109	\$29,494
2048	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.103	\$27,825
2049	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.097	\$26,250
2050	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.092	\$24,764
2051	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.087	\$23,362
2052	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.082	\$22,040
2053	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.077	\$20,792
2054	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.073	\$19,616
2055	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.069	\$18,505
2056	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.065	\$17,458
2057	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.061	\$16,470
2058	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.058	\$15,537
2059	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.054	\$14,658
2060	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.051	\$13,828
2061	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.048	\$13,045
2062	Water Sales	AF	0	1200	1200	\$225	\$270,000	0.046	\$12,307
Project Life								...	
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$3,799,867
Comments: - Assumes an average of 1,200 AF of banked water is sold at \$225/AF each year.									

⁽¹⁾ Complete these columns if dollar value is being claimed for the benefit.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: Bakman Water Company Water Meter Installation

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit \$ Value (1)	Annual \$ Value (f) x (g) (1)	Discount Factor (1)	Discounted Benefits (h) x (i) (1)
2009	Conservation	AF	0	0	0	\$250	\$0	1.000	\$0
2010	Conservation	AF	0	0	0	\$250	\$0	0.943	\$0
2011	Conservation	AF	0	0	0	\$250	\$0	0.890	\$0
2012	Conservation	AF	0	140	140	\$250	\$35,000	0.840	\$29,400
2013	Conservation	AF	0	420	420	\$250	\$105,000	0.792	\$83,160
2014	Conservation	AF	0	420	420	\$250	\$105,000	0.747	\$78,435
2015	Conservation	AF	0	420	420	\$250	\$105,000	0.705	\$74,025
2016	Conservation	AF	0	420	420	\$250	\$105,000	0.665	\$69,825
2017	Conservation	AF	0	420	420	\$250	\$105,000	0.627	\$65,835
2018	Conservation	AF	0	420	420	\$250	\$105,000	0.592	\$62,160
2019	Conservation	AF	0	420	420	\$250	\$105,000	0.558	\$58,590
2020	Conservation	AF	0	420	420	\$250	\$105,000	0.527	\$55,335
2021	Conservation	AF	0	420	420	\$250	\$105,000	0.497	\$52,185
2022	Conservation	AF	0	420	420	\$250	\$105,000	0.469	\$49,245
2023	Conservation	AF	0	420	420	\$250	\$105,000	0.442	\$46,410
2024	Conservation	AF	0	420	420	\$250	\$105,000	0.417	\$43,785
2025	Conservation	AF	0	420	420	\$250	\$105,000	0.394	\$41,370
2026	Conservation	AF	0	420	420	\$250	\$105,000	0.371	\$38,955
2027	Conservation	AF	0	420	420	\$250	\$105,000	0.350	\$36,750
2028	Conservation	AF	0	420	420	\$250	\$105,000	0.331	\$34,755
2029	Conservation	AF	0	420	420	\$250	\$105,000	0.312	\$32,760
2030	Conservation	AF	0	420	420	\$250	\$105,000	0.294	\$30,870
2031	Conservation	AF	0	420	420	\$250	\$105,000	0.278	\$29,190
2032	Conservation	AF	0	420	420	\$250	\$105,000	0.262	\$27,510
2033	Conservation	AF	0	420	420	\$250	\$105,000	0.247	\$25,935
2034	Conservation	AF	0	420	420	\$250	\$105,000	0.233	\$24,465
2035	Conservation	AF	0	420	420	\$250	\$105,000	0.220	\$23,100
2036	Conservation	AF	0	420	420	\$250	\$105,000	0.207	\$21,735
2037	Conservation	AF	0	420	420	\$250	\$105,000	0.196	\$20,580
2038	Conservation	AF	0	420	420	\$250	\$105,000	0.185	\$19,425
2039	Conservation	AF	0	420	420	\$250	\$105,000	0.174	\$18,270
2040	Conservation	AF	0	420	420	\$250	\$105,000	0.164	\$17,220

2041	Conservation	AF	0	420	420	\$250	\$105,000	0.155	\$16,275
2042	Conservation	AF	0	420	420	\$250	\$105,000	0.146	\$15,330
2043	Conservation	AF	0	420	420	\$250	\$105,000	0.138	\$14,490
2044	Conservation	AF	0	420	420	\$250	\$105,000	0.130	\$13,650
2045	Conservation	AF	0	420	420	\$250	\$105,000	0.123	\$12,915
2046	Conservation	AF	0	420	420	\$250	\$105,000	0.116	\$12,180
2047	Conservation	AF	0	420	420	\$250	\$105,000	0.109	\$11,445
2048	Conservation	AF	0	420	420	\$250	\$105,000	0.103	\$10,815
2049	Conservation	AF	0	420	420	\$250	\$105,000	0.097	\$10,185
2050	Conservation	AF	0	420	420	\$250	\$105,000	0.092	\$9,660
2051	Conservation	AF	0	420	420	\$250	\$105,000	0.087	\$9,135
2052	Conservation	AF	0	420	420	\$250	\$105,000	0.082	\$8,610
2053	Conservation	AF	0	420	420	\$250	\$105,000	0.077	\$8,085
2054	Conservation	AF	0	420	420	\$250	\$105,000	0.073	\$7,665
2055	Conservation	AF	0	420	420	\$250	\$105,000	0.069	\$7,245
2056	Conservation	AF	0	420	420	\$250	\$105,000	0.065	\$6,825
2057	Conservation	AF	0	420	420	\$250	\$105,000	0.061	\$6,405
2058	Conservation	AF	0	420	420	\$250	\$105,000	0.058	\$6,090
2059	Conservation	AF	0	420	420	\$250	\$105,000	0.055	\$5,775
2060	Conservation	AF	0	420	420	\$250	\$105,000	0.052	\$5,460
2061	Conservation	AF	0	420	420	\$250	\$105,000	0.049	\$5,145
2062	Conservation	AF	0	420	420	\$250	\$105,000	0.046	\$4,830
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$1,419,495
Comments:									

⁽¹⁾ Complete these columns if dollar value is being claimed for the benefit.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project Title: City of Clovis Surface Water Treatment Plant Expansion

(a) Year	(b) Type of Benefit	(c) Measure of Benefit (Units)	(d) Without Project	(e) With Project	(f) Change Resulting from Project (e) – (d)	(g) Unit \$ Value (1)	(h) Annual \$ Value (f) x (g) (1)	(i) Discount Factor (1)	(j) Discounted Benefits (h) x (i) (1)
2009					0		\$0	1.000	\$0
2010					0		\$0	0.943	\$0
2011	Grant awarded and Project under Design				0		\$0	0.890	\$0
2012	Project under Construction				0		\$0	0.840	\$0
2013	Reduced Groundwater Pumping Costs to City of Clovis	ac-ft	0	7711	7711	\$104.75	\$807,727	0.792	\$639,720
2014			0	7711	7711	\$104.75	\$807,727	0.747	\$603,372
2015			0	7711	7711	\$104.75	\$807,727	0.705	\$569,448
2016			0	7711	7711	\$104.75	\$807,727	0.665	\$537,139
2017			0	7711	7711	\$104.75	\$807,727	0.627	\$506,445
2018			0	7711	7711	\$104.75	\$807,727	0.592	\$478,175
2019			0	7711	7711	\$104.75	\$807,727	0.558	\$450,712
2020			0	7711	7711	\$104.75	\$807,727	0.527	\$425,672
2021			0	7711	7711	\$104.75	\$807,727	0.497	\$401,440
2022			0	7711	7711	\$104.75	\$807,727	0.469	\$378,824
2023			0	7711	7711	\$104.75	\$807,727	0.442	\$357,015
2024			0	7711	7711	\$104.75	\$807,727	0.417	\$336,822
2025			0	7711	7711	\$104.75	\$807,727	0.394	\$318,245
2026			0	7711	7711	\$104.75	\$807,727	0.371	\$299,667
2027			0	7711	7711	\$104.75	\$807,727	0.350	\$282,705
2028			0	7711	7711	\$104.75	\$807,727	0.331	\$267,358
2029			0	7711	7711	\$104.75	\$807,727	0.312	\$252,011
2030			0	7711	7711	\$104.75	\$807,727	0.294	\$237,472
2031			0	7711	7711	\$104.75	\$807,727	0.278	\$224,548
2032			0	7711	7711	\$104.75	\$807,727	0.262	\$211,625
2033			0	7711	7711	\$104.75	\$807,727	0.247	\$199,509
2034			0	7711	7711	\$104.75	\$807,727	0.233	\$188,200
2035			0	7711	7711	\$104.75	\$807,727	0.220	\$177,700
2036			0	7711	7711	\$104.75	\$807,727	0.207	\$167,200
2037			0	7711	7711	\$104.75	\$807,727	0.196	\$158,315
2038			0	7711	7711	\$104.75	\$807,727	0.185	\$149,430
2039			0	7711	7711	\$104.75	\$807,727	0.174	\$140,545
2040			0	7711	7711	\$104.75	\$807,727	0.164	\$132,467
2041			0	7711	7711	\$104.75	\$807,727	0.155	\$125,198
2042			0	7711	7711	\$104.75	\$807,727	0.146	\$117,928
2043			0	7711	7711	\$104.75	\$807,727	0.138	\$111,466
2044			0	7711	7711	\$104.75	\$807,727	0.130	\$105,005
2045			0	7711	7711	\$104.75	\$807,727	0.123	\$99,350
2046			0	7711	7711	\$104.75	\$807,727	0.116	\$93,696
2047			0	7711	7711	\$104.75	\$807,727	0.109	\$88,042
2048			0	7711	7711	\$104.75	\$807,727	0.103	\$83,196
2049			0	7711	7711	\$104.75	\$807,727	0.097	\$78,350
2050			0	7711	7711	\$104.75	\$807,727	0.092	\$74,311
2051			0	7711	7711	\$104.75	\$807,727	0.087	\$70,272
2052			0	7711	7711	\$104.75	\$807,727	0.082	\$66,234
2053			0	7711	7711	\$104.75	\$807,727	0.077	\$62,195
2054			0	7711	7711	\$104.75	\$807,727	0.073	\$58,964
2055			0	7711	7711	\$104.75	\$807,727	0.069	\$55,733
2056			0	7711	7711	\$104.75	\$807,727	0.065	\$52,502
2057			0	7711	7711	\$104.75	\$807,727	0.061	\$49,271
2058			0	7711	7711	\$104.75	\$807,727	0.058	\$46,848
2059			0	7711	7711	\$104.75	\$807,727	0.055	\$44,425
2060			0	7711	7711	\$104.75	\$807,727	0.052	\$42,002
2061			0	7711	7711	\$104.75	\$807,727	0.049	\$39,579
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$10,656,346

Comments: The following were not introduced as benefits due to the high number of unknowns which makes determining quantitative benefit difficult: 1) Reduced truck traffic is a potential benefit if the city determines the sewer pipeline installation is beneficial. 2) "In lieu" groundwater recharge - the amount of increase capacity at the plant and the corresponding reduction in well usage may not directly translate into quantifiable recharge numbers.

(1) Complete these columns if dollar value is being claimed for the benefit.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: East Orosi Water Supply Sustainability Project

(a) Year	(b) Type of Benefit	(c) Measure of Benefit (Units)	(d) Without Project	(e) With Project	(f) Change Resulting from Project (e) - (d)	(g) Unit \$ Value (1)	(h) Annual \$ Value (f) x (g) (1)	(i) Discount Factor (1)	(j) Discounted Benefits (h) x (i) (1)
2009									\$0
2010									\$0
2011									\$0
2012	Improved pressure conditions, thereby reducing risk of bacteriological contamination	Incidents of pressure below 20psi, per week	7	0	-7				\$0
2013	↓	BENEFITS PERSIST THROUGHOUT PROJECT LIFE OF AT LEAST THIRTY YEARS							
2014									
2015									
2016									
...									
...									
2033									
Project Life									...
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$0

Comments: *Projected benefits are for the planned well rehabilitation project. Financial quantification of reducing the number of incidents of low pressure is not feasible at this time.*

⁽¹⁾ Complete these columns if dollar value is being claimed for the benefit.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: City of Fresno Residential Water Meter Project - Area 4

(a) Year	(b) Type of Benefit	(c) Measure of Benefit (Units)	(d) Without Project	(e) With Project	(f) Change Resulting from Project (e) – (d)	(g) Unit \$ Value (1)	(h) Annual \$ Value (f) x (g) (1)	(i) Discount Factor (1)	(j) Discounted Benefits (h) x (i) (1)
2009	a				0		\$0	1.000	\$0
2010	a				0		\$0	0.943	\$0
2011	a	acre-feet	0	1008	1008	\$241.65	\$243,583	0.890	\$216,789
2012	a	acre-feet	0	1008	1008	\$248.90	\$250,891	0.840	\$210,748
2013	a	acre-feet	0	1008	1008	\$256.37	\$258,417	0.792	\$204,667
2014	a	acre-feet	0	1008	1008	\$264.06	\$266,170	0.747	\$198,829
2015	a	acre-feet	0	1008	1008	\$271.98	\$274,155	0.705	\$193,279
2016	a	acre-feet	0	1008	1008	\$280.14	\$282,380	0.665	\$187,782
2017	a	acre-feet	0	1008	1008	\$288.54	\$290,851	0.627	\$182,364
2018	a	acre-feet	0	1008	1008	\$297.20	\$299,577	0.592	\$177,349
2019	a	acre-feet	0	1008	1008	\$306.11	\$308,564	0.558	\$172,179
2020	a	acre-feet	0	1008	1008	\$315.30	\$317,821	0.527	\$167,492
2021	a	acre-feet	0	1008	1008	\$324.76	\$327,355	0.497	\$162,696
2022	a	acre-feet	0	1008	1008	\$334.50	\$337,176	0.469	\$158,136
2023	a	acre-feet	0	1008	1008	\$344.54	\$347,291	0.442	\$153,503
2024	a	acre-feet	0	1008	1008	\$354.87	\$357,710	0.417	\$149,165
2025	a	acre-feet	0	1008	1008	\$365.52	\$368,441	0.394	\$145,166
2026	a	acre-feet	0	1008	1008	\$376.48	\$379,495	0.371	\$140,793
2027	a	acre-feet	0	1008	1008	\$387.78	\$390,880	0.350	\$136,808
2028	a	acre-feet	0	1008	1008	\$399.41	\$402,606	0.331	\$133,263
2029	a	acre-feet	0	1008	1008	\$411.39	\$414,684	0.312	\$129,381
2030	a	acre-feet	0	1008	1008	\$423.73	\$427,125	0.294	\$125,575
2031	a	acre-feet	0	1008	1008	\$436.45	\$439,938	0.278	\$122,303
Project Life								...	
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$3,468,265

Comments: The "Unit \$ Value" includes the cost of the source raw water and its treatment to be potable.

⁽¹⁾ Complete these columns if dollar value is being claimed for the benefit.

Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: City of Fresno Residential Water Meter Project - Area 4 - Reduced Funding

(a) Year	(b) Type of Benefit	(c) Measure of Benefit (Units)	(d) Without Project	(e) With Project	(f) Change Resulting from Project (e) – (d)	(g) Unit \$ Value (1)	(h) Annual \$ Value (f) x (g) (1)	(i) Discount Factor (1)	(j) Discounted Benefits (h) x (i) (1)
2009	a				0		\$0	1.000	\$0
2010	a				0		\$0	0.943	\$0
2011	a	acre-feet	0	1008	1008	\$241.65	\$243,583	0.890	\$216,789
2012	a	acre-feet	0	1008	1008	\$248.90	\$250,891	0.840	\$210,748
2013	a	acre-feet	0	1008	1008	\$256.37	\$258,417	0.792	\$204,667
2014	a	acre-feet	0	1008	1008	\$264.06	\$266,170	0.747	\$198,829
2015	a	acre-feet	0	1008	1008	\$271.98	\$274,155	0.705	\$193,279
2016	a	acre-feet	0	1008	1008	\$280.14	\$282,380	0.665	\$187,782
2017	a	acre-feet	0	1008	1008	\$288.54	\$290,851	0.627	\$182,364
2018	a	acre-feet	0	1008	1008	\$297.20	\$299,577	0.592	\$177,349
2019	a	acre-feet	0	1008	1008	\$306.11	\$308,564	0.558	\$172,179
2020	a	acre-feet	0	1008	1008	\$315.30	\$317,821	0.527	\$167,492
2021	a	acre-feet	0	1008	1008	\$324.76	\$327,355	0.497	\$162,696
2022	a	acre-feet	0	1008	1008	\$334.50	\$337,176	0.469	\$158,136
2023	a	acre-feet	0	1008	1008	\$344.54	\$347,291	0.442	\$153,503
2024	a	acre-feet	0	1008	1008	\$354.87	\$357,710	0.417	\$149,165
2025	a	acre-feet	0	1008	1008	\$365.52	\$368,441	0.394	\$145,166
2026	a	acre-feet	0	1008	1008	\$376.48	\$379,495	0.371	\$140,793
2027	a	acre-feet	0	1008	1008	\$387.78	\$390,880	0.350	\$136,808
2028	a	acre-feet	0	1008	1008	\$399.41	\$402,606	0.331	\$133,263
2029	a	acre-feet	0	1008	1008	\$411.39	\$414,684	0.312	\$129,381
2030	a	acre-feet	0	1008	1008	\$423.73	\$427,125	0.294	\$125,575
2031	a	acre-feet	0	1008	1008	\$436.45	\$439,938	0.278	\$122,303
Project Life								...	
Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (j) for all Benefits shown in table)									\$3,468,265

Comments: The "Unit \$ Value" includes the cost of the source raw water and its treatment to be potable.

⁽¹⁾ Complete these columns if dollar value is being claimed for the benefit.

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: Consolidated Irrigation District - South & Highland Basin Project - Full Funding

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$7,916,390	N/A	\$0	\$7,916,390

Comments:

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: Consolidated Irrigation District - South & Highland Basin Project - Reduced Funding

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$3,799,867	N/A	\$0	\$3,799,867

Comments:

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project Title: City of Clovis Surface Water Treatment Plant Expansion

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$ 10,656,345.61	\$ -	\$ -	\$ 10,656,345.61

Comments: No additional quantitative benefits were detailed due to the higher number of unknown variables.

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: East Orosi Water Supply Sustainability Project

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$ -	\$ -	\$ -	\$ -

Comments: *Quantifiable project benefits for this phase are limited to the direct benefit of having completed planning documents available with which construction funding can then be sought.*

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: City of Fresno Water Meter Program - Area 4

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$ 3,468,265		0	\$ 3,468,265

Comments:

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: City of Fresno Water Meter Program - Area 4 - Reduced Funding

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$ 3,468,265		0	\$ 3,468,265

Comments:

Table 15. Total Water Supply Benefits

(All benefits should be in 2009 dollars)

Project: Bakman Water Company Water Meter Installation

Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$1,419,495	\$0	\$0	\$1,419,495

Comments: