



**Orange Cove Irrigation District
Water Management Plan**

Five Year Update



July 29, 2010

Revised: May 24, 2011

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Section 1: Description of the District

District Name: Orange Cove Irrigation District
Contact Name: Fergus Morrissey
Title: Engineer- Manager
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Web Address

A. History

1. *Date district formed:* 1937 *Date of first Reclamation contract:* 1949
Original size (acres): 12,587 *Current year (last complete calendar year):* 2009

2. *Current size, population, and irrigated acres*

	<i>(enter data year)</i>
<i>Size (acres)</i>	28,049
<i>Population served</i>	643
<i>Irrigated acres</i>	27,557

3. *Water supplies received in current year*

<i>Water Source</i>	<i>AF</i>
<i>Federal urban water (Tbl 1)</i>	34
<i>Federal agricultural water (Tbl 1)</i>	42,236
<i>State water (Tbl 1)</i>	
<i>Other Wholesaler (define) (Tbl 1)</i>	
<i>Local surface water (Tbl 1)</i>	
<i>Upslope drain water (Tbl 1)</i>	
<i>District ground water (Tbl 2)</i>	
<i>Banked water (Tbl 1)</i>	
<i>Transferred water (Tbl 6)</i>	-15,989
<i>Recycled water (Tbl 3)</i>	
<i>Other (define) (Tbl 1)</i>	
<i>Total*</i>	26,281

* 2009 Water Year

4. *Annual entitlement under each right and/or contract*

	<i>AF</i>	<i>Source</i>	<i>Contract #</i>	<i>Availability period(s)</i>
<i>Reclamation Urban AF/Y</i>				
<i>Reclamation Agriculture AF/Y</i>	39,200	USBR	175r-2627-LTR1	No restrictions
<i>Other AF/Y</i>				
<i>Other AF/Y</i>				

5. *Anticipated land-use changes*

6. *Cropping patterns (Agricultural only)*

List of current crops (crops with 5% or less of total acreage) can be combined in the 'Other' category.

<i>Original Plan (1989)</i>		<i>Previous Plan (2002)</i>		<i>2009</i>	
<i>Crop Name</i>	<i>Acres</i>	<i>Crop Name</i>	<i>Acres</i>	<i>Crop Name</i>	<i>Acres</i>
Citrus	20,490	Citrus	18,168	Citrus	21,051
Deciduous Fruits & Nuts	4,295	Deciduous Fruits & Nuts	3,096	Deciduous Fruits & Nuts	2,477
Grapes	1,993	Grapes	1,872	Grapes	1,100
				Olives	876
				Forage	940
				Fallow	884
<i>Other (<5%)</i>		<i>Other (<5%)</i>		<i>Other (<5%)</i>	229
<i>Total</i>	26,778	<i>Total</i>	23,894	<i>Total</i>	27,557

(See Planner, Chapter 2, Appendix A for list of crop names)

7. *Major irrigation methods (by acreage) (Agricultural only)*

<i>Original Plan (1989)</i>		<i>Previous Plan (2002)</i>		<i>2009</i>	
<i>Irrigation Method</i>	<i>Acres</i>	<i>Irrigation Method</i>	<i>Acres</i>	<i>Irrigation Method</i>	<i>Acres</i>
Furrow	20,992	Furrow	6,338	Furrow	5,196
Border	430	Border	430	Border	502
Low Volume Mister/Drip/Micro Jet	5,356	Low Volume Mister/Drip/Micro Jet	16,726	Low Volume Mister/Drip/Micro Jet	20,876
				Sprinkler	983
<i>Other</i>		<i>Other</i>		<i>Other</i>	
<i>Total</i>	26,778	<i>Total</i>	23,894	<i>Total</i>	27,557

(See Planner, Chapter 2, Appendix A for list of irrigation system types)

B. Location and Facilities

See **Attachment A** for points of delivery, turnouts (internal flow), and outflow (spill) points, measurement locations, conveyance system, storage facilities, operational loss recovery system, wells, and water quality monitoring locations

1. Incoming flow locations and measurement methods

<i>Location Name System</i>	<i>Physical Location Friant Kern Canal Mile Post</i>	<i>Type of Measurement Device</i>	<i>Accuracy</i>
1 North	35.85	Venturi	1%
1A/1B/1A East	35.87	Venturi	1%
2	36.79	Venturi	1%
3/3A	38.74	Venturi	1%
4	39.82	Venturi	1%
5	41.76	Venturi	1%
6	42.89	Venturi	1%
7	44.56	Venturi	1%
8	44.56	Venturi	1%
9	45.46	Venturi	1%
10	47.03	Venturi	1%
11	48.58	Venturi	1%
12	50.38	Venturi	1%
13	51.62	Venturi	1%
14	53.32	Venturi	1%

2. Current year Agricultural Conveyance System

<i>Miles Unlined - Canal</i>	<i>Miles Lined - Canal</i>	<i>Miles Piped</i>	<i>Miles - Other</i>
		116	

3. Current year Urban Distribution System

<i>Miles AC Pipe</i>	<i>Miles Steel Pipe</i>	<i>Miles Cast Iron Pipe</i>	<i>Miles - Other</i>

4. Storage facilities (tanks, reservoirs, regulating reservoirs)

<i>Name</i>	<i>Type</i>	<i>Capacity (AF)</i>	<i>Distribution or Spill</i>
3A	Reservoir	10	Distribution
8	Reservoir	26	Distribution
11	Reservoir	8	Distribution
13	Reservoir	15	Distribution

5. Outflow locations and measurement methods (Agricultural only)

The District is primarily micro irrigation and what little amount is furrow irrigated, water is collected in tailwater basins and reused on the same farm.

Provide this information in Section 2 F.

6. *Description of the agricultural spill recovery system*

The District is a completely piped / pressurized system and there is no operational spill or need for recovery system.

7. *Agricultural delivery system operation (check all that apply)*

<i>On-demand</i>	<i>Scheduled</i>	<i>Rotation</i>	<i>Other (describe)</i>
	X		

8. *Restrictions on water source(s)*

<i>Source</i>	<i>Restriction</i>	<i>Cause of Restriction</i>	<i>Effect on Operations</i>
Friant Kern Canal	Class 1 Contract	Allocation and Inflow Prorate	Minimal effect on District

9. *Proposed changes or additions to facilities and operations for the next 5 years*

Additional Off-Peak Reservoir for System 1A/B and 1N.

Pump Station Outflow Metering.

Solar installation (potential based on economic analysis).

C. Topography and Soils

1. *Topography of the district and its impact on water operations and management*

The terrain is sloping to the west from the Sierra Nevada foothills. The average slope is 5 to 10 feet per mile. Most soils range in texture classification from a sandy loam with intake characteristics ranging from moderately low. There is little impact from the soils or topography on water management practices.

2. *District soil association map (Agricultural only)*

See Attachment B, District Soils Map

3. *Agricultural limitations resulting from soil problems (Agricultural only)*

<i>Soil Problem</i>	<i>Estimated Acres</i>	<i>Effect on Water Operations and Management</i>
Salinity	0	None
High-water table	200	None
High or low infiltration rates	2,000	None
Other (define)		None

D. Climate

1. 2009/2010 Conditions in District service area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
<i>Avg Precip.</i>	2.9	3.3	0.9	2.8	0.2	0	0	0	0	2.0	0.1	3.0	15.3
<i>Avg Temp.</i>	46	50	53	55	62	75	82	78	76	60	51	45	61
<i>Avg. Max. Temp.</i>	56	60	66	67	76	90	99	94	92	74	66	56	75
<i>Avg. Min. Temp.</i>	38	41	39	42	45	55	61	59	58	46	37	35	46
<i>ETo</i>	.85	1.76	3.30	4.84	6.83	7.80	8.67	7.69	5.67	3.54	1.65	0.73	53.33

Weather station ID: CIMIS # 142 – Orange Cove Data period: 2009/2010

Average wind velocity: 3.9 miles per hour NW Average annual frost-free days: 245 (mean)

2. Impact of microclimates on water management within the service area

The District is located in a microclimate that is less prone to frost damaging conditions relative to the San Joaquin Valley floor. This is due to its Sierra foothill location and the fact that much of the service area is located in coves.

E. Natural and Cultural Resources

1. Natural resource areas within the service area

<i>Name</i>	<i>Estimated Acres</i>	<i>Description</i>
none		

2. Description of district management of these resources in the past or present

3. Recreational and/or cultural resources areas within the service area

<i>Name</i>	<i>Estimated Acres</i>	<i>Description</i>
none		

F. Operating Rules and Regulations

1. Operating rules and regulations

See Attachment C, District Rules and Regulations

2. *Water allocation policy (Agricultural only)*

USE OF WATER

a. Water delivered by the District must be put toward an agricultural beneficial use within the District boundary. Caution: Water used for spraying purposes may ONLY be taken from a District delivery or other District facility provided a County-approved connection is made and maintained at all times between the District facility and the spray equipment.

b. Water usage statements will not be sent to the water user on a monthly basis (unless requested) but may be sent when less than 25% of a water user's purchased supply remains. When the water user's purchased supply is depleted, water delivery will be discontinued. Water delivery may be resumed if the water user acquires additional water by transfer(s) or additional purchases (if additional water is available). It will be the water user's responsibility, upon receiving the 25% notice, to make the necessary arrangements with the District for additional water. No other notification will be provided.

c. The ultimate disposition of water ordered, but not used or transferred by September 30th, is subject to the discretion of the District. Alternative disposition of this water may include, but is not limited to, outside exchange, transfer, or banking in accordance with Reclamation Law. The determination of an alternate disposition of unused water will be based on the projected end-of-Water-Year District use. Water deposits may be returned after September 30th unless alternative arrangements have been made with the District.

1. Dry Year Amendment: In years with less than an 85 percent Class One Friant Division supply allocation, the disposition of water ordered, but not used or transferred by January 31st (one month prior to the end of USBR contract year), is up to the discretion of the District. This determination will be based on the projected end-of-contract year District water use.

d. The Board of Directors may elect to carry unused water over (carryover) from one Water-Year to the next in accordance with Bureau of Reclamation policy. Unused water shall not be carried over into the next Water-Year on an individual landowner basis; however, unused landowner water deposits may be carried over into the next Water-Year.

ENTITLEMENT TO WATER

a. When the demand for water is greater than the available supply, available water will be distributed equitably among those who have filed an application in accordance with Paragraph 1 and as required by California State Water Code Section 22250 which reads in part as follows:

“All water distributed by districts for irrigation purposes shall be apportioned ratable to each landowner upon the basis or ratio which the last assessment against his land for district purposes bears to the whole sum assessed in the district.”

b. Any landowner may assign for use within the District their full allocation pursuant to Section 22250 provided the water is first purchased in accordance with Paragraph 1.

3. *Official and actual lead times necessary for water orders and shut-off (Agricultural only)*
24 hours advance notice for turn on and shut off

4. *Policies regarding return flows (surface and subsurface drainage from farms) and outflow (Agricultural only)*

TAILWATER

a. The District is required to regulate excessive tailwater. The United States Bureau of Reclamation Water Service Contract requires the District, as a provision of its conservation plan and as a condition of continued service, ensure water is put to beneficial use. Hence, the District must regulate excessive tailwater to avoid determinations that it is wastefully or unreasonably using the water supply provided to it. If the District is required to regulate tailwater because the grower does not do so, it needlessly expends District funds without providing specific benefit to the broad group of District landowners.

b. If the District determines that a landowner has improperly used irrigation water delivered to them, or improperly prepared the ground to receive irrigation water, such that excess tailwater, in the District's opinion, is leaving the landowner's property, the District shall notify the landowner with the appropriate steps to take to ensure that excess tail water is eliminated. If the landowner does not take appropriate steps to remedy the situation, the District will reduce and/or discontinue water delivery until the problem is rectified. Alternatively, the District may, at the landowner's expense, take corrective action in order to ensure that excess tailwater does not leave the landowner's property. Landowners will be charged the full cost to the District of any services provided to restrict tailwater runoff, and payment of these charges will be required as a condition of continued service.

5. *Policies on water transfers by the district and its customers*

a. Intra-district between **same entity**: A landowner having properties in two or more of the District's delivery systems (e.g. System 7 and System 11), may transfer water, without penalty, from one system to another system. The final charge for water will be based on water charges for the system in which it is used.

b. Intra-district between **different entities**: A landowner may transfer water to another landowner by filing a water transfer form with the District. The transferred water must have been purchased by the transferor prior to the transfer in accordance with Paragraph 1. The final charge for water will be based on water charges for the system **in which it is used**. The difference in cost, if any, must be paid to the District at the time of transfer. The District assumes no responsibility for collecting monies due to the transferor from the transferee. Both the transferor and the transferee must sign a water transfer form.

c. Inter-district between **same entity**: A landowner having properties in both the District and another Friant Division district (district), may transfer water from the District to the other district (inter-district). Payment for this transferred water shall be the greater of the average cost of water within the district where the water is used plus a 10% surcharge, or at the average cost of water within the District, whichever is greater.

G. Water Measurement, Pricing, and Billing

1. Agricultural Customers

- a. Number of farms 588
- b. Number of delivery points (turnouts and connections) 1,141
- c. Number of delivery points serving more than one farm 0
- d. Number of measured delivery points (meters and measurement devices) 1,141
- e. Percentage of delivered water that was measured at a delivery point 100

f. Delivery point measurement device table (Agricultural only)

Measurement Type	Number	Accuracy (+/- %)	Reading Frequency (Days)	Calibration Frequency (Months)	Maintenance Frequency (Months)
<i>Orifices</i>					
<i>Propeller meter</i>	1,141	2	30 days if deliveries are made during period	Manufacturers requirement *See attachment H	Manufacturers requirement *See attachment H
<i>Weirs</i>					
<i>Flumes</i>					
<i>Venturi</i>					
<i>Metered gates</i>					
<i>Acoustic doppler</i>					
<i>Other (define)</i>					
<i>Total</i>	1,141				

The District maintains an inventory of meter parts and performs meter repair in house. The District utilizes a contractor for meter testing and major repair needs.

2. Urban Customers

- a. Total number of connections 130
- b. Total number of metered connections 57
- c. Total number of connections not billed by quantity 0
- d. Percentage of water that was measured at delivery point 100
- e. Percentage of delivered water that was billed by quantity 100
- f. Measurement device table

Meter Size and Type	Number	Accuracy (+/-percentage)	Reading Frequency (Days)	Calibration Frequency (Months)	Maintenance Frequency (Months)
5/8-3/4"					
1"	2	2	30 days if deliveries are made during period	Manufacturers requirement *See attachment H	Manufacturers requirement *See attachment H
1 1/2"	1	2	30 days if deliveries are made during period	Manufacturers requirement	*See attachment H
2"	54	2	30 days if deliveries are made during period	Manufacturers requirement	*See attachment H
<i>Total</i>	57				

3. Agriculture and Urban Customers

- a. Current year agriculture and /or urban water charges - including rate structures and billing frequency

The District has three water rates it charges agricultural customers depending on whether the water is delivered by gravity, low-lift pumping or high-lift pumping. Those rates are as follow: Gravity \$66.00 / af., low-lift pumping \$75.50 / af., high-lift pumping \$82.00 / af. The Bureau of Reclamation’s base rate of service for Class 1 water in 2009 was \$41.04 which are included in the below charges to agricultural users.

For parcels less than 5 acres in size, the District rates correspond to the M&I rate established by the Bureau of Reclamation. The total cost to “M&I” users is \$84.00 / af.

b. *Annual charges collected from customers (current year data)*

<i>Fixed Charges</i>			
<i>Charges (\$ unit)</i>	<i>Charge units (\$/acre), (\$/customer) etc.</i>	<i>Units billed during year (acres, customer) etc.</i>	<i>\$ collected (\$ times units)</i>
*18.00	Acre	2,433	43,794
**60.00	Acre	87	5,220
***67	Acre	25,529	1,710,443

* Standby Charge on parcels not served by rehabilitation system for which bonds were secured.

** Tri Valley and Hills Valley Irrigation District Lands (no admin costs).

*** Rehabilitation + Administrative standby

<i>Volumetric charges</i>			
<i>Charges (\$ unit)</i>	<i>Charge units (\$/AF), (\$/HCF), etc.</i>	<i>Units billed during year (AF, HCF) etc.</i>	<i>\$ collected (\$ times units)</i>
82.00	AF	11,620	952,840
75.50	AF	3,678	277,689
66.00	AF	11,830	780,780
84.00	AF	34	2,856

See **Attachment D**, District Sample Bills

c. *Water-use data accounting procedures*

Water-use data accounting procedures; The District utilizes a computer data base to track water use by delivery. The system is upgraded as needed. Records are maintained on an indefinite basis. Water is purchased before use in the District via water applications. Water use statements are furnished to water users on an as needed basis.

H. Water Shortage Allocation Policies

1. *Current year water shortage policies*

a. *Attach District's current year water shortage policies or shortage response plan.*

See Rules and Regulations Section 4 provided in **Attachment C**.

b. *Specify how reduced water supplies are allocated.*

See Rules and Regulations Section 4 provided in **Attachment C**.

2. *Current year policies that address wasteful use of water and enforcement methods*

Wasteful use of water within the District is usually associated with a lack of tail water management.

That issue is addressed in the Districts Rules and Regulations (**See Attachment C**, section 8 Tailwater).

Section 2: Inventory of Water Resources

A. Surface Water Supply

1. *Acre-foot amounts of surface water delivered to the water purveyor by each of the purveyor's sources*
See Water Inventory Tables, Table 1

2. *Amount of water delivered to the district by each of the district sources for the last 10 years*
See Water Inventory Tables, Table 8

B. Ground Water Supply

1. *Acre-foot amounts of ground water pumped and delivered by the district*
None

2. *Ground water basin(s) that underlies the service area*

<i>Name</i>	<i>Size (Square Miles)</i>	<i>Usable Capacity (AF)</i>	<i>Safe Yield (AF/Y)</i>
Easterly fringe of Kings Basin	14	Unknown	27,800

3. *Map of district-operated wells and managed ground water recharge areas*
None

4. *Description of conjunctive use of surface and ground water*
None

5. *Ground Water Management Plan*
Groundwater Monitoring and Drought Preparedness Program (AB 303 Adopted June 2006) See Attachment E

6. *Ground Water Banking Plan*
None within District. Arrangements for banking are made with surrounding Friant Division Contractors.

C. Other Water Supplies

1. *"Other" water used as part of the water supply*
None

D. Source Water Quality Monitoring Practices

1. *Potable Water Quality (Urban only)*
None- Potable water is not delivered by OCID

2. *Agricultural water quality concerns:* Yes _____ No X
 (If yes, describe)

3. *Description of the agricultural water quality testing program and the role of each participant, including the district, in the program.*

Water quality analyses of the Friant-Kern Canal is conducted by Friant Water Authority on annual bases and the findings are shared with OCID.

4. *Current water quality monitoring programs for surface water by source (Agricultural only)*
 (See water analyses Attachment I)

Current water quality monitoring programs for groundwater by source (Agricultural only)
 None

E. Water Uses within the District

1. *Agricultural*

See Water Inventory Tables, Table 5 - Crop Water Needs

2. *Types of irrigation systems used for each crop in current year*

<i>Crop name</i>	<i>Total Acres</i>	<i>Level Basin - acres</i>	<i>Furrow - acres</i>	<i>Sprinkler - acres</i>	<i>Low Volume - acres</i>	<i>Multiple methods - acres</i>
Citrus	21,050		3,700	750	16,600	
Deciduous Fruits/Nuts	3,380		720	60	2,600	
Grapes	1,100		50	50	1,000	
Olives	880	10	250	100	520	
Other	1,200	430	400	40	330	

3. Urban use by customer type in current year

<i>Customer Type</i>	<i>Number of Connections</i>	<i>AF</i>
<i>Single-family</i>		
<i>Multi-family</i>		
<i>Commercial</i>		
<i>Industrial</i>		
<i>Institutional</i>		
<i>Landscape irrigation</i>		
<i>Wholesale</i>		
<i>Recycled</i>		
<i>Small Family Farms Landscape & Livestock</i>	130	34
<i>Other (specify)</i>		
<i>Other (specify)</i>		
<i>Unaccounted for</i>		
Total	130	34

4. Urban Wastewater Collection/Treatment Systems serving the service area – current year

<i>Treatment Plant</i>	<i>Treatment Level (1, 2, 3)</i>	<i>AF</i>	<i>Disposal to / uses</i>
none			
	Total		
Total discharged to ocean and/or saline sink			

5. Ground water recharge/management in current year (Table 6)

<i>Recharge Area</i>	<i>Method of Recharge</i>	<i>AF</i>	<i>Method of Retrieval</i>
none			
	Total		

6. Transfers and exchanges into or out of the service area in current year (Table 6)

<i>From Whom</i>	<i>To Whom</i>	<i>AF</i>	<i>Use</i>
OCID	Madera ID	1,875	Ag
OCID	Tulare ID	5,000	Ag
OCID	AEWSD	5,364	Ag
OCID	San Luis Water District	5,000	Ag
OCID	Hills Valley Water District	250	Ag

7. Trades, wheeling, wet/dry year exchanges, banking or other transactions in current year (Table 6)

<i>From Whom</i>	<i>To Whom</i>	<i>AF</i>	<i>Use</i>
None			

8. *Other uses of water in current year*

<i>Other Uses</i>	<i>AF</i>

F. Outflow from the District (Agricultural only)

*Districts included in the drainage problem area, as identified in “A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990),” should also complete **Water Inventory Table 7 and Appendix B (include in plan as Attachment L)***

See Facilities Map, **Attachment A**, for the location of surface and subsurface outflow points, outflow measurement points, outflow water-quality testing locations

1. *Surface and subsurface drain/outflow in current year*

<i>Outflow point</i>	<i>Location description</i>	<i>AF</i>	<i>Type of measurement</i>	<i>Accuracy (%)</i>	<i>% of total outflow</i>	<i>Acres drained</i>
none						

<i>Outflow point</i>	<i>Where the outflow goes (drain, river or other location)</i>	<i>Type Reuse (if known)</i>
none		

2. *Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program*

3. *Outflow (surface drainage & spill) Quality Testing Program*

<i>Analyses Performed</i>	<i>Frequency</i>	<i>Concentration Range</i>	<i>Average</i>	<i>Reuse limitation?</i>
none				

Outflow (subsurface drainage) Quality Testing Program

<i>Analyses Performed</i>	<i>Frequency</i>	<i>Concentration Range</i>	<i>Average</i>	<i>Reuse limitation?</i>
none				

4. Provide a brief discussion of the District’s involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants that would significantly degrade water quality in the receiving surface waters.

None

G. Water Accounting (Inventory)

1. *Water Supplies Quantified*

- a. *Surface water supplies, imported and originating within the service area, by month (Table 1)*
- b. *Ground water extracted by the district, by month (Table 2)*
- c. *Effective precipitation by crop (Table 5)*
- d. *Estimated annual ground water extracted by non-district parties (Table 2)*
- e. *Recycled urban wastewater, by month (Table 3)*
- f. *Other supplies, by month (Table 1)*

2. *Water Used Quantified*

- a. *Agricultural conveyance losses, including seepage, evaporation, and operational spills in canal systems (Table 4) or Urban leaks, breaks and flushing/fire uses in piped systems (Table 4)*
- b. *Consumptive use by riparian vegetation or environmental use (Table 6)*
- c. *Applied irrigation water - crop ET, water used for leaching/cultural practices (e.g., frost protection, soil reclamation, etc.) (Table 5)*
- d. *Urban water use (Table 6)*
- e. *Ground water recharge (Table 6)*
- f. *Water exchanges and transfers and out-of-district banking (Table 6)*
- g. *Estimated deep percolation within the service area (Table 6)*
- h. *Flows to perched water table or saline sink (Table 7)*
- i. *Outflow water leaving the district (Table 6)*
- j. *Other*

3. *Overall Water Inventory*

- a. *Table 6*

H. Assess Quantifiable Objectives:

Identify the Quantifiable Objectives that apply to the District (Planner, chapter 10) and provide a short narrative describing past, present and future plans that address the CALFED Water Use Efficiency Program goals identified for the District.

<i>QO #</i>	<i>QO Description</i>	<i>Past, Present & Future Plans</i>

Section 3: Best Management Practices (BMPs) for Agricultural Contractors

A. Critical Agricultural BMPs

1. Measure the volume of water delivered by the district to each turnout with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6%

Number of turnouts that are unmeasured or do not meet the standards listed above: 0

Number of measurement devices installed last year:

Number of measurement devices installed this year:

Number of measurement devices to be installed next year:

<i>Types of Measurement Devices Being Installed</i>	<i>Accuracy</i>	<i>Total Installed During Current Year</i>

2. Designate a water conservation coordinator to develop and implement the Plan and develop progress reports

Name: Fergus Morrissey

Title: Engineer-Manager

Address: P.O. Box 308 Orange Cove, Ca 93646

Telephone: 559-626-4461

E-mail: fmocid@sbcglobal.net

3. Provide or support the availability of water management services to water users

See **Attachment J** Friant Water Authority Water Line

a. On-Farm Evaluations

The District has provided training to water users in the past for self evaluations of on-farm irrigation systems. In addition, the District supports on-farm evaluations which are normally performed by students from Cal Poly, San Luis Obispo.

- 1) On farm irrigation and drainage system evaluations using a mobile lab type assessment

	<i>Total in district</i>	<i># surveyed last year</i>	<i># surveyed in current year</i>	<i># projected for next year</i>	<i># projected 2nd yr in future</i>
<i>Irrigated acres</i>	27,547	350	117	350	350
<i>Number of farms</i>	643	8	3	8	8

2) Timely field and crop-specific water delivery information to the water user.

The District tracks water use by parcels and deliveries. Crop surveys are done annually but there is very little change in the District since most lands are planted to permanent crops. The District can then compute the water supplied by the District for the crop grown. The District's supply of 1.4 acre feet per acre is far less than the amount needed to produce a crop. Only a few growers receive enough water from the District for full crop product. This is due only to the fact their well water is extremely limited or non-existent.

b. Real-time and normal irrigation scheduling and crop ET information

The District maintains a CIMIS station within the District boundaries. Water users are encouraged to use information from the station with their water management operations. Water users wanting this information are trained on how to access and use data from the station.

c. Surface, ground, and drainage water quantity and quality data provided to water users

The District continues to provide customers with the quantity of surface water supply available from the District. The surface water supply from the San Joaquin River is of excellent quality and no reports are furnished to the end user. The District provides no ground water.

d. Agricultural water management educational programs and materials for farmers, staff, and the public

<i>Program</i>	<i>Co-Funders (If Any)</i>	<i>Yearly Targets</i>
Notice for workshops		As available
CIMIS training		One on one or small groups
Monthly flyers	Friant Water Authority	All landowners

See Attachment F for samples of provided materials and notices

e. other

4. Pricing structure - based at least in part on quantity delivered

Describe the quantity-based water pricing structure, the cost per acre-foot, and when it became effective.

The District has pricing structure in place that is based on the quantity of water used. The structure includes cost to purchase, power and delivery fees. The District has four basic rates which the rates are governed by the cost to get water to the end user (gravity, low-lift pumping, high-lift pumping and M&I). Rates are adjusted annually on the foregoing basis.

For parcels less than 5 acres in size, the District rates correspond to the M&I rate established by the Bureau of Reclamation.

5. Evaluate and describe the need for changes in policies of the institutions to which the district is subject
The limiting institutional constraint that prevents District from providing more flexibility to its water users is the fact that Friant-Kern Canal is not automated. With a reasonable level of automation, this District could deliver water on a demand basis.

6. Evaluate and improve efficiencies of district pumps
The District has a SCADA system that monitors electric load, pressure and flow and computes pumping plant efficiency. This provides the District with continues performance data and the ability to determine easily when pumps need attention.

B. Exemptible BMPs for Agricultural Contractors

(See Planner, Chapter 2, Appendix C for examples of exemptible conditions)

1. Facilitate alternative land use

<i>Drainage Characteristic</i>	<i>Acreage</i>	<i>Potential Alternate Uses</i>
<i>High water table (<5 feet)</i>		
<i>Poor drainage</i>		
<i>Ground water Selenium concentration > 50 ppb</i>		
<i>Poor productivity</i>		

Describe how the contractor encourages customers to participate in these programs.

2. Facilitate use of available recycled urban wastewater that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils

The District has in the past worked with the City of Orange Cove in utilization of recycled water, but because of water quality concerns the program was stopped. The District is currently investigating new opportunities with the City of Orange Cove for recycled water.

<i>Sources of Recycled Urban Waste Water</i>	<i>AF/Y Available</i>	<i>AF/Y Currently Used in District</i>
City of Orange Cove (potential) 2,000 ac./ft.	0	0

3. Facilitate the financing of capital improvements for on-farm irrigation systems

<i>Funding source Programs</i>	<i>How provide assistance</i>
Costumers notified through Water Line	

4. Incentive pricing

<i>Structure of incentive pricing</i>	<i>Related goal</i>
Make surface water cost less than well water	

5. a) Line or pipe ditches and canals

<i>Canal/Lateral (Reach)</i>	<i>Type of Improvement</i>	<i>Number of Miles in Reach</i>	<i>Estimated Seepage (AF/Y)</i>	<i>Accomplished/Planned Date</i>
Plastic and steel pressurized pipe system				

b) Construct regulatory reservoirs

<i>Reservoir Name</i>	<i>Size Ac/ft</i>	<i>Improvement</i>	<i>Accomplished/ Planned Date</i>
System 1 Reservoir	10	Reduce energy costs	2011

6. Increase flexibility in water ordering by, and delivery to, water users

District is flexible with delivery changes required due to agronomic conditions. Closed systems requires different management of water when problems occur: ie: pipe breaks, valve malfunctions, canal shutdowns. The District is also look at constructing additional reservoir on systems See Attachment G, contractor ‘agricultural water order’ form

7. Construct and operate district spill and tailwater recovery systems.

None

8. Plan to measure outflow.

None

9. Optimize conjunctive use of surface and ground water

10. Automate canal structure.

The OCID system is a closed pressurized pipe delivery system. Pumps are controlled via SCADA by note book or smart phones.

11. Facilitate or promote water customer pump testing and evaluation.

The District provides information on free pump testing at our office and in periodic mailings, (See attachment F).

12. Mapping

GIS maps	Estimated cost (in \$1,000s)				
	2009	2010	2011	2012	2013
Layer 1 – Distribution system	1000	5000	3000	3000	3000
Layer 2 – Drainage system					
Suggested layers:					
Layer 3 – Ground water information	1000	1000	1000	1000	1000
Layer 4 – Soils map	1000	1000	1000	1000	1000

C. Provide a 3-Year Budget for Implementing BMPs

1. Amount actually spent during current year in expenses, hours or both.

Actual Expenditure

<i>BMP #</i>	<i>BMP Name</i>	<i>Spending</i>
A		
1	Measurement	\$0
2	Conservation staff	\$25,000
3	On-farm evaluation /water delivery info	\$800
	CIMIS	\$3,200
	Agricultural Education Program	\$12,000
4	Quantity pricing	\$1,000
5	Policy changes	\$500
6	Contractor's pumps	\$5,000
B		
1	Alternative land use	\$0
2	Urban recycled water use	\$10,000
3	Financing of on-farm improvements	\$250
4	Incentive pricing	\$500
5	Line or pipe canals/install reservoirs	\$0
6	Increase delivery flexibility	\$500
7	District spill/tailwater recovery systems	\$0
8	Measure outflow	\$00
9	Optimize conjunctive use	\$5,000
10	Automate canal structures	\$00
11	Customer pump testing	\$5,000
12	Mapping	\$5,000
	Total	\$73,750

2. *Projected budget summary for the next year in expenses*

Budgeted Expenditure

<i>BMP #</i>	<i>BMP Name</i>	
A		
1	Measurement	\$0
2	Conservation staff	\$25,000
3	On-farm evaluations/water delivery info	\$800
	CIMIS	\$3200
	Water quality	\$2,160
	Agricultural Education Program	\$12,000
4	Quantity pricing	\$1,000
5	Policy changes	\$500
6	Contractor's pumps	\$500
B		
1	Alternative land use	\$0
2	Urban recycled water use	\$1,000
3	Financing of on-farm improvements	250
4	Incentive pricing	\$500
5	Line or pipe canals/install reservoirs	\$0
6	Increase delivery flexibility	\$500
7	District spill/tailwater recovery systems	\$0
8	Measure outflow	\$0
9	Optimize conjunctive use	\$10,000
10	Automate canal structures	\$0
11	Customer pump testing	\$500
12	Mapping	\$0
	Total	\$57,910

3. *Projected budget summary for 3rd year in expenses.*

Budgeted Expenditure

<i>BMP #</i>	<i>BMP Name</i>	
A		
1	Measurement	\$0
2	Conservation staff	\$25,000
3	On-farm evaluations/water delivery info	\$800
	CIMIS	\$3200
	Water quality	\$2,160
	Agricultural Education Program	\$12,000
4	Quantity pricing	\$1,000
5	Policy changes	\$500
6	Contractor's pumps	\$500
B		
1	Alternative land use	\$0
2	Urban recycled water use	\$1,000
3	Financing of on-farm improvements	250

4	Incentive pricing	\$500
5	Line or pipe canals/install reservoirs	\$0
6	Increase delivery flexibility	\$500
7	District spill/tailwater recovery systems	\$0
8	Measure outflow	\$0
9	Optimize conjunctive use	\$10,000
10	Automate canal structures	\$0
11	Customer pump testing	\$500
12	Mapping	\$0
	Total	\$57,910

Section 4: Best Management Practices for Urban Contractors

A. Urban BMPs

1. *Utilities Operations*
 - 1.1 Operations Practices
 - 1.2 Water Loss Control
 - 1.3 Metering
 - 1.4 Pricing
2. *Education*
 - 2.1 Public Information Programs
 - 2.2 School Education
3. *Residential*
4. *CII*
5. *Landscape*

B. Provide a 3-Year Budget for Expenditures and Staff Effort for BMPs

1. Amount actually spent during current year in expenses, hours or both.

Year	2010	Projected Expenditures (not including staff hours)	Staff Hours
BMP #	BMP Name		
1.	Utilities Operations		
	1.1 Operations Practices	\$0	0
	1.2 Water Loss Control	\$0	0
	1.3 Metering	\$0	0
	1.4 Pricing	\$0	0
2.	Education		
	2.1 Public Information Programs	\$0	0
	2.2 School Education	\$0	0

3. Residential	\$0	0
4. CII	\$0	0
5. Landscape	\$0	0
Total	<u>\$0</u>	<u>0</u>

2. *Projected budget summary for 2nd year in expenses, hours or both .*

Year <u>2011</u>		Projected Expenditures	Staff Hours
BMP #	BMP Name	(not including staff hours)	
1.	Utilities Operations		
1.1	Operations Practices	\$0	0
1.2	Water Loss Control	\$0	0
1.3	Metering	\$0	0
1.4	Pricing	\$0	0
2.	Education		
2.1	Public Information Programs	\$0	0
2.2	School Education	\$0	0
3.	Residential	\$0	0
4.	CII	\$0	0
5.	Landscape	\$0	0
	Total	\$0	0

3. *Projected budget summary for 3rd year in expenses, hours or both.*

Year <u>2012</u>		Projected Expenditures	Staff Hours
BMP #	BMP Name	(not including staff hours)	
1.	Utilities Operations		
1.1	Operations Practices	\$0	0
1.2	Pricing	\$0	0
1.3	Metering	\$0	0
1.4	Water Loss Control	\$0	0
2.	Education		
2.1	Public Information Programs	\$0	0
2.2	School Education	\$0	0
3.	Residential	\$0	0
4.	CII	\$0	0
5.	Landscape	\$0	0
	Total	\$0	0

Attachment A

District Facilities Map

Attachment B
District Soil Maps

Attachment C
District Rules and Regulations

RULES AND REGULATIONS FOR WATER DELIVERIES 2010 WATER-YEAR

1. APPLICATION FOR WATER

a. Applications for water will be accepted at the District office until 4:00 P.M., February 20, 2010, and must include the amount of District water the landowner anticipates using during the water season. **Please Note: Having a credit balance on an individual water account does not negate or diminish the need to submit an application for water; it only has bearing on the payment due at this time. NO WATER IS CARRIED OVER IN INDIVIDUAL ACCOUNTS FROM ONE YEAR TO THE NEXT – AN APPLICATION IS REQUIRED EACH AND EVERY YEAR TO SECURE WATER FOR THAT YEAR.** Minimum payment due at this time (when added to your credit balance) must cover one-half of the water reserved and the final balance will be due by June 20, 2010. Applications received and/or postmarked on or before February 20th will be accepted. Applications received or postmarked after February 20th and before March 21st will be subject to a \$20.00 per acre-foot administrative charge. Applications received or postmarked on or after March 21st, will be subject to availability and a \$20.00 per acre-foot administrative charge. No water will be delivered before it is purchased.

b. Water will not be delivered until all outstanding customer charges, including, but not limited to Standby Charges, have been paid District-wide.

c. **Unpaid or delinquent water charges and unauthorized operation or tampering with water delivery meters will cause the District to “lock-up” subject water delivery meters.** Unpaid water charges will become a lien against the landowner’s property. Interest will accrue on all delinquent accounts at the legal rate permitted by law. A \$100 administrative fee will be assessed to the Applicant to UNLOCK any delivery that has been locked-up due to delinquency, unauthorized operation or tampering with water delivery meters. Cutting chains and locks will result in an additional \$100 administrative fee (\$200 total). All water illegally used shall be purchased at \$500 per acre-foot. If the District is unable to determine how much water was illegally used through the meter, the District will estimate the amount through water orders, previous year’s water usage history, or field estimates and charge the landowner accordingly.

d. Water applications filed with the District by persons other than the property owner (lessees, renters, etc.) shall be countersigned by the property owner, authorizing the applicant to use water and assuming responsibility for any unpaid water bills.

e. If available, additional water may be purchased during the water-year without penalty provided the full allocation of 1.4 acre-feet per acre is purchased as of February 20th in accordance with Paragraph 1.a. above.

f. Taking water from the District in violation of these Rules and Regulations is a violation of law. Any landowner using District water prior to purchasing it from the District may be prosecuted for theft, and will be liable for the administrative fees and water payments described in Paragraph 1.c. above.

2. WATER-YEAR

The Water-Year shall be the period from January 1 through December 31 unless otherwise designated by the District Board of Directors. For example, a circumstance where the Water-Year may not coincide with the calendar year would be in a “dry year” which shall be effective when the federal water allocation is below 85 percent for Class One Friant Division Contractors. In this instance the Water-Year shall coincide with the United States Bureau of Reclamation’s Contract Year (March 1st to the last day of February) to ensure that the District does not allocate more water than is made available to it under its Long

Term Friant Division Contract with the United States. Water delivery may be requested at any time during the Water-Year provided water is available and the applicable provisions of Paragraph 1 are satisfied. Water rates are established annually by the Board of Directors and will apply on a Water-Year basis unless otherwise modified by the Board of Directors.

3. USE OF WATER

a. Water delivered by the District must be put toward an agricultural beneficial use within the District boundary. Caution: Water used for spraying purposes may ONLY be taken from a District delivery or other District facility provided a County-approved connection is made and maintained at all times between the District facility and the spray equipment.

b. Water usage statements will not be sent to the water user on a monthly basis (unless requested) but may be sent when less than 25% of a water user's purchased supply remains. When the water user's purchased supply is depleted, water delivery will be discontinued. Water delivery may be resumed if the water user acquires additional water by transfer(s) or additional purchases (if additional water is available). It will be the water user's responsibility, upon receiving the 25% notice, to make the necessary arrangements with the District for additional water. No other notification will be provided.

c. The ultimate disposition of water ordered, but not used or transferred by September 30th, is subject to the discretion of the District. Alternative disposition of this water may include, but is not limited to, outside exchange, transfer, or banking in accordance with Reclamation Law. The determination of an alternate disposition of unused water will be based on the projected end-of-Water-Year District use. Water deposits may be returned after September 30th unless alternative arrangements have been made with the District.

1. Dry Year Amendment: In years with less than an 85 percent Class One Friant Division supply allocation, the disposition of water ordered, but not used or transferred by January 31st (one month prior to the end of USBR contract year), is up to the discretion of the District. This determination will be based on the projected end-of-contract year District water use.

d. The Board of Directors may elect to carry unused water over (carryover) from one Water-Year to the next in accordance with Bureau of Reclamation policy. Unused water shall not be carried over into the next Water-Year on an individual landowner basis; however, unused landowner water deposits may be carried over into the next Water-Year.

4. ENTITLEMENT TO WATER

a. When the demand for water is greater than the available supply, available water will be distributed equitably among those who have filed an application in accordance with Paragraph 1 and as required by California State Water Code Section 22250 which reads in part as follows:

“All water distributed by districts for irrigation purposes shall be apportioned ratable to each landowner upon the basis or ratio which the last assessment against his land for district purposes bears to the whole sum assessed in the district.”

b. Any landowner may assign for use within the District their full allocation pursuant to Section 22250 provided the water is first purchased in accordance with Paragraph 1.

5. WATER TRANSFERS

a. Intra-district between **same entity**: A landowner having properties in two or more of the District's delivery systems (e.g. System 7 and System 11), may transfer water, without penalty, from one system to another system. The final charge for water will be based on water charges for the system in which it is used.

b. Intra-district between **different entities**: A landowner may transfer water to another landowner by filing a water transfer form with the District. The transferred water must have been purchased by the transferor prior to the transfer in accordance with Paragraph 1. The final charge for water will be based on water charges for the system **in which it is used**. The difference in cost, if any, must be paid to the District at the time of transfer. The District assumes no responsibility for collecting monies due to the transferor from the transferee. Both the transferor and the transferee must sign a water transfer form.

c. Inter-district between **same entity**: A landowner having properties in both the District and another Friant Division district (district), may transfer water from the District to the other district (inter-district). Payment for this transferred water shall be the greater of the average cost of water within the district where the water is used plus a 10% surcharge, or at the average cost of water within the District, whichever is greater.

6. WATER DELIVERY PROCEDURES

a. Orders for turn on and turn off must be scheduled with the District at least 24 hours before the service is to be provided. Also, notify the District as soon as possible when making changes or shutoffs not previously scheduled with the District. **The District's policy is to deliver water in quantities and flow rates that are economically feasible and within the operating limits of the delivery systems and flow meters. Extenuating circumstances, where it may not be economical to provide water to a particular delivery point, will be considered by the District on a case by case basis. Fulfilling orders that create the potential to harm the District's facilities will be denied.**

b. Water for the following day is ordered from the Friant Water Authority at 8:30 A.M. Monday through Friday. **Orders must be received at the District Office before 8:00 A.M to receive next day water delivery.** Sunday and Monday orders must be received before Noon the preceding Friday. Water orders may be made as follows:

DISTRICT OFFICE - Office is open for water orders 7:00 A.M. to 4:00 P.M. Monday through Friday. You may also place a water order by calling the District Office at (559) 626-4461. During non-business hours, water orders may be placed with the District's answering service. Water orders may be placed by emailing the request to dacocid@sbcglobal.net with electronic copies sent to rmocid@sbcglobal.net and rtrocid@sbcglobal.net. District receipt of orders submitted by email will be provided by an electronic response (reply) from District staff.

HOLIDAY SCHEDULE – The District office will be closed in observance of the following holidays: afternoon of New Years Eve, New Years Day, President's Day, afternoon of Good Friday, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and the day after, afternoon of Christmas Eve, and Christmas Day. Water orders for holidays and the day following a holiday shall be made by 8:00 A.M. on the business day prior to the holiday.

c. **The timing requirements shall be relaxed for the delivery of water for frost protection.** Frost water must be ordered by 1:00 P.M. to receive water for that night and the following day. For pumped systems, a notice as early as possible is desirable in case the system has to be filled. Order your water by system(s) and delivery(ies) and provide the desired flow and duration as you would for the regular irrigation season. When ordering, provide the District with your name and a telephone number where you can be reached, if possible, during the period when you intend to be taking water. Failure to take delivery of water that is ordered for frost protection can severely damage the District's pumps. Landowners that have placed

frost water orders and later decide not to take delivery must make every effort to contact District Operation's staff to avoid being liable for damage to District infrastructure.

d. Landowners will be permitted to operate their turnout provided it is operated in accordance with District procedures. Water must be used at a rate that will accurately register on the meter. Landowners shall immediately inform the District office of any maintenance required on their turnout due to normal wear, vandalism, accident, or other cause. Landowners shall be responsible for all water delivered or spilled through their turnouts.

e. A change of water from one delivery point to another on the same system will be permitted without a 24-hour notice provided that you notify the District in advance of the change to be made.

f. No person, other than a District employee unless otherwise designated, shall operate any of the District's facilities. Tampering with or changing the adjustment of any pump or valves, other than the delivery assigned for your use, is prohibited. **Any interference with facilities under the jurisdiction of the District is a criminal offense and will be prosecuted accordingly.**

7. DISTRICT LIABILITY

a. The District is not responsible for the quality of water delivered as that ability is outside of the District's jurisdiction and control. The Friant Water Authority is responsible for the operation and maintenance of the Friant-Kern Canal and from time to time they perform treatment (i.e. application of copper sulfate or other chemicals) and or maintenance (i.e. mechanical removal of invasive weeds within the system) that may result in water of variable quality. The District interfaces with the Friant Water Authority routinely and there is a concerted effort to maximize and stabilize the quality of water made available. **The water delivered by the District is not intended for human consumption.**

b. Water shortages may occur during any year which may affect the amount of water furnished to the District by the United States pursuant to the District's Central Valley Project Friant Division Water Service Contract. In no event shall any liability accrue against the District or any of its officers, agents or employees for any damages, direct or indirect, arising from a water shortage due to errors in operation, drought or unavoidable cause(s).

8. TAILWATER

a. The District is required to regulate excessive tailwater. The United States Bureau of Reclamation Water Service Contract requires the District, as a provision of its conservation plan and as a condition of continued service, ensure water is put to beneficial use. Hence, the District must regulate excessive tailwater to avoid determinations that it is wastefully or unreasonably using the water supply provided to it. If the District is required to regulate tailwater because the grower does not do so, it needlessly expends District funds without providing specific benefit to the broad group of District landowners.

b. If the District determines that a landowner has improperly used irrigation water delivered to them, or improperly prepared the ground to receive irrigation water, such that excess tailwater, in the District's opinion, is leaving the landowner's property, the District shall notify the landowner with the appropriate steps to take to ensure that excess tail water is eliminated. If the landowner does not take appropriate steps to remedy the situation, the District will reduce and/or discontinue water delivery until the problem is rectified. Alternatively, the District may, at the landowner's expense, take corrective action in order to ensure that excess tailwater does not leave the landowner's property. Landowners will be charged the full cost to the District of any services provided to restrict tailwater runoff, and payment of these charges will be required as a condition of continued service.

9. RECLAMATION REFORM ACT OF 1982 (RRA)

The District is subject to the discretionary provisions of the Reclamation Reform Act of 1982 (RRA). If you own, lease, rent or have an interest in land "West wide" (17 Western States), that totals more than two hundred forty (240) acres (40 acres for Limited Recipients) you must certify your landholdings to the District each year before water can be delivered to your property. This includes land that lies within a water or irrigation district other than the District, that is subject to the discretionary provisions of the RRA. The certification of your landholdings is due in the District office by March 1st each year. If your landholdings have not changed during the period of your last certification, you need complete only the verification form. **If your landholdings have changed, you have 30 days from the date of change to report those changes to the District.** Assistance in completing the RRA forms and answering any questions you may have is achievable by calling or stopping-by the District office. Your water application may indicate whether or not you are required to submit the RRA forms. **It is the responsibility of the landowner, not the District, to provide the proper landholder forms. Failure to provide the proper landholder forms prior to the use of District water will result in an administrative fine to the landholder as determined by the United States Bureau of Reclamation.**

Attachment D
District Sample Bill

Attachment E
Ground Water Management Plan

Attachment F
Notice of District Education Program and Services Available to Customers

Attachment G
District Agriculture Water Order Form

Attachment H
Meter Maintenance Schedule

Attachment I
Friant-Kern Canal Water Analyses

Attachment J
Friant Water Authority Water Line