



CITY OF LODI
PUBLIC WORKS DEPARTMENT

2004 WATER USE EFFICIENCY

GRANT APPLICATION

JANUARY 2005

2004 Water Use Efficiency Proposal Solicitation Package

Project Information Form

Applying for:

Urban

Agricultural

1. (Section A) **Urban or Agricultural Water Use Efficiency Implementation Project**

(a) implementation of Urban Best Management Practice, # BMP 4 (Modified).

(b) implementation of Agricultural Efficient Water Management Practice, # _____

(c) implementation of other projects to meet California Bay-Delta Program objectives, Targeted Benefit # or Quantifiable Objective #, if applicable

(d) Specify other: _____

2. (Section B) **Urban or Agricultural Research and Development; Feasibility Studies, Pilot, or Demonstration Projects; Training, Education or Public Information; Technical Assistance**

(e) research and development, feasibility studies, pilot, or demonstration projects

(f) training, education or public information programs with statewide application

(g) technical assistance

(h) other

3. Principal applicant (Organization or affiliation):

City of Lodi Public Works Department

4. Project Title:

Commercial Industrial Water Meter Project

5. Person authorized to sign and submit proposal and contract:

Name, title

**Janet S. Keeter
Interim City Manager**

Mailing address

P.O. Box 3006

Lodi, CA 95241

Telephone

209-333-6700

Fax.

209-333-6807

E-mail

jkeeter@lodi.gov

6. Contact person (if different):	Name, title.	Richard C. Prima, Jr.
	Mailing address.	P.O. Box 3006
		Lodi, CA 95241
	Telephone	209-333-6759
	Fax.	209-333-6710
	E-mail	rprima@lodi.gov

7. Grant funds requested (dollar amount): **\$147,422**
(from Table C-1, column VI)

8. Applicant funds pledged (dollar amount): **\$146,698**

9. Total project costs (dollar amount): **\$294,120**
(from Table C-1, column IV, row n)

10. Percent of State share requested (%): **50%**
(from Table C-1)

11. Percent of local share as match (%): **50%**
(from Table C-1)

12. Is your project locally cost effective?
Locally cost effective means that the benefits to an entity (in dollar terms) of implementing a program exceed the costs of that program within the boundaries of that entity.

(If yes, provide information that the project in addition to Bay-Delta benefit meets one of the following conditions: broad transferable benefits, overcome implementation barriers, or accelerate implementation.)

(a) yes
 (b) no

11. Is your project required by regulation, law or contract?
 If no, your project is eligible.

(a) yes
 (b) no

If yes, your project may be eligible only if there will be accelerated implementation to fulfill a future requirement and is not currently required.

Provide a description of the regulation, law or contract and an explanation of why the project is not currently required.

State Assembly Bill 2572 requires the City of Lodi to install water meters by 2025. This grant will accelerate the implementation of that requirement.

12. Duration of project (month/year to month/year): **12/05 to 12/06**
13. State Assembly District where the project is to be conducted: **10th Assembly District**
14. State Senate District where the project is to be conducted: **5th State Senate District**
15. Congressional district(s) where the project is to be conducted: **11th Congressional District**
16. County where the project is to be conducted: **San Joaquin County**
17. Location of project (longitude and latitude) **Longitude: 121° 16' 49"**
Latitude: 38° 07' 34"
18. How many service connections in your service area (urban)? **18,027**
19. How many acre-feet of water per year does your agency serve? **17,011 (2004)**
20. Type of applicant (select one):
- (a) City
 - (b) County
 - (c) City and County
 - (d) Joint Powers Authority
 - (e) Public Water District
 - (f) Tribe
 - (g) Non Profit Organization
 - (h) University, College
 - (i) State Agency
 - (j) Federal Agency
 - (k) Other
 - (i) Investor-Owned Utility
 - (ii) Incorporated Mutual Water Co.
 - (iii) Specify _____
21. Is applicant a disadvantaged community? If 'yes' include annual median household income.
(Provide supporting documentation.)
- (a) yes, _____ median household income
 - (b) no

**2004 Water Use Efficiency Proposal Solicitation Package
Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

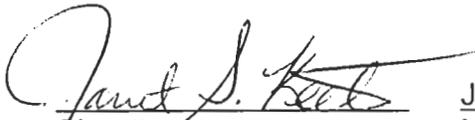
The individual signing the form has the legal authority to submit the proposal on behalf of the applicant;

There is no pending litigation that may impact the financial condition of the applicant or its ability to complete the proposed project;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant;

The applicant will comply with all terms and conditions identified in this PSP if selected for funding; and

The applicant has legal authority to enter into a contract with the State.


Signature

Janet S. Keeter – Interim City Manager
Name and title

1/6/05
Date

Project Summary

The City of Lodi is located in the Northern San Joaquin Valley and has a population of approximately 60,000. The domestic water supply is currently 100% groundwater served by 26 wells located throughout the City. The groundwater levels have been declining under Lodi and groundwater depletion is a problem throughout the San Joaquin Valley Groundwater Basin. The City has recently acquired surface water rights on the Mokelumne River for future water demand needs.

Although Lodi has a successful water conservation program, not all of the commercial users are metered. While there are approximately 1,000 metered commercial/industrial water customers, there are approximately 250 un-metered commercial service connections that are still charged by flat rate. Some of these types of services are associated with the highest water users in the City. Due to fiscal reasons, a program to retrofit the remaining un-metered customers has been discontinued.

The water conserving effects of metering a water service have been well established. It has been estimated by previous studies that water use reductions of approximately 20% are realized by metering water customers. The reductions occur due to customer awareness of the amount of water that is being used, leak detection capabilities a water meter affords and the ability of the Utility to track water use (see Appendix D).

By approving the submittal for this grant, the City Council has agreed in principal to meter the remainder of commercial water users if the funds are made available.

The City of Lodi has contemplated the linking of metered water usage to sewer rates, but the major stumbling block has been the lack of meters on all commercial services. Once meters are installed on all commercial water services and the change in billing takes place, there would be a reduction in the amount of water usage due to the double monetary effect of water usage. This is hard to quantify, however a conservative 2% estimate has been projected (see Appendix E).

Statement of work, Section One: Relevance and Importance

This project consists of three primary goals and objectives:

1. To reduce the amount of water needed by the City's commercial/industrial accounts, thereby reducing the amount of water pumped out of the City's underground aquifer.
2. By reducing the demand from the City's underground aquifer, the need of the City to utilize its surface water rights on the Mokelumne River will be delayed and/or reduced, thereby allowing fresh water to continue to flow into the Delta.
3. With the reduction in water use on the City's commercial/industrial accounts we can expect a reduction in the wastewater to our White Slough Water Pollution Control Facility, thereby improving the water quality of the Delta waterways in which we currently discharge.

This outcome is consistent with the City of Lodi's Urban Water Management Plan prepared by Brown and Caldwell, dated October 2001, Chapter 7, Conclusions and Recommendations, Items 1, 3, and 6 (see Appendix A).

Item 1: Addresses the overdraft conditions in the City's groundwater basin.

Item 3: Addresses the metering issue and is based on a modified solution to BMP #4. We also are using this as a pilot project, and based on data and results quantified in this project, we will use this data as the basis to continue a project in the future to meter all our water connections.

Item 6: Addresses the ability to measure water savings which can only be accomplished by having meters in place, allowing better quantifiable water savings capabilities.

It is the City of Lodi's contention that all of these goals and objectives can be met with this project.

Statement of Work, Section 2: Technical/Scientific Merit, Feasibility

The methods, procedures, equipment and facilities required to accomplish our project are as follows:

The City is planning to use industry-standard methods to present this project for competitive public bidding to all qualified licensed contractors. We plan to bid it as an average unit cost per service connection to be installed per City of Lodi Standard Plans and Specifications (see Appendix B). Industry standard construction equipment will be used and no special facilities are required to complete the project.

The work schedule is projected to be as follows:

- Month 1: Preparation of bid specifications and field location of services to be installed. Cost: \$12,000
- Month 2: Prepare and advertise project for public bidding. Cost: \$1,500
- Month 3: Award project, prepare and process contract documents, and execute notice to proceed. Cost: \$1,000
- Month 4: Final preparations for proceeding with project, notification of affected customers, and commencement of work on installations of un-metered services with existing meter boxes. Cost: \$28,000
- Month 5 thru 6: Completion of installation of un-metered services with existing meter boxes, and preparation and installation of un-metered services without existing meter boxes. Cost: \$185,000
- Month 6 thru 9: Completion of all un-metered service connections. Cost: \$54,000
- Month 10 thru 11: Monitoring, assessment and evaluation of the water production records to quantify and evaluate water use reductions. Cost: \$12,100

The need for additional plans and specifications are not required, due to the fact that all requirements, equipment and materials required to perform this type of work are clearly and adequately identified in the City of Lodi's existing plans and specifications.

We believe this type of construction will have no environmental impact based on the fact that existing projects of this same nature are routinely done in full compliance of all CEQA and NEPA requirements and therefore should be exempt from any of these requirements.

Statement of Work, Section 3: Monitoring and Assessment

Monitoring and assessment will be accomplished as follows:

The monitoring and assessment of water reductions from individuals will be difficult because current water-use information uses averages, instead of quantifiable meter readings. Water production is well documented, however. As the monthly meter readings start to produce accurate and quantifiable data, the City will evaluate the impact of reduced water consumption by customers, using both total water production and the trends of usage. It is expected that an average water-use reduction of 20% will be realized as customers are able to review their water usage to identify and rectify wasteful tendencies and problems.

Qualifications of the Applicants and Cooperators

1. Project Manager: Richard C. Prima, Jr., P.E., City of Lodi, Public Works Director
(see Appendix C)
2. External Cooperators: Unknown at this time, but all work performed for the City of Lodi is required to be done by a fully-licensed contractor that is fully bondable and adequately insured.

Outreach, Community Involvement, and Acceptance

Approximately 250 water services serving an estimated 290 flat rate customers, including their employees, will be directly involved with this project by receiving a metered water service for the first time at their current address. Letters will go out to these customers explaining the project and how it will affect their water billing in the future. The customers will also be advised about possible water leaks they may not be aware of which may use relatively large amounts of water.

Commercial water meters have been accepted in Lodi for years. Individual customer acceptance is expected to vary. The fact that all commercial customers will now be equally metered will have an overall positive affect.

Local newspapers will carry stories related to the project and the goals of the project. Local citizens will be better educated on water conservation and awareness, as well as more aware of the benefits of the State's Proposition 50 Grant Program.

This project will also carry a direct benefit to both local contractors and the persons hired by them to perform the work, as well as the manufacturers of the materials needed to complete the project.

The City will also be putting up project signs in the community to inform and educate the community of both the project goals and source of funds.

Innovation

This project will be utilizing two relatively new and innovative technologies. First, the City of Lodi is proposing to utilize trenchless technology on our project. This technology allows for the boring/drilling of water service taps, avoiding costly excavation and disruption of existing facilities.

The other innovative technology the City will be utilizing will be new remote read meters. This will allow a time savings of up to 40% for meter-reading staff which allows the City to operate in the most efficient manner possible.

Benefits and Costs

Project Benefits

The Local Benefits of our Project are:

1. Less demand on our groundwater table
2. Less discharge from our wastewater plant
3. Deferring, and/or reducing our need to utilize our surface water rights
4. Increased community awareness of water use
5. Increased water data for both auditing capabilities and more effective leak detection

The Benefits to Bay Delta System are:

1. Less ground water depletion slows salt-water intrusion, providing both qualitative and quantitative benefits to the Delta water.
2. Less discharge of wastewater effluent has qualitative benefit to the Bay Delta water.
3. The deferral of additional water removed from the Mokelumne River has both a qualitative and quantitative benefit to the Bay Delta water.
4. Increasing community awareness should have an indirect positive impact on the Bay Delta water, as our community improves its water-use habits. This will have both a qualitative and quantitative benefit to the Bay Delta water.
5. Increasing the amount of accurate water-use data will allow the City to provide more accurate water data to the State, having an indirect positive effect on the quality and quantity of the Bay Delta water.

Project Costs:

The overall project costs are \$294,120 and the City of Lodi is proposing a 50% cost sharing of funds. The City is pledging \$146,698 and is requesting a total grant amount of \$147,422. The City considers the benefits of the project to be 18 years, based on the high end average life expectancy of a commercial meter. This project is not considered locally cost effective due to the return rate taking longer than the life of the project to recover. The City also contends that the majority of the local benefits are in water quality and quantity rather than any significant monetary value. The City also feels the Bay Delta water quality benefits consist mostly of quantity and quality as opposed to any large monetary gains.

Data Summary:

Estimated annual amount of water to be saved	29 A.F.
Estimated total amount of water to be saved over 18-year project life	522 A.F.
Estimated annual amount of wastewater decrease	14.5 A.F.
Estimated total amount of wastewater decrease over 18-year project life	261 A.F.

Applicant: CITY OF LODI - PUBLIC WORKS DEPARTMENT

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Section A projects must complete Life of investment, column VII and Capital Recovery Factor Column VIII. Do not use 0.

Table C-1: Project Costs (Budget) in Dollars

	Category (I)	Project Costs \$ (II)	Contingency % (ex. 5 or 10) (III)	Project Cost + Contingency \$ (IV)	Applicant Share \$ (V)	State Share Grant \$ (VI)	Life of investment (years) (VII)	Capital Recovery Factor (VIII)	Annualized Costs \$ (IX)
	Administration ¹								
	Salaries, wages	\$4,000	10	\$4,400	\$2,140	\$2,260	1	1.0600	\$4,664
	Fringe benefits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Supplies	\$100	10	\$110	\$54	\$56	1	1.0600	\$117
	Equipment	\$100	10	\$110	\$54	\$56	1	1.0600	\$117
	Consulting services	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Travel	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(a)	Total Administration Costs	\$4,200		\$4,620	\$2,248	\$2,372			\$4,897
(b)	Planning/Design/Engineering	\$9,000	10	\$9,900	\$4,815	\$5,085	1	1.0600	\$10,494
(c)	Equipment Purchases/Rentals/Rebates/Vouchers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(d)	Materials/Installation/Implementation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(e)	Implementation Verification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(f)	Project Legal/License Fees	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(g)	Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(h)	Land Purchase/Easement	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(i)	Environmental Compliance/Mitigation/Enhancement	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(j)	Construction	\$250,000	7	\$267,500	\$133,750	\$133,750	18	0.0924	\$24,717
(k)	Other (Specify)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(l)	Monitoring and Assessment	\$6,000	10	\$6,600	\$3,210	\$3,390	5	0.2374	\$1,567
(m)	Report Preparation	\$5,000	10	\$5,500	\$2,675	\$2,825	1	1.0600	\$5,830
(n)	TOTAL	\$274,200		\$294,120	\$146,698	\$147,422			\$47,505
(o)	Cost Share -Percentage				50	50			

¹excludes administration O&M.

Applicant:

CITY OF LODI - PUBLIC WORKS DEPARTMENT

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Table C-2: Annual Operations and Maintenance Costs

Operations (1) (I)	Maintenance (II)	Other (III)	Total (IV) (I + II + III)
\$1,960	\$2,450	\$0	\$4,410

(1) Include annual O & M administration costs here.

Table C-3: Total Annual Project Costs

Annual Project Costs (1) (I)	Annual O&M Costs (2) (II)	Total Annual Project Costs (III) (I + II)
\$47,505	\$4,410	\$51,915

(1) From Table C-1, row (n) column (IX)

(2) From Table C-2, column (IV)

Applicant: **CITY OF LODI - PUBLIC WORKS DEPARTMENT**

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Table C-5 Project Annual Physical Benefits (Quantitative and Qualitative Description of Benefits)

	Qualitative Description - Required of all applicants¹				Quantitative Benefits - where data are available²
	Description of physical benefits (in-stream flow and timing, water quantity and water quality) for:	Time pattern and Location of Benefit	Project Life: Duration of Benefits	State Why Project Bay Delta benefit is Direct ³ Indirect ⁴ or Both	Quantified Benefits (in-stream flow and timing, water quantity and water quality)
Bay Delta	See Statement of Work, Section One (page 6)	N/A	18 years	See Project Summary (page 5), Outreach, Community Involvement, & Acceptance (page 10), and Benefits and Costs (page 12)	See Water-Use Savings Table (Appendix D)
Local	See Statement of Work, Section One (page 6)	N/A	18 years	Not applicable.	N/A

¹ The qualitative benefits should be provided in a narrative description. Use additional sheet.

² Direct benefits are project outcomes that contribute to a CALFED objective within the Bay-Delta system during the life of the project.

³ Indirect benefits are project outcomes that help to reduce dependency on the Bay-Delta system. Indirect benefits may be realized over time.

⁴ The project benefits that can be quantified (i.e. volume of water saved or mass of constituents reduced) should be provided.

Applicant:

CITY OF LODI - PUBLIC WORKS DEPARTMENT

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Table C-6 Project Annual Local Monetary Benefits

ANNUAL LOCAL BENEFITS	ANNUAL QUANTIT	UNIT OF MEASUREMENT	ANNUAL MONETARY BENEFITS
(a) Avoided Water Supply Costs (Current or Future Source)	29	A.F.	\$1,218
(b) Avoided Energy Costs	0		\$0
(c) Avoided Waste Water Treatment Costs	14.5	A.F.	\$841
(d) Avoided Labor Costs	0		\$0
(e) Other (describe)	0		\$0
(f) Total [(a) + (b) + (c) + (d) + (e)]			\$2,059

Table C-7 Project Local Monetary Benefits and Project Costs

(a) Total Annual Monetary Benefits [(Table C-6, row (f))	\$2,059
(b) Total Annual Project Costs (Table C-3, column III)	\$51,915

Table C-8 Applicant's Cost Share and Description

Applicant's cost share %: (from Table C-1, row o, column V)	50
Describe how the cost share (based on relative balance between Bay-Delta and Local Benefits) is derived. (See Section A-7 for description.)	
Provide Description in a narrative form.	

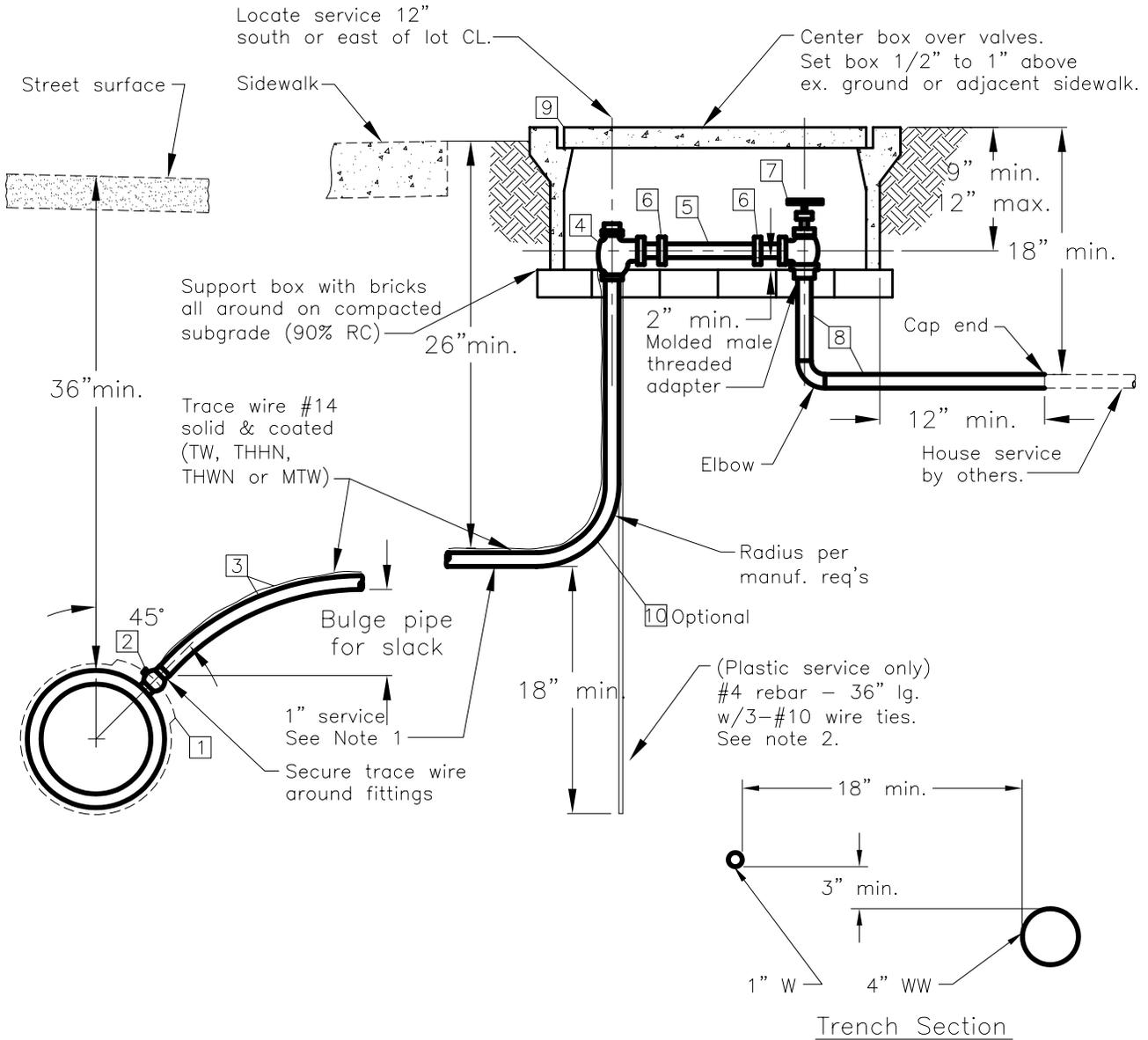
CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the evaluation conducted in this report, the following recommendations are made:

1. While the water supply is adequate to address average years, dry years, and multiple dry years, the groundwater basin is in a general overdraft condition. The City should take steps to develop a conjunctive use program to reduce the overall pumping of groundwater.
2. At this time, it does not appear feasible to partially meet water demands in the City's water service area through use of recycled water. The estimated \$7.8 million cost of installing pumping facilities and a pipeline to convey recycled water to the service area from the wastewater treatment plant is considered to be expensive at this time compared to the cost of available groundwater. The City should reassess this issue in 5 years and continue to provide recycled water for reuse on lands surrounding the White Slough Water Pollution Control Facility to minimize the amount of groundwater pumping in the region.
3. Continue with current water conservation efforts. Consider implementing the cost effective BMP 5 (Large Landscapes Conservation Programs and Incentives), BMP 9 (CII Conservation), BMP 14 (Residential ULFT), and BMP 4 (Metering of Residential Customers).
4. Track the development of upcoming drinking water standards that may impact the groundwater supply. These standards include arsenic, radon, and the groundwater rule.
5. To maintain groundwater production capacity, the City should rehabilitate or replace any older water mains and wells as they reach the end of their useful lives.
6. Establish a process to measure water savings resulting from BMP implementation.
7. Establish a process to keep a record of BMP implementation.

CITY OF LODI STANDARD PLANS



Notes:

- Maintain 24" clearance between tap and any coupling, fitting or adjacent tap. Plastic services shall be looped approximately 6" vertically or laterally to provide slack in the line. If the service is installed in the same trench as the sanitary service, the water service shall be installed without splices and the trench section shown applies.
- Backfill shall conform to Std. Plan 501.

Sheet 1 of 4

Dr. KT	No. 1	Date 9/25	Revision	Appr.	Approved By:	9/25/02	STD PLAN
Ch. WS			ADDED SECOND ITEM #6 & MADE ITEM #10 OPTIONAL		<i>F. Wally Sandelin</i>	Date	403
Date 12/00					F. Wally Sandelin City Engineer R.C.E. 39895		



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1" Water Service Materials List

Fitting (a.)	Size	Basic Feature	Inlet Connection	Outlet Connection	Manufacturer's Nos.
Saddles 1	1"	For C1-AC & Ductile Iron Pipe Ductile Iron Double Strap Saddle <u>No Single Strap Saddles</u>		IPT	Rockwell 313 Apac 102 Other manufacturers with similar designs o.k.
Saddles	1"	For C900 Pipe		IPT	Romac 101S Mueller H1349
Corp. Stop 2	1"	Ground Key or ball valve	1" cc threads for C1 AC pipe	1" CTS PE Mueller Instatite	Mueller H-15006 or Mueller H-1500 with H15074 J1500 1" with H15074 1" F600 Ford with H15074
Corp. Stop	1"	Ground Key or ball valve	Saddle C1 AC C-900 Pipe 1" IPT	1" PJ for PE CTS	All PJ must have inserts 1" Ford FB1100 with Ins. #52 1" J-3403 with Insert J2805 1" Mueller H15028 with insert H504385 1" FB500 with C14-44 adapter with insert J41 with J2607 adapter with insert
Corp. Stop	1"	Ground Key or ball valve	1" cc threads C1 and AC Pipe	1" PJ for PE CTS	Mueller H15008 with insert H504385 Ford FB1000 with Ins. #52 J3401 with insert J2805
Service Pipe 3	1"				C.T.S. PE 3408 CL. 160 with Trace Wire
Angle Stop 4	1"	Ground Key or Ball Valve with Lockwing	1" PE CTS Mueller Instatite	1" Straight Thread Swivel Nut	Mueller H14267
Angle Stop	1"	Ground Key or Ball Valve with Lockwing	1" PE CTS Compression	1" Straight Thread Swivel Nut	Mueller H14258 with Insert H504385

Sheet 2 of 4

Dr. KT	No.	Date	Revision	Appr.	Approved By:	STD PLAN
Ch. WS	1	9/25	ADDED SECOND ITEM #6 & MADE ITEM #10 OPTIONAL		<i>F. Wally Sandelin</i>	403
Date 12/00					F. Wally Sandelin City Engineer R.C.E. 39895	9/25/02 Date



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1" Water Service Materials List

Fitting (a.)	Size	Basic Feature	Inlet Connection	Outlet Connection	Manufacturer's Nos.
Angle Stop	1"	Ground Key or Ball Valve with Lockwing	1" PE CTS PJ	1" Straight Thread Swivel Nut	J-4201 with Insert J2805 Ford KV 43-342W with Insert
Spacer 5	1"	Schedule 80 PVC 9" long with rubber or leather washer	1" IPT	1" IPT	1" v 9" Sch. 80 PVC IPT Mueller H10887
Coupling 6	1"	Bronze or Brass coupling and bushing to adapt spacer to customer valve - Bushing may be at either end of coupling depending on size of coupling order	1" Straight Thread swivel Nut	1" IPT	Mueller H10891, H10890, H1089_ or H10897 with 3/4" x 1" brass bushing Jones J-134 or J130 with 3/4" x 1" brass bushing Ford C-38-24-2.625
Customer Valve 7	1"	Brass or bronze Angle Globe Valve with Handwheel All valves must have brass handles	IPT	IPT	Mueller 8130 Stockham B-216 Nibco T-311-Y
Customer Stub 8	1"				IPS PVC Schedule 40 per Uniform Plumbing Code. (Same size as service pipe)

Sheet 3 of 4

Dr. KT	No.	Date	Revision	Appr.	Approved By:	STD PLAN
Ch. WS	1	9/25	ADDED SECOND ITEM #6 & MADE ITEM #10 OPTIONAL		<i>F. Wally Sandelin</i>	403
Date					F. Wally Sandelin City Engineer R.C.E. 39895	9/25/02 Date
12/00						



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1" Water Service Materials List

Fitting (a)	Size	Basic Feature	Inlet Connection	Outlet Connection	Manufacturer's Nos.
Service Box 9		All lids to read Water			Christy FL30 Box 12 (1" Backyard service easements only) Christy FL30D lid (1" Backyard service easements only) Christy N16 or Bes C16E Box Christy B16D or Bes D30 Lid (Grass Areas, Flush Fit foot traffic only) Christy B16C or Bes C30 Lid (Flush Fit Driveways, Sidewalks) Christy B16-61D or Bes 61D30 Lid (3/16" steel checker Flush Fit Driveways, Sidewalk)
90° PJ Elbow 10	1"		1" PJ CTS	1" PJ CTS	1" Ford L44-44 with Insert

a. Alternative fittings must be approved by the City Engineer.

Sheet 4 of 4

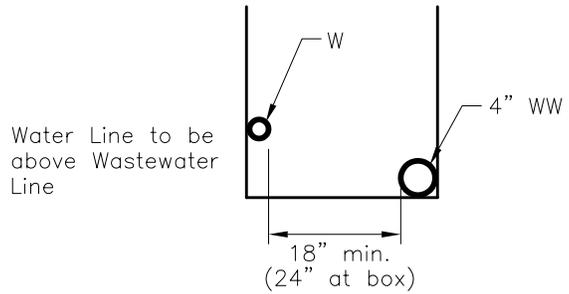
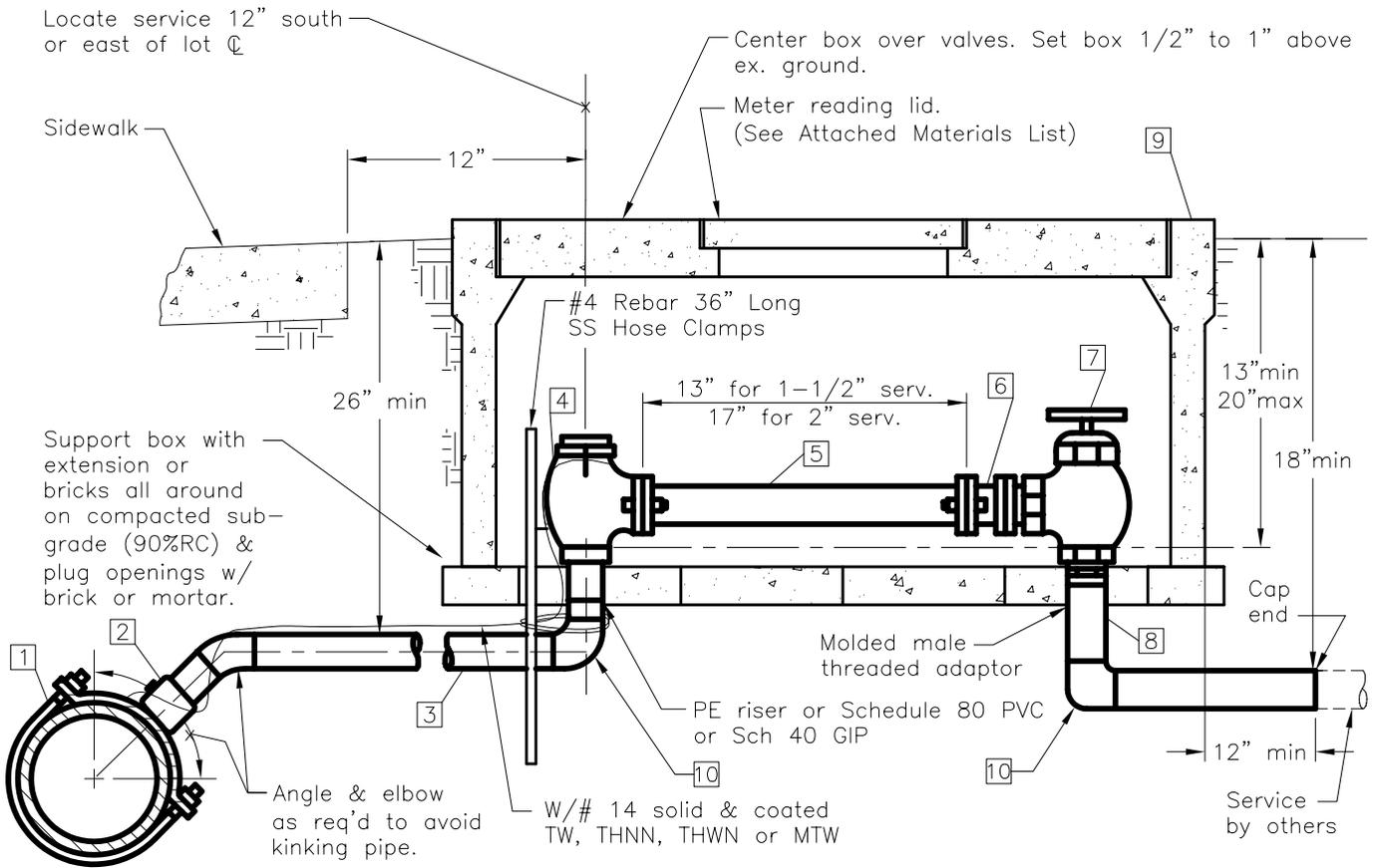
Dr. KT	No.	Date	Revision	Appr.	Approved By:	 F. Wally Sandelin City Engineer R.C.E. 39895	9/25/02 Date	STD PLAN	
Ch. WS	1	9/25	ADDED SECOND ITEM #6 & MADE ITEM #10 OPTIONAL		 F. Wally Sandelin City Engineer R.C.E. 39895			9/25/02 Date	<h1>403</h1>
Date		12/00							



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1-1/2" & 2" Water Service



Notes:

1. Maintain 24" clearance between tap and any coupling, fitting or adjacent tap. Plastic services shall be installed with slack in the line. If the service is installed in the same trench as sanitary service, the water service shall be installed without splices and the trench section shown applies:
2. S.S. liners required on PE pipe fittings.
3. Backfill shall conform to Std Plan 501.

Trench Section

					Sheet 1 of 4	
Dr.	KT	No.	Date	Revision	Appr.	Approved By:
		1	9/25	ADDED END CAP		<i>F. Wally Sandelin</i>
Ch.	WS	2	2/04	CHANGED ELBOW NOTATION		
Date	12/00					2/12/04
						Date
						R.C.E. 39895
						412



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1-1/2" & 2" Water Service Materials List

Fitting (a)	Size	Basic Feature	Inlet Connection	Outlet Connection	Manufacturer's Nos.
Saddles 1	1-1/2" & 2"	For C1-AC & Ductile Iron Pipe Ductile Iron Double Strap Saddle <u>No Single Strap Saddles</u>		IPT	Rockwell 313 Apac 102 Other manufacturers with similar designs o.k.
Saddles	1-1/2" & 2"	For C900 Pipe		IPT	Romac 101S Mueller H1349 with 1P thread
Corp. Stop 2	1-1/2"	Oriseal or Ball Valve	Saddle IPT 1-1/2" 1-1/2" IPT	1-1/2" PJ CTS	All PJ must have inserts 1-1/2" J1935 with insert J2805 1-1/2" FB1100 with insert 54 1-1/2" Mueller H15023 with insert 506139
Corp. Stop	1-1/2"	Oriseal or Ball valve	1-1/2" Saddle IPT 1-1/2" IPT	1-1/2" IPT	All PJ must have inserts 1-1/2" FB500 with C14-66 FIPT CTS PJ adapter with Insert 1-1/2" J1943, J2607 FIPT Adapter CTS with Insert 1-1/2" Mueller H9969 with H15451 CTS Adapter with Insert 506139
Corp. Stop	2"	Oriseal or Ball Valve	2" Saddle IPT 2" IPT	2" PJ CTS	All PJ must have inserts 2" J1935 with insert J2805 2" FB1100 with insert 55 2" Mueller H15023 with insert 506141
Corp. Stop	2"	Oriseal or Ball Valve	2" IPT	2" IPT	All PJ must have inserts 2" FB 500 with C14-77 IPT CTS Adapter with Insert 2" J1943 with J2607 with Insert 2" Mueller 9969 with H15451 CTS Adapter with insert 506141

Sheet 2 of 4

Dr. KT	No. 1	Date 9/25	Revision ADDED END CAP	Appr.	Approved By: <i>F. Wally Sandelin</i>	9/25/02	STD PLAN
Ch. WS					F. Wally Sandelin City Engineer R.C.E. 39895	Date	412
Date 12/00							



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1-1/2" & 2" Water Service Materials List

Fitting (a)	Size	Basic Feature	Inlet Connection	Outlet Connection	Manufacturer's Nos.
Service Pipe [3]	1-1/2" & 2"				C.T.S. PE 3408 200 PSI SDR9 ASTM D-2737 Sch 80 PVC with trace wire, or Sch 40 GIP
Angle Stop [4]	1-1/2" & 2"	Ground Key or Ball Valve with Lockwing	PJ CTS	1-1/2" & 2" 2 hole meter flange	1-1/2" Ford FW 43-666W with Insert 2" Ford FV 43-777W with Insert J4205 with Insert 2" x 1-1/2" Mueller H14277 with Insert
Spacer [5]	1-1/2" & 2"	Bronze or Brass flanges meter x FIPT with Sch. 80 PVC Spacer 13" long for 1-1/2" Service 17" long for 2" Service	2 Hole Flg x FIPT	2 Hole Flg x FIPT	J129 1-1/2" Ford #6F Flg 2" Ford #7F Flg 2x16 Sch. 80 PVC IPT
Coupling [6]	1-1/2" & 2"	Flanged meter coupling adapter Malleable Iron	2 Hole Flg without ring	Compression coupling to fit 2" or 1-1/2" Sch. 80 Nipple	Rockwell 926 Meter Coupling with 4" Sch. 80 Nipple IPT x plan End
Customer Valve [7]	1-1/2" & 2"	Brass or bronze Angle Globe Valve with Handwheel All valves must have brass handle	IPT	IPT	Nibco T-311-Y Stockham B-216 Mueller 8130
Customer Stub [8]	1-1/2" & 2"				IPS PVC Schedule 40 per Uniform Plumbing Code. (Same size as service pipe)

Sheet 3 of 4

Dr. KT	No. 1	Date 9/25	Revision ADDED END CAP	Appr.	Approved By: <i>F. Wally Sandelin</i>	9/25/02	STD PLAN
Ch. WS					F. Wally Sandelin City Engineer R.C.E. 39895	Date	412
Date 12/00							



CITY OF LODI

PUBLIC WORKS DEPARTMENT

1-1/2" & 2" Water Service Materials List

Fitting (a)	Size	Basic Feature	Inlet Connection	Outlet Connection	Manufacturer's Nos.
Service Box 9	1-1/2"	All Lids to read Water Holes in Lids for touch read Probe will be required if a meter is to be installed			Christy B36 or Bes C36W Box Christy B36D or Bes D70 Lid (Flush Fit foot Traffic, Grass Areas) Christy FI36D (Foot Traffic, Grass Areas, Flush fit) Christy B36-61D 1/4" Steel Checker Plate (Driveways, Sidewalks) Christy B1730 Full Vehicular Traffic Box
	2"	All Lids to read Water Holes in Lids for touch read Probe will be required if a meter is to be installed			Christy B40 or Bes C40W Box Christy B40-61D of Bes 61D75 Lid 1/4" Steel Plate Christy B24x36 Full Vehicular Traffic Box
90° PJ Elbow			1-1/2" OR 2" PJ CTS	1-1/2" OR 2" PJ CTS	1-1/2" Ford L44-46 with Insert Jones 1-1/2" J2611 with Insert 2" Ford L44-77 1-1/2", 2" Mueller H-15526 with Insert
90° Elbow 10			1-1/2" OR 2"	1-1/2" OR 2"	PVC

a. Alternate Fittings must be approved by the City Engineer.

Sheet 4 of 4

Dr. KT	No.	Date	Revision	Appr.	Approved By:	STD PLAN
	1	9/25	ADDED END CAP		<i>F. Wally Sandelin</i> F. Wally Sandelin City Engineer R.C.E. 39895	412
Ch. WS	2	2/04	ADDED PVC 90 ELBOW			
Date 12/00						

Richard Prima

221 West Pine Street
 P. O. Box 3006
 Lodi, CA 95241-1910

July 2004

(209) 333-6759

Summary of qualifications**City of Lodi, Public Works Department** 1975-present

Lodi, California

Public Works Director since 1998 (and subordinate positions since 1975) – municipal engineering infrastructure and planning for city of 60,000, including planning, designing and constructing street, traffic, water, wastewater, drainage and park improvements and public buildings. Management of solid waste and transit contracts. Management of Public Works Department and participation in management of City.

Work experience**City of Lodi, Public Works Department** 1988-1998

City Engineer, Assistant City Engineer – Division manager of twelve-person engineering staff covering design, development services, traffic engineering and construction inspection. Responsible for majority of City's capital improvement program. Author of City's Public Improvement Design Standards. Member of City Management Team since mid-1995.

Member of San Joaquin Council of Governments Technical Advisory Committee, mainly covering county transportation and land-use issues. Committee chair 1995-96.

City of Lodi, Public Works Department 1978-1988

Associate Civil Engineer – Section manager of eight-person engineering staff covering design and traffic engineering. Responsible for large portion of City's capital improvement program. Oversaw and performed preliminary study and design work on numerous street, traffic signal, water well, drainage basin and underground utility projects. Chairman of Utility Coordinating Committee which included three private utilities plus all City utilities. Chairman of Public Works Safety Committee, 1980.

City of Lodi, Public Works Department 1975-1978

Assistant/Junior Civil Engineer – Performed preliminary study and design work on street, traffic signal, water well, drainage basin and underground utility projects

Served as acting Water Superintendent for nine months while Department reorganization was being evaluated. Responsible for operation and maintenance of City water wells and mains.

Pacific Gas & Electric Co., Design/Drafting Department 1974-1975

Junior Engineering Designer – Designed electrical substation grading and foundation plans and electrical equipment structures.

E d u c a t i o n

University of California at Berkeley 1968-1974
 Bachelor of Science Degree in Civil Engineering with Honors.
 Editor (2 years) California Engineer – student engineering magazine
 Cooperative Work-Study Program – two six-month work sessions at the City of Alameda
 Engineering Division and one session at the City of Hayward Engineering Division.

A c c r e d i t a t i o n s

Registered Civil Engineer, State of California (#C28183)

P r o f e s s i o n a l m e m b e r s h i p s

American Public Works Association
 American Society of Civil Engineers
 Institute of Transportation Engineers
 American Waterworks Association
 Water Environment Federation

A w a r d s r e c e i v e d

1995 Engineer of the Year from San Joaquin Engineer's Council
 1995 Cognize Award from San Joaquin Council of Governments
 1974 UC Berkeley College of Engineering Wiskocil Professional Leadership Award

C o m m u n i t y a c t i v i t i e s

Lodi Lion's Club
 1992 Graduate, Lodi District Chamber of Commerce Leadership Lodi Program
 California Army National Guard, 1970-1976, Combat Engineer, Water Purification
 Specialist, Honorable Discharge at rank of Staff Sergeant

WATER-USE SAVINGS TABLE

Meter Size	No. of Services	Estimated Average Water Use (G/Yr)	Estimated Total Water Use (G/Yr)	20% Estimated Savings (G/Yr/Conn)	Total Annual Groundwater Savings (Gal)	Acre Feet Per Year Savings
3/4"	133	125,000	16,625,000	25,000	3,325,000	10.2
1"	68	200,000	13,600,000	40,000	2,720,000	8.3
1 1/2"	32	300,000	9,600,000	60,000	1,920,000	5.9
2"	13	400,000	5,200,000	80,000	1,040,000	3.2
4"	2	500,000	1,000,000	100,000	200,000	0.6
6"	2	600,000	1,200,000	120,000	240,000	0.7
Totals	250	2,125,000	47,225,000		9,445,000	29.0
Total Water Savings Over 18-Year Project Life* (A.F.)						521.78
*Project life based on the high-end average life expectancy of a commercial meter.						

APPENDIX E

WASTEWATER DISCHARGE SAVINGS

Year	Projected Wastewater Treatment Plant Flow (MGD)	Projected Wastewater Treatment Plant Flow (MG/YR)	Projected Wastewater Treatment Plant Flow (A.F./YR)	Commercial & Industrial Flow Contribution	Projected Commercial & Industrial Flow (A.F./YR)	Estimated Projected Commercial & Industrial Flow of the Remaining 25% of Unmetered Services (A.F./YR)	Estimated Wastewater Percent Decrease	Projected Commercial & Industrial Flow Savings (A.F./YR)
2006	7,280,000	2,657,200,000	8,155.20	30%	2,446.56	611.64	2%	12.23
2007	7,430,000	2,711,950,000	8,323.23	30%	2,496.97	624.24	2%	12.48
2008	7,580,000	2,766,700,000	8,491.26	30%	2,547.38	636.84	2%	12.74
2009	7,730,000	2,821,450,000	8,659.30	30%	2,597.79	649.45	2%	12.99
2010	7,880,000	2,876,200,000	8,827.33	30%	2,648.20	662.05	2%	13.24
2011	8,040,000	2,934,600,000	9,006.56	30%	2,701.97	675.49	2%	13.51
2012	8,200,000	2,993,000,000	9,185.80	30%	2,755.74	688.93	2%	13.78
2013	8,360,000	3,051,400,000	9,365.04	30%	2,809.51	702.38	2%	14.05
2014	8,530,000	3,113,450,000	9,555.47	30%	2,866.64	716.66	2%	14.33
2015	8,700,000	3,175,500,000	9,745.91	30%	2,923.77	730.94	2%	14.62
2016	8,870,000	3,237,550,000	9,936.35	30%	2,980.90	745.23	2%	14.90
2017	9,050,000	3,303,250,000	10,137.99	30%	3,041.40	760.35	2%	15.21
2018	9,230,000	3,368,950,000	10,339.63	30%	3,101.89	775.47	2%	15.51
2019	9,410,000	3,434,650,000	10,541.27	30%	3,162.38	790.59	2%	15.81
2020	9,600,000	3,504,000,000	10,754.11	30%	3,226.23	806.56	2%	16.13
2021	9,790,000	3,573,350,000	10,966.95	30%	3,290.08	822.52	2%	16.45
2022	9,990,000	3,646,350,000	11,190.99	30%	3,357.30	839.32	2%	16.79
2023	10,190,000	3,719,350,000	11,415.04	30%	3,424.51	856.13	2%	17.12

Total WWTP Discharge Savings for Commercial & Industrial Customers Over 18 Year Project Life 261.90

*Project life based on