Updated Integrated Regional Water Management Plan Report

May 2008

Appendix C: Public Outreach Information

WESTERN MUNICIPAL WATER DISTRICT

Prepared for:

Western Municipal Water District

Kennedy/Jenks Consultants
Engineers & Scientists

Appendix C

Stakeholder Information

- Stakeholder List
- Stakeholder Sign-In Sheet (example)
- Stakeholder Correspondence Record

WMWD Integrated Regional Water Management Plan
Stakeholders Contact Information

WMWD Member Agency

Primary contact	Alt Contact	Organization:	Email:	Alt e-mail	Office:	Cell:	Fax:	Address	City	Zip
Board President:Joe Heeter	Bruce Gottschalk, Office Manager	Box Springs Mutual Water Company	bsmwc@hotmail.com	bsmwc@hotmail.com	(951) 653-6419		(951) 653-3361	21740 Dracae Ave.	Moreno Valley	92553
GM:Jonathan Daly	West Curry, Operations Manager	City of Corona	jonathan.daly@ci.corona.ca.us	west.curry@ci.corona.ca.us	Jonathan: 951-736-2477 West: 951-736-2479	Jonathan: 951-830-1454 West: 951-830-4044	(951) 739-4909	400 S. Vicentia Avenue	Corona	92882
Asst. GM: Kerry Eden		City of Corona	kerry.eden@ci.corona.ca.us		(951) 817-5740	(951) 453-0584	(951) 817-5877	400 S. Vicentia Avenue	Corona	92882
	Consultant: Gary Hobson	City of Corona	ghobson@akmce.com							
Tom White		City of Corona								
President: Mike Lanni		Eagle Valley MWC	jmlanni@yahoo.com		(949) 759-0505			7177 Brockton #222	Riverside	92506
GM: Ron Young	Dir of Engr: Phil Miller	EVMWD (includes Temescal Water District)	ryoung@evmwd.com	philmiller@evmwd.com	(951) 674-3146		(951) 674-9872	31315 Chaney Street	Lake Elsinore	92531
	Rob Whipple	EVMWD (includes Temescal Water District)		rwhipple@evmwd.net						
Interim GM: Tammy Ramirez		Elsinore Water District	tramirezewd@verizon.net		(951) 674-2168		(951) 674-5429	Mail: PO Box 1019 Street: 16899 Lakeshore Dr.	Lake Elsinore	Mail: 92531-
	Deborah or Norm at Corbin Willets	Elsinore Water District's Billing			(510) 979-5600					
GM: Karl Schalow		Home Gardens County WD	hgcwd@yahoo.com	hgcwd@pcmagic.net	(951) 737-4741	(951) 733-9894	(951) 737-9478	3832 North Grant Street	Corona	92879
GM: Eldon Horst		Jurupa CSD	ehorst@jcsd.us	jsaba@jcsd.us	(951) 727-3527		(951) 727-3501	11201 Harrel Street	Mira Loma	91752
Admin manager: Cheryl Russel		Jurupa CSD	crussell@jcsd.us		(951) 685-7434		(951) 685-1153			
		Jurupa CSD	Ric Welch	rwelch@jcsd.us	(951) 685-7434					
		Jurupa CSD	Umesh Shah	ushah@jcsd.us	(951) 685-7434		(951) 727-3503			
	Robert Tock	Jurupa CSD		rtock@jcsd.us						
	Michelle Lauffer	Jurupa CSD		mlauffer@jcsd.us	(951) 685-7434-ext 145		(951) 727-3503			
District Manager: Jeff Pape	Finance Manager: Mel McCullough	Lee Lake Water District	jeffp@llwd.org	melm@llwd.org	(951) 277-1414		(951) 227-1419	22646 Temescal Canyon Road	Corona	92883
Public Works Dir: Bill Thompson	City Manager: Jeff Allred	City of Norco	bthompson@ci.norco.ca.us		(951)-270-5607/270-5601	951-545-7893	(951) 270-5622	2870 Clark Avenue. Office: 1281 Fifth St.	Norco	92860
Dir of Utilities: Dave Wright	Asst Dir - Water: Kevin Milligan	City of Riverside	kmilligan@riversideca.gov	dwright@riversideca.gov	(951) 826-5475; D. Wright: x5784		(951) 369-0548	3900 Main Street	Riverside	92522
	Blake yamamoto	City of Riverside		byamamoto@riversideca.gov	(951) 826-5549					
	Gary Nolff	City of Riverside								
	Oscar Khoury	City of Riverside	okhoury@riversideca.gov		(951) 826-5793		(951) 826-2498	3901 Orange St.	Riverside	92501
	Max Rasouli	City of Riverside	mrasouli@riversideca.gov		(951) 826-5574		(951) 826-2074	3901 Orange St.	Riverside	92501
GM: Brian Brady;	Finance Administrator:Perry Louck	Rancho California Water District	bradyb@ranchowater.com	louckp@ranchowater.com	(951) 296-6900		(951) 296-6860 - Admin	P.O. Box 9017	Temecula	92589
	Corey Wallace	Rancho California Water District		WallaceC@ranchowater.com						

WMWD Integrated Regional Water Management Plan
Stakeholders Contact Information

	Primary contact	Alt Contact	Organization:	Email:	Alt e-mail	Office:	Cell:	Fax:	Address	City	Zip
		Tim Barr	Rancho California Water District	barrt@ranchowater.com							
	GM: Don Hough		Riverside Highlands MWC	dhough@rhwco.com		(909) 825-4128		(909) 825-1715	Mail: 1450 E Washington St.	Colton	92324
	GM: David D. Lopez		Rubidoux CSD	dave@rcsd.org		951-684-7580		951-369-4061	3590 Rubidoux Blvd	Rubidoux	92509
		Steve Appel	Rubidoux CSD	steve@rcsd.org							
	GM: Arnold Rodriquez		Santa Ana River Water Company	jarodriquez@sarwc.com	jarodriquez@sarwc.com	909-685-6503			10530 54th St	Mira Loma	91752
		Jackie (billing)	Santa Ana River Water Company								
SAWPA Pillar	Water Supply Reliability Chair: Bob Tincher		SBVMWD	bobt@sbvmwd.com		(909) 387-9215	(909) 226-2812	(909) 387-9247	P.O. Box 5906	San Bernardino	92412-5906
	Water Quality Improvement Chair:		OCWD	gwoodside@ocwd.com		(714) 378-3275			P.O. Box 8300	Fountain Valley	92728-8300
	Flood Control and Stormwater Runoff Chair:		Orange Co. PFRD	Larry.McKenney@pfrd.ocgov.com		(714) 834-5067			P.O. Box 4048	Santa Ana	92702
	Water Recycling Chair: Behrooz Mortazavi		EMWD	mortazavib@emwd.org		(951) 928-3777		(951) 928-6177	P.O. Box 8300	Perris	92572
	Christie Crother	Karl Ribber (GIS) ext 4508	EMWD	crotherc@emwd.org		(951) 928-3777		(951) 928-6120	PO Box 8300	Perris	92572
	Environmental Enhancement and Habitat Chair: Norris Brandt		EVMWD	nbrandt@evmwd.net		951-674-3146 x8359		(951) 674-9872	31315 Chaney Street	Lake Elsinore	92531
			IRWD	jones@irwd.com		949-459-5590		949-459-1228	P.O. Box 57000	Irvine	92618
			IRWD	bonkowsl@irwd.com							
	Water Conservation Chair: Tedi Jackson		WMWD	tjackson@wmwd.com		(951) 789-5055	(951) 809-5942	(951) 780-3837	450 Alessandro Blvd.	Riverside	92508
	Climate Change Chair: Martha Davis		IEUA	mdavis@ieua.org		(909) 357-0241	(951) 809-4544	(951) 809-4544	6075 Kimball Ave.	Chino	91708
	Land Use Chair: Susan Lien Longville		CSUSB,WRI	slongvil@csusb.edu		(909) 537-7684	(909) 772-0843	(909) 537-7682	5500, University Parkway	San Bernardino	92407
	Environmental Justice Chair: Penny Newman		Center for Comm Action & Env	penny.n@ccaej.org		(951) 360-8451			PO Box 33124	Riverside	92519
	Parks, Recreation, and Open Space Chair: Paul Frandsen		Riv Co Park and Open Space District	pfrandsen@co.riverside.ca.us		(951) 955-4398			4600 Crestmore Road	Riverside	92509
SAWPA	Planning Manager: Mark Norton		SAWPA	mnorton@sawpa.org		951-354-4221			11615 Sterling Avenue	Riverside	
	Watershed Planner: Rick Whetsel		SAWPA	rwhetsel@sawpa.org		(951) 354-4222					
	Jeff Beehler		SAWPA	jbeehler@sawpa.org		951-354-4239					
	GM: Dusty Williams		Riverside County Flood Control and Water Conservation	dustyw@co.riverside.ca.us		(951) 955-1250		(951) 788-9965	1995 Market St	Riverside	92501

WMWD Integrated Regional Water Management Plan
Stakeholders Contact Information

	Primary contact	Alt Contact	Organization:	Email:	Alt e-mail	Office:	Cell:	Fax:	Address	City	Zip
Other Agencies/Organizations		Asst Chief Engr: Stephen C. Thomas	Riverside County Flood Control and Water Conservation		scthomas@co.riverside.ca.us	(951) 955-1250		(951) 788-9965	1995 Market St	Riverside	92501
		Associate CE: Thomas M. Rheiner	Riverside County Flood Control and Water Conservation	tmrheiner@co.riverside.ca.us		(951) 955-2349		(951) 788-9965	1995 Market St	Riverside	92501
	GM: Shelli Lamb	Irrigation Specialist: Kerwin Russell	Riverside-Corona Resource Conservation	lamb@rcrcd.com		951-683-7691 x202		(951) 683-3814	4500 Glenwood Drive	Riverside	92501
	Executive Officer: Gerald Thibeault		Regional Water Quality Control Board	gthibeault@waterboards.ca.gov		951-782-4130		951-781-6286	3737 Main St, suite 500	Riverside	92501
	Cindy Li		Regional Water Quality Control Board	cli@waterboards.ca.gov		951-782-4906					
	Hope Smythe		Regional Water Quality Control Board								
	Dir. Of Water Res. Mang: Ralph Phraner		EMWD	phranerr@emwd.org		(951) 928-3777		(951) 928-6120	PO Box 8300	Perris	92572
	John Wuerth		EMWD	wuerthj@emwd.org							
	Al Javier		EMWD	javiera@emwd.org							
	Hossein Juybari		EMWD								
	Jim Lee		EMWD								
	Ron Baxter		Riverside County Parks	rbaxter@co.riverside.ca.us							
	Heather Collins		CA DPH	heather.collins@CDPH.ca.gov		909-383-4327					
	Kurt Souza		CA DPH	kurt.souza@cdph.ca.gov							

Western Municipal Water District

Integrated Regional Water Management Plan Update
Meeting Attendance

	Organization		Attended Meeting							Check if Identified Individual	Name of Alternate Representative (Print)	Title (alt rep.) (ie. Chair, Director…)	Please Provide Email (if Alternate Representive)
			#1 1/31/08	#2 2/14/08	#3 2/28/08	#4 3/13/08	#5 3/27/08	#6 4/24/08	#7 5/8/08				
WWWD Member Agency	Water Resources Manager: Jack Safely	WMWD	✓	✓	✓	✓	✓						
	Senior Water Resources Engineer: Fakhri Manghi	WMWD	✓	✓	✓	✓	✓						
	Pam Pavela	WMWD		✓				✓					
	Board President: Joe Heeter	Box Springs Mutual Water Company											
	GM: Jonathan Daly	City of Corona	✓	✓									
	West Curry	City of Corona	✓										
	Kerry Eden	City of Corona	✓	✓									
	Gary Hobson	City of Corona				✓	✓	✓					
	Tom White	City of Corona							✓				
	President: Mike Lanni	Eagle Valley MWC											
	GM: Ron Young	EVMWD (includes Temescal Water District)											
	Phil Miller	EVMWD (includes Temescal Water District)	✓	✓	✓	✓		✓	✓				
	Rob Whipple	EVMWD (includes Temescal Water District)		✓				✓					
	GM: Sharon Sweesy	Elsinore Water District											
	GM: Karl Schalow	Home Gardens County WD											
	GM: Eldon Horst	Jurupa CSD	✓	✓			✓	✓					
	Cheryl Russel	Jurupa CSD		✓				✓					
	Umesh Shah	Jurupa CSD			✓								
	Robert Tock	Jurupa CSD				✓			✓				
	District Manager: Jeff Pape	Lee Lake Water District	✓										
		Mira Loma Space Agency											
	Public Works Dir: Bill Thompson	City of Norco											
	Dir of Utilities: Dave Wright	City of Riverside	✓										
	Blake Yamamoto	City of Riverside		✓	✓	✓	✓	✓	✓				
	Kevin Milligan	City of Riverside	✓										
	Gary Nolff	City of Riverside	✓	✓									
	Oscar Khoury	City of Riverside	✓										
	Max Rasouli	City of Riverside	✓	✓		✓							
	GM: Brian Brady	Rancho California Water District											
	Perry Louck	Rancho California Water District											
	Tim Barr	Rancho California Water District	✓		✓								
	GM: Don Hough	Riverside Highlands MWC											
	GM: David D. Lopez	Rubidoux CSD	✓	✓	✓			✓					
	Steve Appel	Rubidoux CSD	✓			✓	✓						
	GM: Arnold Rodriguez	Santa Ana River Water Company											

Western Municipal Water District

Integrated Regional Water Management Plan Update
Meeting Attendance

	Organization		Attended Meeting							Check if Identified Individual	Name of Alternate Representative (Print)	Title (alt rep.) (ie. Chair, Director…)	Please Provide Email (if Alternate Representive)
			#1 1/31/08	#2 2/14/08	#3 2/28/08	#4 3/13/08	#5 3/27/08	#6 4/24/08	#7 5/8/08				
SAWPA Pillar	Chair: Bob Tincher; SBVMWD	Water Supply Reliability											
	Chair: Greg Woodside; OCWD	Water Quality Improvement	✓	✓	✓								
	Chair: Larry McKenney; OC PFRD	Flood Control/Stormwater Runoff											
	Chair: Behrooz Mortazavi; EMWD	Water Recycling											
	Ralph Phraner	EMWD	✓			✓							
	Christie Crathy	EMWD	✓										
	Hossein Juybari	EMWD						✓					
	Jim Lee	EMWD						✓					
	Chair: Norris Brandt; IRWD	Environmental Enhancement and Habitat											
	Chair: Tedi Jackson; WMWD	Water Conservation	✓	✓									
	Chair: Martha Davis; IEUA	Climate Change											
	Chair: Susan Lien Longville; CSUSB, WRI	Land Use					✓						
	Chair: Penny Newman; Center for Comm Action and Env	Environmental Justice											
	Chair: Paul Frandsen: Riv Co Park and Open Space District	Parks, Recreation, Open Space											
SAWPA	Mark Norton	SAWPA				✓							
	Jeff Beehler	SAWPA	✓										
	Rick Whetsel	SAWPA	✓										
Other Agencies/Groups	Elizabeth Lovsted	EMWD						✓					
	Al Javier	EMWD							✓				
	John Wuerth	EMWD							✓				
	GM: Dusty Williams	Riverside County Flood Control and Water Conservation District											
	Asst. Chief Eng: Steve Thomas	Riverside County Flood Control and Water Conservation District	✓										
	Thomas Rheiner	Riverside County Flood Control and Water Conservation District			✓	✓	✓	✓	✓				
	GM: Shelli Lamb	Riverside-Corona Resource Conservation District		✓									
	Kerwin Russel	Riverside-Corona Resource Conservation District		✓									
	Executive Officer: Gerald Thibeault	Regional Water Quality Control Board	✓										
	Cindi Li	Regional Water Quality Control Board	✓						✓				
	Hope Smythe	Regional Water Quality Control Board							✓				
	Ron Baxter	Riverside County Parks		✓	✓								
	Heather Collins	CDPH							✓				
	Kurt Souza	CDPH							✓				
	Ming-Chin Jeng	DCSE					✓						
	John O'Donnell												
	Mark Beekler				✓								

	Contact Record	WMWD Member Agency															
		Box Springs Mutual Water Company	City of Corona	Eagle Valley MWC	EVMWD (includes Temescal Water	Elsinore Water District	Home Gardens County WD	Jurupa CSD	Lee Lake Water District	Mira Loma Space Agency	City of Norco	City of Riverside	Rancho California Water District	Riverside Highlands MWC	Rubidoux CSD	Santa Ana River Water Company	WMWD
	Date	1/23/2008	1/23/2008	1/23/2008	1/23/2008	2/12/2008	1/23/2008	1/23/2008	1/23/2008		1/23/2008	1/23/2008	1/23/2008	1/23/2008	1/23/2008		4/4/2008
	Name	Bruce Gottschalk (OM)	Jonathan Daly	Mike Lanni (President)	Ron Young	Tammy Ramirez (Interim GM)	Karl Schalow (GM)	Eldon Horst	Jeff Pape		Bill Thompons and Jeff Allred City Manager	Dave Wright Public Utiltiies Director	Brian Brady	Dan Hough , GM	David Lopez		Jack Safely and Fakhri Manghi
1	Method	Letter	Letter	Letter	Letter	call	Letter	Letter	Letter		Letter	Letter	Letter	Letter	Letter		email
	Description	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	Initial contact, updated contact info and very briefly informed about IRWMP update effort.	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP		from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP	from John Rossi requesting assistance on IRWMP Update and WUEMP		Sent project forms for all projects EXCEPT W-6, W-15, and RC Feeder projects
	Date	fax: 2/6/2008; fedex2/7/2008	2/7/2008	2/7/2008	2/7/2008	2/20/2008	fax: 2/6/2008; fedex2/7/2008		2/7/2008		fax: 2/6/2008; fedex2/7/2008	2/7/2008	2/7/2008	2/19/2008	2/7/2008	2/19/2008	
	Name	Bruce Gottschalk (OM)	Jonathan Daly, West Curry, Kerry Eden	Mike Lanni (President)	Ryan Huston, Phil Miller	Tammy Ramirez (Interim GM)	Karl Schalow (GM)	Eldon Horst	Jeff Pape		Bill Thompson (PW director)	Dave Wright, kevin Millian, Oscar Khoury, max Rasouli	Tim Barr	Don Hough	David Lopez, Steve Appel	Arnold Rodriguez	
2	Method	fedex	email	mail	email	call	fedex	call	email		fedex	email	email	call	email	call	
	Description	letter to agencies missing 1/31/08 meeting	Sent project solicitation form	letter to agencies missing 1/31/08 meeting	Sent project solicitation form	Sent materials from meeting #1 and agenda fr Meeting #2. Scheduled outreach meeting for 2/26/08 2pm.	letter to agencies missing 1/31/08 meeting	set appointment for meeting 2/13/08 1030am	Sent project solicitation form		letter to agencies missing 1/31/08 meeting	Sent project solicitation form	Sent project solicitation form	Discussed IRWMP update. Agency not particularly interested in discussing projects for incorporation because RHMWC is able to meet water supply funding needs through developer	Sent project solicitation form	Setup outreach appointment for 2/26/08 to discuss IRWMP/projects. Emailed kickoff meeting materials and project solicitation form.	
	Date	2/20/2008	2/7/2008	2/19/2008	2/6/2008	2/21/2008	2/7/2008	2/7/2008	2/7/2008		2/19/2008	2/6/2008	2/6/2008	2/21/2008	2/6/2008	3/5/2008	
	Name	Bruce Gottschalk (OM)	Kerry Eden	Mike Lanni (President)	Rob Whipple	Tammy Ramirez (Interim GM)	Karl Schalow (GM)	Eldon Horst	Jeff Pape		Bill Thompson (PW director)	Max Rasouli	Tim Barr	Don Hough	Steve Appel	Jacqui	
3	Method	Mail	Phone	email	Phone	Mail	call	email	Phone		email	Phone	Phone	Mail	Phone	Phone	
	Description	letter + 2/14 packet and 2/28 agenda	Discussed WUEMP data request. She advised that they could get data in 1.5 weeks	Follow up on package sent 2/7/08 and request for appointment to discuss IRWMP.	Discussed the data request and he advised that getting data shouldn't be a problem.	letter + 2/14 BMP/legistlation and WUE Info request	Set appointment for meeting 2/13/08 2pm	Sent project solicitation form	Follow up regarding WUEMP data request. Jeff will pass onto office manager		Follow up on package sent 2/7/08 and request for appointment to discuss IRWMP.	Follow up on WUEMP data request. Max advised that he hadn't yet looked at it but would do so now.	Left message/reminder regarding data request and asked for a return call	letter + 2/14 packet and 2/28 agenda and WUEMP data request	Left follow up message for WUEMP data request and asked for a return call	Follow up call, she is starting to work on it but is waiting for internal database assistance	
	Date	2/26/2008	2/26/2008	2/20/2008	3/4/2008	3/20/2008	2/13/2008	2/13/2008	3/4/2008		2/21/2008	3/4/2008	2/19/2008		2/19/2008	3/18/2008	
	Name	Bruce Gottschalk (OM)	Robert Johnston	Mike Lanni (President)	Rob Whipple	Tammy Ramirez (Interim GM)	Karl Schalow (GM)	Eldon Horst, Cheryl Russell, Sharon Clark, Ric Welch, Robert XX, Tina Norden	Alison (Office Manager)		Bill Thompson (PW director)	Max Rasouli	Tim Barr		Steve Appel	Jacqui	
4	Method	Phonecall to Nick P	Phone	Mail	Phone	email	site visit	site visit	Phone		Mail	Phone	Phone		Phone	Phone	
	Description	Meter data is all hard copy.	Follow up call to Robert Johnston who advised that they would get data to us ASAP	letter + 2/14 packet and 2/28 agenda	Left follow up message	Sent EW-1 project info form for revision/review.	meeting		Had started yet. Will try to look at it next week.		letter + 2/14 packet and 2/28 agenda. Scheduled outreach meeting for 9am 2/28/08	Few new developments as service area built out. Future grant application to convert nurseries to RW.	Left another message regarding progress of data request		Left another message enquiring about progress of data request.	Follow up call, she is making slow progress but will still attempt to get us something	
	Date		3/11/2008		3/5/2008	5/14/2008	2/14/2008	3/11/2008	3/11/2008		2/28/2008	3/10/2008	2/2?/2008		3/4/2008		
	Name		Jonathan Daly		Rob Whipple	Tammy Ramirez (Interim GM)	Karl Schalow (GM)	Eldon, Robert, Umesh, Michelle Lauffer	Jeff Pape		Bill Thompson (PW director)	Clay Monroe	Tim Barr		Steve Appel		
5	Method		Phone		Phone	email	email/fax	email	Phone		email	Phone	Phone		Phone/email		
	Description		Inquire about project info form status. Left voicemail		He is about to provide come of the data, the rate structure and historical no of accounts will take another week or so.	Submitted draft IRWMP comments	meeting follow-up and request documents for projects and WUEMP	Sent project info forms J1-J7 for JCSD review.	Inquire about project info form status. Left voicemail		Request for 2005 UWMP and 2005 WMP	Database is limited in ability to dump data. He will try to provide data for res customers.	Tim advised that they are now looking at the data request		Left another message and also sent an email enquiring about progress of data request.		
	Date		3/18/2008				2/21/2008	5/14/2008			2/29/2008	5/19/2008	3/4/2008		3/5/2008		
	Name		Robert Johnston				Karl Schalow (GM)	Eldon Horst			Bill Thompson (PW director)	Oscar Khoury	Tim Barr		Steve Appel		
6	Method		Phone				Mail	Phone			email	Phone	Phone		Phone /email		
	Description		Left voicemail advising that meter data was urgently needed				letter + 2/14 packet and 2/28 agenda	Left VM about draft IRWMP comments			Clarified meter data request with more specific instructions	Asked for draft IRWMP comments. Will not get comments for at least a few days (still reviewing)	Left follow up message for WUEMP data request		Sent electronic version of data request in response to voicemail		
	Date		5/19/2008				3/18/2008				3/24/2008		3/11/2008		3/11/2008		
	Name		Gary Hobson				Karl Schalow (GM)				Bill Thompson (PW director)		Tim Barr		David Lopez		
7	Method		Phone				Phone				email		Phone		Phone		
	Description		Left VM about IRWMP comments and final project info forms.				Follow up on WUEMP data request. His databse guy is the same as Jurupas, he is going to contact him now.				Sent draft project info forms N-1 and N-2 for review.		Inquire about project info form status. Tim indicated that he may have some but want to talk to Jack Safely about topic first.		Inquire about project info form status. Left voicemail.		

Contact Record		WMWD Member Agency														
		Box Springs Mutual Water Company	City of Corona	Eagle Valley MWC	EVMWD (includes Temescal Water	Elsinore Water District	Home Gardens County WD	Jurupa CSD	Lee Lake Water District	Mira Loma Space Agency	City of Norco	City of Riverside	Rancho California Water District	Riverside Highlands MWC	Rubidoux CSD	Santa Ana River Water Company	WMWD
8	Date		5/19/2008				3/20/2008						5/19/2008		5/14/2008		
	Name		Jonathan Daly				Karl Schalow (GM)						Tim Barr		Steve Appel		
	Method		Phone				email						Phone		email		
	Description		Left VM about IRWMP comments and final project info forms				Sent HG-1 project info form for review						Asked for draft IRWMP comments. Will check with Barry Lovck		Submitted draft IRWMP comments		
9	Date						3/13/2008										
	Name						Karl Schalow (GM)										
	Method						Phone										
	Description						Submitted draft IRWMP comments										
10	Date																
	Name																
	Method																
	Description																
11	Date																
	Name																
	Method																
	Description																
12	Date																
	Name																
	Method																
	Description																
13	Date																
	Name																
	Method																
	Description																

Appendix C

Stakeholder Meeting Matgerials

- Meeting Schedule
- Meeting Agenda’s & Presentation Materials

WMWD IRWMP Meeting Schedule

Date	Time	Type	Topic
Thursday, January 31, 2008	1:30pm	Meeting	Kick-off incl Project Solicitation (from SAWPA?), Integration into OWOW, Disadvantaged Community Outreach, and WUEMP Info Request
Thursday, February 14, 2008	9am	eleconference/Livemeetin	Water and Environmental Restoration
Thursday, February 28, 2008	1pm	Meeting	SCAG or Western Riverside Council of Government, land-use projection discussion and how it might impact water demand
Thursday, March 13, 2008	1pm	eleconference/Livemeetin	Regional RW Planning
Thursday, March 27, 2008	1pm	Meeting	Supply Reliability
Thursday, April 10, 2008	1pm	eleconference/Livemeetin	Prop 84 and Impacts to IRWMP
Thursday, April 24, 2008	1pm	Meeting	Presentation of Proposed Regional Project Concepts/draft IRWMP Update and WUEMP?
late May		Meeting	Adoption of Plan

Integrated Regional Water Management Plan Update
Kickoff Meeting
Thursday 31 January 2008
1:30 – 4:00 ±
SAWPA Board Room – 11615 Sterling Avenue, Riverside, CA 951-354-4220

1. Welcome and Introductions (10 min)– WMWD & Kennedy/Jenks Consultants
2. Coordination with SAWPA's One Water, One Watershed effort (15 min) - SAWPA
3. WMWD IRWMP Goals and Objectives (10 min) - WMWD
4. Disadvantaged Community Outreach (15 min)- Kennedy/Jenks Consultants
5. Project solicitation for inclusion in the IRWMP Update and Member Agency Water Planning Activities Status Report (60 min) –WMWD, Kennedy/Jenks Consultants and Member Agencies
6. Overview of Preliminary Topics for Follow-up Meetings/Conference Calls– Kennedy/Jenks Consultants (15 min)
    a. 2/14/08 –Livemeeting/Conference call (meeting optional): Project Development and Water and Environmental Restoration (Possible WUEMP Kick-off)
    b. 2/28/08 – Meeting: Regional RW Planning
    c. 3/13/08 – Livemeeting/Conference call (meeting optional): Future Land-Use Projections and Impacts on Water – Present WMWD Land-Use based water demand projections
    d. 3/27/08 – Meeting: Supply Reliability of Proposed Projects
    e. 4/10/08 - Livemeeting/Conference call (meeting optional): IRWMP Implementation and Funding (e.g. Prop 84/1E)
    f. 4/24/08 – Meeting: Presentation of Regional Project Concepts/draft IRWMP Update
7. Other related activities
    a. Outline of Water Use Efficiency Master Plan – Kennedy/Jenks Consultants (5 min)

Western Municipal Water District

Integrated Regional Water Management Plan (IRWMP) Update

Stakeholder Kick-off Meeting

Jack Safely, WMWD
Sachi Itagaki, Kennedy/Jenks Consultants
January 31, 2008

Agenda

- Welcome and Introductions
- Coordination with SAWPA One Water, One Watershed Effort
- WMWD IRWMP Goals and Objectives
- Disadvantaged Community Outreach
- Project Solicitation
- Overview of Follow-up Meetings/Conference Calls
- Other Related Activities – Water Use Efficiency Master Plan

Welcome and Introductions

- Member Agencies
- SAWPA Pillar leaders
- Other Stakeholders

Coordination with SAWPA One Water, One Watershed Effort

- By SAWPA staff

One Water One Watershed: Responding to a Crisis

Project Update- January, 2008

SAWPA Commission

Four Horsemen of the Apocalypse

Climate Change

Reduced Water from Delta

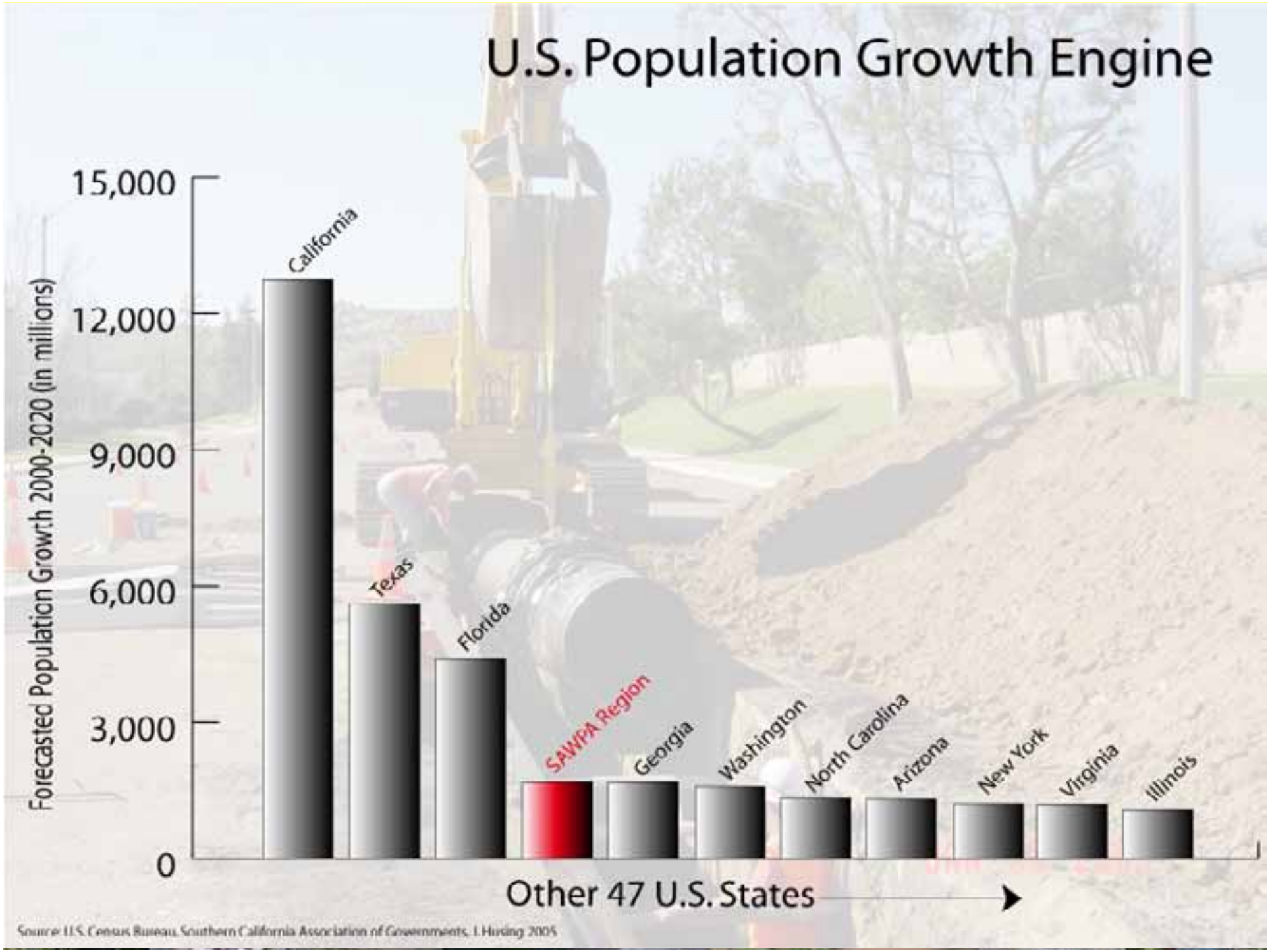
Colorado River Basin Drought

Explosive Development & Population growth

The Apocalypse is Regional

- Regional problems are addressed with regional solutions
- Water problems are interconnected with “other” problems
- We can leverage expertise and resources

“When the tide goes out, you find out who is swimming nude”- Warren Buffet


U.S. Population Growth Engine
Forecasted Population Growth 2000-2020 (in millions)
15,000
12,000
9,000
6,000
3,000
0
California
Texas
Florida
SAWPA Region
Georgia
Washington
North Carolina
Arizona
New York
Virginia
Illinois
Other 47 U.S. States
Source: U.S. Census Bureau, Southern California Association of Governments, J. Harding 2005

Vision

A sustainable Santa Ana Watershed is drought-proofed, salt balanced, and supports economic and environmental vitality in the year 2030

Value of the Process

- Prioritizes watershed scale problem solving
- Capitalizes on existing excellent expertise
- Focus on water as economic development issue

OWOW Steering Committee

Ron Sullivan – SAWPA Chair

Wyatt Troxel – SAWPA Vice Chair

Marion Ashley – Riverside Co.

Bill Campbell - Orange Co.

Josie Gonzales - San Bernardino Co.

Garry Brown

Ali Sahabi

Ron Loveridge - City of Riverside

Pat Morris – City of San Bernardino

Beth Krom – City of Irvine

One Water One Watershed

Integration of Planning Pillars

- Water Supply Reliability
- Water Quality Improvement
- Flood Control and Stormwater Runoff
- Water Recycling
- Environmental Enhancement and Habitat
- Parks, Recreation, Open Space, Trails

Additions for One Water One Watershed

- Water Use Efficiency *New!*
- Climate Change *New!*
- Environmental Justice *New!*
- Land Use *New!*

Prop 84 Program: Incentive for Collaboration

Safe Drinking Water and Water Quality

$114 Million for Santa Ana Region

DWR Expectation of Regional Collaboration

Propositions 84, 1E, 1C

- $275 M for flood control projects
- $45 M for Santa Ana River Parkway 3 counties
- $25 M for stream and river restoration
- $90 M for stormwater pollution prevention
- $135 M for threatened species habitat restoration
- $90 M for beaches, bays, and coastal waters
- $90 M for water conservation, water quality

Prop 1C includes $850 M for water, sewer, parks

Prop 1E includes $290 M for flood control

Where Are We Now?

- Nearing Completion
  - Data collection
  - Current conditions
  - Problem identification
- Next Up
  - Objective and sub-objectives to Steering Committee
  - Opportunities for collaboration
  - Barriers and constraints

Where Are We Now?

- Later this Spring
  - Integration of pillars and strategies
    - "normal science" vs. "paradigm shift"
  - Call for projects and project selection for Prop. 84

Where Are We Now?

- Emerging relationships with land use community
- Strengthening ties with flood control agencies
- Storm flow as a resource
- Value of conservation as source of “new” water
- Recycling as efficient source of new water

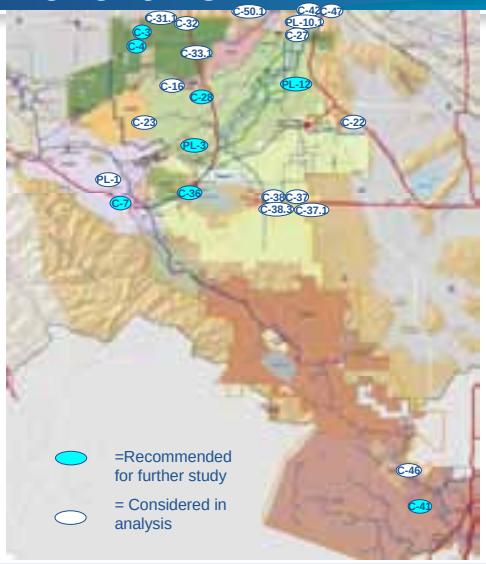
Steering Committee Input

- Economic benefit of water also a cost to business and rate payers
- Mandatory conservation/ variable pricing
- Development of water ethic
- Environmental corridor values of riparian habitat
- Dialogue between pillars must continue
- Complexity of problems and solutions

WMWD IRWMP Goals and Objectives

- Identify and evaluate water supply portfolios on a regional basis that:
  - Provide water supply reliability during droughts as well as short-term outages
  - Address regional surface water and groundwater quality concerns
  - Provide operational flexibility
- Provide an ongoing process to evaluate and compare water resource projects and portfolios
- Provide a basis for grant funding application
- Incorporate water use efficiency in planning efforts

High Priority Projects with Regional Benefit from WMWD IRWMP

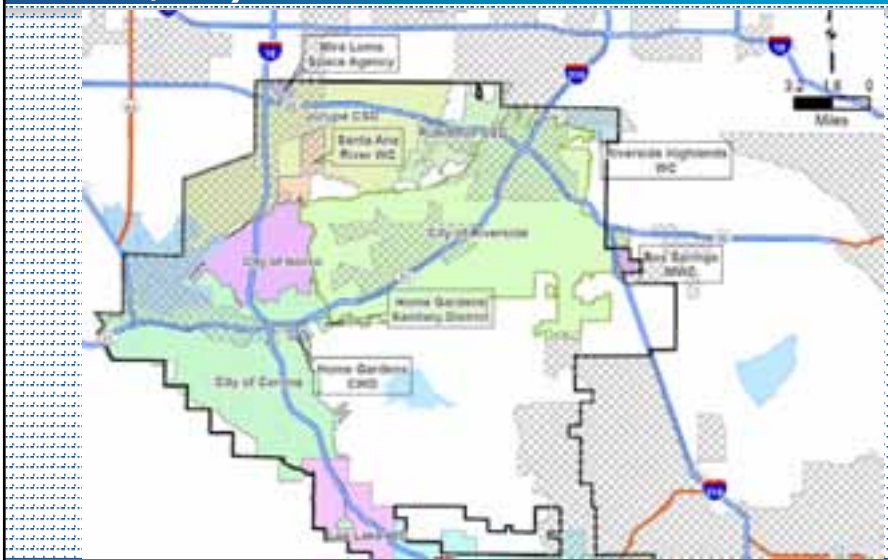


- C-3 Chino II Ultimate Expansion from 14 – 18 mgd
- C-4 Chino III Desalter
- C-7 Corona – El Sobrante GW Treatment Project
- C-28 -Riverside- GW Basin South Additional Supply
- C-36 Eagle Valley WTP
- C-41-RCWD – Hybrid 1 Alternative
- PL-3 Arlington Desalter Expansion of 3.6 MGD
- PL-12 Riverside/Corona Feeder

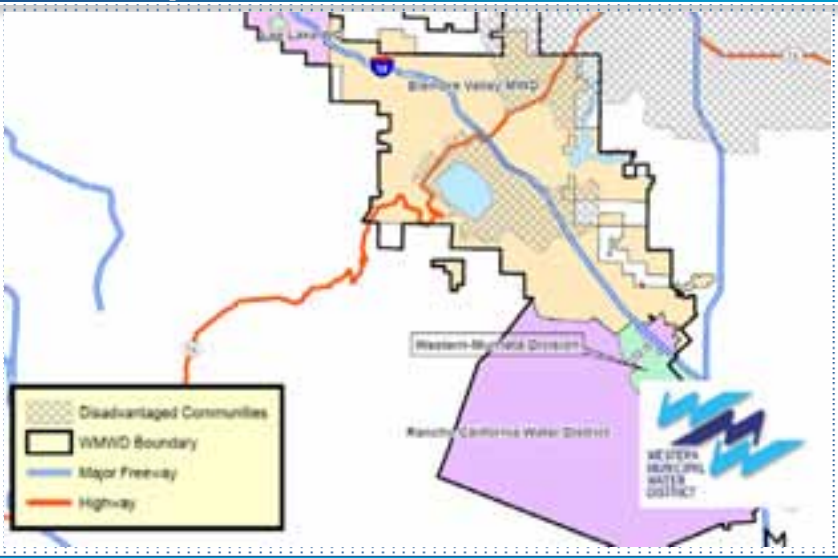
Disadvantaged Community Outreach

- State has been challenged with outreach into disadvantaged communities
- State defines disadvantaged as:
  - Annual MHI < 80% of statewide annual MHI
  - E.g. For Census 2000 data 80% of MHI = $37,994
  - For 2003, 80% of MHI = $38,752.
- Disadvantaged areas within WMWD service area have been identified

Disadvantaged Areas (i.e. MHI <$37,994) - North



Disadvantaged Areas (i.e. MHI <$37,994) - South



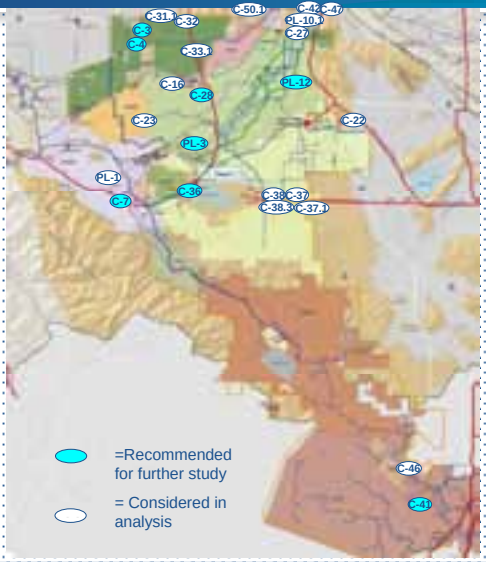
Next Steps – Disadvantaged Communities

- Make more contact with entities/agencies
- Identify water supply/water quality needs
- Assist with project conceptualization and development (e.g. complete project solicitation form) especially if a project with more than one agency can be developed

Project Solicitation

- **Avoid duplication of prior efforts –**
  - **SAWPA 2005 IRWMP**
  - **WMWD IRWMP**
  - **SBVMWD IRWMP**
- **Update progress on projects previously identified**
- **Include updates from current water planning efforts**
- **Identify opportunities to expand projects for multiple benefits/synergies**

High Priority Projects with Regional Benefit from WMWD IRWMP



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- PL-3 Arlington Desalter Expansion of 3.6 MGD
- PL-12 Riverside/Corona Feeder

SBVMWD IRWMP Projects

13 – Riv N. Recharge Basin

19 – R/C Feeder

43 – Riv Regl WQCP

46 – Pellesier Ranch Barrier Wells and WTP

98 – Waterman-Gage Intertie

122 – Riv/Arl GW Basin Model

124/125 – SAR Trail Ph III + IV

Project Solicitation Form

Submit info by 2/25/08

Agency Information

Project Information

- Description
- Yield
- Project cost
- Work completed to date
- CEQA/Permit/Land Acquisition status
- Partners, if any

Project Solicitation Form

Prop 84 IRWMP Project Elements

- Water Supply
- Stormwater Management
- Land Use/Sustainability

Project Solicitation –Agency Input

Verbal summary reports by agencies on:

- Water Master Plan Updates
- Recycled Water Planning Updates
- Other documents/technical reports

Preliminary Topics for Follow-up Meetings/Conference Calls

- Alternate meetings with livemeeting (web cast)/conference calls
- Use meetings/conference calls to obtain input on water management strategies as well as to convey water planning information to stakeholders

Preliminary Meeting Topics

- 2/14/08 – Project Development and Water and Environmental Restoration/WUEMP Kick-off
- 2/28/08 – Regional Recycled Water Planning
- 3/13/08* -Land Use Based Demand Projections and Future Land-use changes
- 3/27/08 – Supply Reliability of Resource Portfolios
- 4/10/08* - IRWMP Implementation and Funding (Prop 84 /1E)
- 4/24/08 – Draft IRWMP Update

* Livemeeting/Conference Call

Other Related Activities

- Water Use Efficiency Master Plan – Mary Lou Cotton, Kennedy/Jenks Project Manager
  - Task 1. Service Area and End-User Profile
  - Task 2. Identify Water Conservation Measures and Opportunities
  - Task 3. Analyze Costs and Benefits ("Cost-Effectiveness")
  - Task 4. Select Appropriate Conservation Measures
  - Task 5. Agree on Conservation Program Concepts
  - Task 6. Implementation Plan

WUE MP: Tasks 1- 2

- Task 1. Service Area and End-User Profile
  - District Water Agencies
  - Demographics/Parcel Data
  - Current Conservation Efforts
  - End-use Database
  - Stakeholder Input (Retail Agencies)
- Task 2. Identify Water Conservation Measures and Opportunities
  - California Urban Water Conservation Council Best Management Practices
  - Emerging Technologies
  - Current and Pending Legislation
  - Local Ordinances

WUE MP: Tasks 3 - 4

- Task 3. Analyze Costs and Benefits ("Cost-Effectiveness")
  - CUWCC Convention and/or Other Local Process
  - Identify Available Incentive Programs
  - Identify Grant Funding Sources
- Task 4. Select Appropriate Conservation Measures
  - Short-term (Program Initiation, Next Five Years)
  - Long-term (Urban Water Management Planning Horizons/20+ years)

WUE MP: Tasks 5 - 6

- Task 5. Agree on Conservation Program Concepts
  - Stakeholder Input (Retail Agencies, Municipalities, Local and State Planning and Water Agencies, Business Community, Landscape Sector, Other End Users)
- Task 6. Implementation Plan
  - Evaluation and Monitoring
  - Future Updates

Water Use Efficiency Master Plan

Agency Information Requests to be distributed at end of the meeting

Questions?

WMWD Integrated Regional Water Management Plan Project Information Form
Please submit no later than 2/27/08 via e-mail to: bobtran@kennedyjenks.com. Questions, please contact Bob at 949-261-1577 ext. 168

Agency Information		
Agency or Organization:		
Contact Name	First:	Last:
Mailing Address	Street Address:	
City:	State: CA	Zip:
Email:	Phone:	Fax:

Project Information		
Project Name:		
Project Location:		
Watershed/Sub-watershed:		
Groundwater Basin:		
Project Type (check applicable) ___Construction ___Planning		
Project Description (incl. goal of project):		
Annual Water Yield (AF):	Total Project Cost: $ year of estimate: _____ Fixed O&M: $___/yr Variable O&M: $___/yr	
Funds Requested: $	Cost Matching Funds: $	
Is your agency/org. able to fund pre-construction work, design, CEQA, etc.? ___Yes ___No		
Describe any other funding opportunities under consideration/available to this project:		
Project phases completed: ___Planning ___Design	Construction contract award date:	

Work completed to date included: (Tech memo's, planning studies, design reports, etc.)		
Title:	Consultant:	Date:
Title:	Consultant:	Date:
Title:	Consultant:	Date:
Title:	Consultant:	Date:

Has CEQA been completed? ___Yes ___No	If no, Expected Date of Adoption: If yes, Date of Adoption:	
CEQA-document type (Cat Ex; ND/MND, EIR):		
Permits Required and Status:		
Land Acquisition Status, if required:		
This project is an: ___Independent operable project ___Operable segment of larger project If larger project, # of expected phases____		
Larger project:	Start Date:	Complete Date:
Project Partners identified, if any:		
Main Challenges to Project Implementation:		

Does the project include any of the following elements? (check all that apply)	Briefly explain how project includes element
Water Supply	
___Water conservation and water use efficiency.	
___Safe and reliable drinking water supply for small or disadvantaged communities.	
___Drinking water treatment and distribution.	
___Resolution of significant water-related conflicts.	
___Increased local/regional water supply reliability through water banking, exchange, groundwater recharge, or management.	
___Treatment (including desalting) or distribution of reclaimed waste or contaminated water.	
Stormwater Management	
___Multipurpose flood management programs to integrate flood control and water supply systems	
___Floodplain mapping and local land-use planning to avoid or reduce flood risks.	
___Non-point source pollution reduction, management and monitoring.	
___Storm water capture, storage, clean-up, and treatment.	
Land Use/Sustainability	
___Watershed protection and management.	
___Integration of water management with land use planning to promote sustainable development, reduce greenhouse gases, or revitalize community centers.	
___Evaluation of climate change impacts on the state's water supply and flood control systems	
___Removal of invasive non-native species; the creation, enhancement, or protection of ecosystems, open space, park space, and watershed lands.	

Integrated Regional Water Management Plan Update
Meeting #2
Thursday 14 February 2008
8:30 – 11:30 ±
Western MWD Board Room – 450 E. Alessandro Blvd. Riverside, CA 951-789-5000

1. Welcome and Introductions (5 min)– WMWD
2. Integration of Habitat Restoration and/or Mitigation into Water Projects – Riverside Corona Resource Conservation District (20 min)
3. Brainstorming of habitat restoration into projects (15 min)
4. Water Use Efficiency Master Plan* (WUEMP) Kick-off (45 - 60 min)- Kennedy/Jenks Consultants
    a. Context for WUEMP (incl Delta cutbacks, drought, IRWMP process emphasis, review of BMPs and MOU obligations)
    b. New State Requirements for WUE (incl. AB1420** – UWMP and grants, AB 715 – HET/plumbing code, AB2717/1881- landscape ordinance, AB 32 – Energy/GHG reduction and UWMP)
    c. WUE Needs within WMWD (incl growth and demand, high ET, optimizing supplies, benefits of WUE, MWD programs)
    d. How requested meter and BMP data will be analyzed and used***
5. Break – 10 minutes
6. Agricultural and Residential Water Use Audits and Other Irrigation-related Services– Riverside Corona Resource Conservation District (20 - 30 min)
7. Follow-up Meetings/Conference Call Topics–Kennedy/Jenks Consultants (5 min)
    a. 2/28/08 – Meeting: Regional RW Planning –
    b. 3/13/08 – Livemeeting/Conference call (meeting optional): Future Land–Use Projections and Impacts on Water – Present WMWD Land-Use based water demand projections
    c. 3/27/08 – Meeting: Supply Reliability of Proposed Projects
    d. 4/10/08 - Livemeeting/Conference call (meeting optional): IRWMP Implementation and Funding (e.g. Prop 84/1E)
    e. 4/24/08 – Meeting: Presentation of Regional Project Concepts/draft IRWMP Update
    f. New! 5/8/08 (tentative) - DPH Interpretation of RW Regulations for GW Recharge
8. Other topics
    a. Information requests and what's next for project solicitation

* Summary attached
** Text attached
*** Overview attached

Summary Scope of Work – Western Municipal Water District Water Conservation Master Plan

As water shortages and increasing demands upon infrastructure occur throughout the country, water conservation planning, technologies and practices are evolving today at an unprecedented rate. In concert with the growing emphasis on water use efficiency programs, Western Municipal Water District (District) has commissioned the preparation of a Master Plan for water conservation. The purpose of the Master Plan is to prepare a comprehensive long term conservation plan for the District's Service Area by adopting objectives, policies and programs designed to promote innovative emerging technologies and practices as well as proven and cost-effective conservation measures.

The District's Water Conservation Master Plan will include the following components, and will follow a stepwise process to design a conservation program tailored to the District's service area needs:

Task 1. Service Area and End-User Profile
- District Water Agencies
- Demographics and Parcel Data
- Current Conservation Efforts
- End-use Database
- Stakeholder Input (Retail Agencies)

Task 2. Identify Water Conservation Measures and Opportunities
- California Urban Water Conservation Council Best Management Practices
- Emerging Technologies
- Current and Pending Legislation
- Local Ordinances

Task 3. Analyze Costs and Benefits ("Cost-Effectiveness")
- CUWCC Convention and/or Other Local Process
- Identify Available Incentive Programs
- Identify Grant Funding Sources

Task 4. Select Appropriate Conservation Measures
- Short-term (Program Initiation; Next Five Years)
- Long-term (Urban Water Management Planning Horizons/20+ years)

Task 5. Agree on Conservation Program Concepts
- Stakeholder Input (Retail Agencies, Municipalities, Local and State Planning and Water Agencies, Business Community, Landscape Sector, Other End Users)

Task 6. Implementation Plan
- Evaluation and Monitoring
- Future Updates

Current schedule calls for the Master Plan to be completed by May 1, 2008.

Consideration should be given to a initiating a public outreach effort to advertise the components of the conservation program once the Master Plan is competed.

BILL NUMBER: AB 1420 CHAPTERED
BILL TEXT

CHAPTER 628
FILED WITH SECRETARY OF STATE OCTOBER 13, 2007
APPROVED BY GOVERNOR OCTOBER 13, 2007
PASSED THE SENATE SEPTEMBER 11, 2007
PASSED THE ASSEMBLY SEPTEMBER 12, 2007
AMENDED IN SENATE SEPTEMBER 6, 2007
AMENDED IN SENATE AUGUST 31, 2007
AMENDED IN SENATE AUGUST 1, 2007
AMENDED IN SENATE JULY 17, 2007
AMENDED IN SENATE JULY 3, 2007
AMENDED IN SENATE JUNE 19, 2007
AMENDED IN ASSEMBLY APRIL 18, 2007

INTRODUCED BY Assembly Member Laird

FEBRUARY 23, 2007

An act to amend Sections 10631.5 and 10644 of, and to add Section 10631.7 to, the Water Code, relating to water.

LEGISLATIVE COUNSEL'S DIGEST

AB 1420, Laird. Water demand management measures: water management grant or loan funds.

(1) Existing law requires an urban water supplier to prepare and adopt an urban water management plan that includes a description of the supplier's water demand management measures that are currently being implemented or scheduled for implementation. Existing law requires the Department of Water Resources to take into consideration whether the urban water supplier is implementing or has scheduled for implementation the water demand management activities that the supplier identified in its urban water management plan in evaluating applications for grants and loans financed by specified bond funds.

This bill would delete that provision relating to the evaluation of grant or loan applications financed by those specified bond funds. The bill, instead, would require the terms of, and eligibility for, any water management grant or loan made to an urban water supplier and awarded or administered by the department, the State Water Resources Control Board, or the California Bay-Delta Authority, with certain exceptions, to be conditioned on the implementation of the water demand management measures described in the urban water management plan, as determined by the department.

The department would be required to convene an independent panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The department would be required to identify in a specified report submitted to the Legislature water demand management measures that achieve water savings significantly above the levels established by the department to meet the requirements discussed above.

(2) This bill would incorporate additional changes to Section 10644 of the Water Code proposed by SB 862, to be operative only if this bill and SB 862 are both enacted and become effective on or before January 1, 2008, and this bill is enacted last.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares all of the following:

(a) Increased urban water conservation has the potential to result in significant annual water savings statewide, and therefore can play a fundamental role in promoting sustainable and reliable water supplies statewide.

(b) The California Water Plan as updated in 2005 supports water use efficiency as a foundational action to ensure sustainable water uses.

SEC. 2. Section 10631.5 of the Water Code is amended to read:

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This funding includes, but is not limited to, funds made available pursuant to Section 75026 of the Public Resources Code.

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to

implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

SEC. 3. Section 10631.7 is added to the Water Code, to read:

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced

representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

SEC. 4. Section 10644 of the Water Code is amended to read:

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

SEC. 5. Section 10644 of the Water Code is amended to read:

10644. (a) An urban water supplier shall submit to the entities listed in subdivision (b) a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the entities listed in subdivision (b) within 30 days after adoption.

(b) An urban water supplier shall file a copy of its plan and amendments or changes with each of the following entities:

(1) The department.

(2) Any city or county within which the urban water supplier provides water supplies.

(3) Any groundwater management entity within which the urban water supplier extracts or provides water supplies.

(4) Any agricultural water supplier within which district the urban water supplier provides water supplies.

(5) Any city or county library within which district the urban water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission within which county the urban water supplier provides water supplies.

(c) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six or one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall

identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(d) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

SEC. 6. Section 5 of this bill incorporates amendments to Section 10644 of the Water Code proposed by both this bill and SB 862. It shall only become operative if
(1) both bills are enacted and become effective on or before January 1, 2008,
(2) each bill amends Section 10644 of the Water Code, and
(3) this bill is enacted after SB 862, in which case Section 4 of this bill shall not become operative.

Overview of How Requested Meter and BMP Data Will be Used

1) Parse data across the entire WMWD wholesale service area by sector:
   Single family
   Multi family
   Commercial
   Industrial
   Institutional
   Large Landscape
2) Rank all customers by water use in each sector (particularly industrial, institutional, landscape: generally the largest users)
3) Focus effort on highest users as ranked (likely to be landscape-related)
4) WUE Master Plan effort will design programs for all uses (equity across sectors and service areas)

Assembly Bill No. 1420

CHAPTER 628

An act to amend Sections 10631.5 and 10644 of, and to add Section 10631.7 to, the Water Code, relating to water.

[Approved by Governor October 13, 2007. Filed with Secretary of State October 13, 2007.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1420, Laird. Water demand management measures: water management grant or loan funds.

(1) Existing law requires an urban water supplier to prepare and adopt an urban water management plan that includes a description of the supplier's water demand management measures that are currently being implemented or scheduled for implementation. Existing law requires the Department of Water Resources to take into consideration whether the urban water supplier is implementing or has scheduled for implementation the water demand management activities that the supplier identified in its urban water management plan in evaluating applications for grants and loans financed by specified bond funds.

This bill would delete that provision relating to the evaluation of grant or loan applications financed by those specified bond funds. The bill, instead, would require the terms of, and eligibility for, any water management grant or loan made to an urban water supplier and awarded or administered by the department, the State Water Resources Control Board, or the California Bay-Delta Authority, with certain exceptions, to be conditioned on the implementation of the water demand management measures described in the urban water management plan, as determined by the department.

The department would be required to convene an independent panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The department would be required to identify in a specified report submitted to the Legislature water demand management measures that achieve water savings significantly above the levels established by the department to meet the requirements discussed above.

(2) This bill would incorporate additional changes to Section 10644 of the Water Code proposed by SB 862, to be operative only if this bill and SB 862 are both enacted and become effective on or before January 1, 2008, and this bill is enacted last.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) Increased urban water conservation has the potential to result in significant annual water savings statewide, and therefore can play a fundamental role in promoting sustainable and reliable water supplies statewide.

(b) The California Water Plan as updated in 2005 supports water use efficiency as a foundational action to ensure sustainable water uses.

SEC. 2. Section 10631.5 of the Water Code is amended to read:

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This funding includes, but is not limited to, funds made available pursuant to Section 75026 of the Public Resources Code.

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

SEC. 3. Section 10631.7 is added to the Water Code, to read:

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

SEC. 4. Section 10644 of the Water Code is amended to read:

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

SEC. 5. Section 10644 of the Water Code is amended to read:

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(b) An urban water supplier shall file a copy of its plan and amendments or changes with each of the following entities:

(1) The department.

(2) Any city or county within which the urban water supplier provides water supplies.

(3) Any groundwater management entity within which the urban water supplier extracts or provides water supplies.

(4) Any agricultural water supplier within which district the urban water supplier provides water supplies.

(5) Any city or county library within which district the urban water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission within which county the urban water supplier provides water supplies.

(c) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six or one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(d) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

SEC. 6. Section 5 of this bill incorporates amendments to Section 10644 of the Water Code proposed by both this bill and SB 862. It shall only become operative if (1) both bills are enacted and become effective on or before January 1, 2008, (2) each bill amends Section 10644 of the Water Code, and (3) this bill is enacted after SB 862, in which case Section 4 of this bill shall not become operative.

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CBIA.
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CBIA Sponsored Water Conservation Bill

Purpose: Promotes broader integration of aggressive water conservation measures in homebuilding by allowing credit against state water-verification and water supply assessment requirements for the use of water-saving strategies.

Problem: With the enactment in 2001 of SB 610 and SB 221, homebuilders with proposed projects of 500 or more homes must complete an analysis that substantiates that there is adequate water available to support the project. Recent court decisions have raised uncertainties about water deliveries to the Central Valley and Southern California. In response, local governments and water agencies are hesitant to approve new housing or actively challenging them on water supply grounds.

CBIA has been concerned that these local agencies don't adequately take into account the existence and use of water-saving devices and, therefore, are subject to inaccurate water-demand assessments. CBIA believes legislation is necessary to rectify this situation and, simultaneously, put the homebuilding industry clearly on the side of increased water conservation.

Proposal: The bill would establish a voluntary program to allow homebuilders to introduce new information about water-saving strategies they are employing in an effort to get a more accurate report on how much water is being demanded by their projects. By encouraging widespread use of voluntary water conservation the bill will assist water agencies and the state in documenting the potential water savings from new water use efficiency projects and programs in a manner that will promote successful water conservation strategies and discourage ineffective ones. In doing so, it will promote adoption of water conservation approaches that go beyond existing law. In sum, the bill goes a long way towards achieving the state's goal of reducing water consumption in California.

Contact: **Steven Cruz**
Legislative Advocate
California Building Industry Association (CBIA)
scruz@cbia.org
(916) 443-7933 ext 302

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares all of the following:

(a) Current law requires an assessment of the water supply impacts of new land use proposals without recognizing the potential benefits of evolving voluntary water conservation measures.

(b) Water conservation measures beyond those already required by state law should be encouraged by accounting for their use when quantifying project water demand.

(c) The amount of water demand reductions should be confirmed by the water agencies responsible for providing water service to new development in a cooperative approach with project proponents and local governments that ensure projected water savings are achieved.

(d) Water agencies and local government should provide flexibility and encourage the development and implementation of innovative new water conservation technology, water use efficiency and water management techniques to meet customer needs throughout the differing hydrologic regions of the state.

(e) Encouraging widespread use of voluntary water conservation measures will assist water agencies and the state in documenting the potential water savings from new water use efficiency projects and programs in a manner that will promote successful water conservation strategies and discourage ineffective ones.

(f) There have been numerous exciting water use efficiency technological and management developments related to landscape irrigation in recent years, and this bill will promote adoption of approaches that go beyond the state's Model Landscape Ordinance.

(g) More efficient use of water statewide will also reduce the energy necessary to pump, transport and treat water with potentially significant corresponding reductions in greenhouse gas emissions

SEC. 2. Section 66473.7 of the Government Code is amended, to read:

66473.7. (a) For the purposes of this section, the following definitions apply:

(1) "Subdivision" means a proposed residential development of more than 500 dwelling units, except that for a public water system that has fewer than 5,000 service connections, "subdivision" means any proposed residential development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections.

(2) "Sufficient water supply" means the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses. In determining "sufficient water supply," all of the following factors shall be considered:

(A) The availability of water supplies over a historical record of at least 20 years.

(B) The applicability of an urban water shortage contingency analysis prepared pursuant to Section 10632 of the Water Code that includes actions to be undertaken by the public water system in

response to water supply shortages.

(C) The reduction in water supply allocated to a specific water use sector pursuant to a resolution or ordinance adopted, or a contract entered into, by the public water system, as long as that resolution, ordinance, or contract does not conflict with Section 354 of the Water Code.

(D) The amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives such as CALFED and Colorado River tentative agreements, to the extent that these water supplies meet the criteria of subdivision (d).

(3) "Public water system" means the water supplier that is, or may become as a result of servicing the subdivision included in a tentative map pursuant to subdivision (b), a public water system, as defined in Section 10912 of the Water Code, that may supply water for a subdivision.

(4) "Projected demand associated with the proposed subdivision" means the anticipated water demand for the project reduced by the amount of voluntary demand management measures that are made a condition of approval of the tentative subdivision map. The subdivider's water savings projections attributable to the voluntary demand management measures shall be reviewed by the retail water supplier and be subject to the independent judgment of the legislative body of a city or county or the advisory agency authorized to approve, conditionally approve or disapprove the tentative map. Voluntary demand management measures are measures that will reduce the subdivision's water demand including, but not limited to any of the following:

(A) High-efficiency washing machines;

(B) Smart irrigation controllers;

(C) Waterless urinals;

(D) Ultra-low flow and dual flow toilets;

(E) Recycled water use;

(F) Native plant, lower water use plants, and artificial turf landscaping;

(G) Rainwater capture and reuse;

(H) Sustainable site, low impact development, greenbuilding;

(I) Water use management systems and programs;

(J) Any other measure that will prevent the waste of water or promote the reasonable and efficient use and reuse of available water supplies by the project or the public.

(b) (1) The legislative body of a city or county or the advisory agency, to the extent that it is authorized by local ordinance to approve, conditionally approve, or disapprove the tentative map, shall include as a condition in any tentative map that includes a subdivision a requirement that a sufficient water supply shall be available. Proof of the availability of a sufficient water supply shall be requested by the subdivision applicant or local agency, at the discretion of the local agency, and shall be based on written verification from the applicable public water system within 90 days of a request.

(2) If the public water system fails to deliver the written verification as required by this section, the local agency or any other interested party may seek a writ of mandamus to compel the public water system to comply.

(3) If the written verification provided by the applicable public water system indicates that the public water system is unable to provide a sufficient water supply that will meet the projected demand associated with the proposed subdivision, then the local agency may make a finding, after consideration of the written verification by the applicable public water system, that additional water supplies not accounted for by the public water system are, or will be, available prior to completion of the subdivision that will satisfy the requirements of this section. This finding shall be made on the record and supported by substantial evidence.

(4) If the written verification is not provided by the public water system, notwithstanding the local agency or other interested party securing a writ of mandamus to compel compliance with this section, then the local agency may make a finding that sufficient water supplies are, or will be, available prior to completion of the subdivision that will satisfy the requirements of this section. This finding shall be made on the record and supported by substantial evidence.

(c) The applicable public water system's written verification of its ability or inability to provide a sufficient water supply that will meet the projected demand associated with the proposed subdivision as required by subdivision (b) shall be supported by substantial evidence. The substantial evidence may include, but is not limited to, any of the following:

(1) The public water system's most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610) of Division 6 of the Water Code.

(2) A water supply assessment that was completed pursuant to Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code.

(3) Other information relating to the sufficiency of the water supply that contains analytical information that is substantially similar to the assessment required by Section 10635 of the Water Code.

(d) When the written verification pursuant to subdivision (b) relies on projected water supplies that are not currently available to the public water system, to provide a sufficient water supply to the subdivision, the written verification as to those projected water supplies shall be based on all of the following elements, to the extent each is applicable:

(1) Written contracts or other proof of valid rights to the identified water supply that identify the terms and conditions under which the water will be available to serve the proposed subdivision.

(2) Copies of a capital outlay program for financing the delivery of a sufficient water supply that has been adopted by the applicable governing body.

(3) Securing of applicable federal, state, and local permits for construction of necessary infrastructure associated with supplying a sufficient water supply.

(4) Any necessary regulatory approvals that are required in order to be able to convey or deliver a sufficient water supply to the subdivision.

(e) If there is no public water system, the local agency shall make a written finding of sufficient water supply based on the evidentiary requirements of subdivisions (c) and (d) and identify the mechanism for providing water to the subdivision.

(f) In making any findings or determinations under this section, a local agency, or designated advisory agency, may work in conjunction

with the project applicant and the public water system to secure water supplies sufficient to satisfy the demands of the proposed subdivision. If the local agency secures water supplies pursuant to this subdivision, which supplies are acceptable to and approved by the governing body of the public water system as suitable for delivery to customers, it shall work in conjunction with the public water system to implement a plan to deliver that water supply to satisfy the long-term demands of the proposed subdivision.

(g) The written verification prepared under this section shall also include a description, to the extent that data is reasonably available based on published records maintained by federal and state agencies, and public records of local agencies, of the reasonably foreseeable impacts of the proposed subdivision on the availability of water resources for agricultural and industrial uses within the public water system's service area that are not currently receiving water from the public water system but are utilizing the same sources of water. To the extent that those reasonably foreseeable impacts have previously been evaluated in a document prepared pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) or the National Environmental Policy Act (Public Law 91-190) for the proposed subdivision, the public water system may utilize that information in preparing the written verification.

(h) Where a water supply for a proposed subdivision includes groundwater, the public water system serving the proposed subdivision shall evaluate, based on substantial evidence, the extent to which it or the landowner has the right to extract the additional groundwater needed to supply the proposed subdivision. Nothing in this subdivision is intended to modify state law with regard to groundwater rights.

(i) This section shall not apply to any residential project proposed for a site that is within an urbanized area and has been previously developed for urban uses, or where the immediate contiguous properties surrounding the residential project site are, or previously have been, developed for urban uses, or housing projects that are exclusively for very low and low-income households.

(j) The determinations made pursuant to this section shall be consistent with the obligation of a public water system to grant a priority for the provision of available and future water resources or services to proposed housing developments that help meet the city's or county's share of the regional housing needs for lower income households, pursuant to Section 65589.7.

(k) The County of San Diego shall be deemed to comply with this section if the Office of Planning and Research determines that all of the following conditions have been met:

(1) A regional growth management strategy that provides for a comprehensive regional strategy and a coordinated economic development and growth management program has been developed pursuant to Proposition C as approved by the voters of the County of San Diego in November 1988, which required the development of a regional growth management plan and directed the establishment of a regional planning and growth management review board.

(2) Each public water system, as defined in Section 10912 of the Water Code, within the County of San Diego has adopted an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) of the Water Code.

(3) The approval or conditional approval of tentative maps for subdivisions, as defined in this section, by the County of San Diego and the cities within the county requires written communications to be made by the public water system to the city or county, in a format and with content that is substantially similar to the requirements contained in this section, with regard to the availability of a sufficient water supply, or the reliance on projected water supplies to provide a sufficient water supply, for a proposed subdivision.

(l) Nothing in this section shall preclude the legislative body of a city or county, or the designated advisory agency, at the request of the applicant, from making the determinations required in this section earlier than required pursuant to subdivision (b).

(m) Nothing in this section shall be construed to create a right or entitlement to water service or any specific level of water service.

(n) Nothing in this section is intended to change existing law concerning a public water system's obligation to provide water service to its existing customers or to any potential future customers.

(o) Any action challenging the sufficiency of the public water system's written verification of a sufficient water supply shall be governed by Section 66499.37.

SEC. 3. Section 21151.9 of the Public Resources Code is amended to read:

21151.9. (a) Whenever a city or county determines that a project, as defined in Section 10912 of the Water Code, is subject to this division, it shall comply with Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code.

(b) Whenever a city or county considers a water supply assessment, it shall reduce the anticipated water demand for the project based upon the water service provider's verified voluntary water demand management measures that are made a condition of approval of the project. Voluntary water demand management measures are measures that will reduce project water demand including, but not limited to, any of the following:

(1) High-efficiency washing machines;

(2) Smart irrigation controllers;

(3) Waterless urinals;

(4) Ultra-low flow and dual flow toilets;

(5) Recycled water use;

(6) Native plant, lower water use plants, and artificial turf landscaping;

(7) Rainwater capture and reuse;

(8) Sustainable site, low impact development, greenbuilding;

(9) Water use management systems and programs;

(10) Any other measure that will prevent the waste of water or promote the reasonable and efficient use and reuse of available water supplies by the project or the public.

(c) The project proponent's water savings projections shall be reviewed by the retail water supplier and be subject to the independent judgment of the legislative body of a city or county or the advisory agency authorized to approve, conditionally approve or disapprove the tentative map.

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIIIB of the California Constitution because a local agency or school district has the authority to levy service

charges, fees, or assessments sufficient to pay for the program or level of service mandated by this act, within the meaning of Section 17556 of the Government Code.

TEXT OF PROPOSED REGULATIONS

NOTE:

- Text proposed to be added is displayed in *italic* type.
- Text proposed to be deleted is displayed in ~~strikeout~~ type.
- Existing text is displayed in regular type.

In Division 2, Title 23, California Code of Regulations, to amend and add to Chapter 2.7. Model Water Efficient Landscape Ordinance, Sections 490 through 495, to read as follows:

California Code of Regulations
Title 23. Waters
Division 2. Department of Water Resources
Chapter 2.7. Model Water Efficient Landscape Ordinance

§490. Purpose.

1. The State Legislature has found*:*
   (a) ~~that the limited supply of state waters are subject to ever increasing demands;~~ *The waters of the state are of limited supply and are subject to ever increasing demands;*
   (b) ~~that the continuation of California's economic prosperity depends on adequate supplies of water being available for future uses.~~ *The continuation of California's economic prosperity is dependent on adequate supplies of water being available for future uses;*
   (c) ~~that state policy promotes conservation and efficient use of water and to prevent waste of this valuable resource.~~ *It is the policy of the state to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;*
   (d) ~~that landscapes provide recreation areas, clean the air and water, prevent erosion, offer fire protection, and replace ecosystems displaced by development; and~~ *Landscapes are essential to the quality of life in California by providing areas for active and passive recreation and an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development;*
   (e) ~~that~~ *L*andscape design, installation, maintenance *and management* can and should be water efficient; *and*
   (f) Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.
2. Consistent with the legislative findings, the purpose of this model ordinance is to:
   (a) promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
   (b) establish a structure for *planning,* designing, installing, ~~and~~ maintaining, *and managing* water efficient landscapes in new *construction and rehabilitated* projects; and
   (c) establish provisions for water management practices and water waste prevention for ~~established~~ *existing* landscapes.

~~Note: Authority cited: Sections 65591.5, 65594, Gov. Code. Reference: Sections 65591, 65591.5, 65597, Gov. Code.~~

Note: *Authority cited: Section 65593, Gov. Code. Reference: Sections 65591, 65592, 65593, 65594, 65595, 65596, Gov. Code.*

§490.1. Scope.

1. This ordinance applies to all local agencies, cities or counties including charter cities and charter counties. On or before January 1, 2010, a local agency shall adopt one of the following:
   (a) A water efficient landscape ordinance that is at least as effective in conserving water as this ordinance; or
   (b) This updated ordinance.

2. *If a local agency has not adopted an ordinance, on or before January 1, 2010, the ordinance adopted by the State of California Department of Water Resources shall apply within the jurisdiction of the local agency as of that date, shall be enforced by the local agency, and shall have the same force and effect as if adopted by the local agency.*
3. *Nothing in this ordinance shall be construed to require the local agency's water efficient landscape ordinance to duplicate, or conflict with, a water efficiency program or measure implemented by a public water system, as defined in Section 116275 of the Health and Safety Code, within the jurisdiction boundaries of the local agency.*

Note: *Authority Cited: Sections 65595, Gov. Code. Reference: Sections 65591, 65592, 65595, Gov. Code.*

§ 490.2. Intent.

The intent of this ordinance is to guide local agencies to:

1. *use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;*
2. *develop mechanisms to implement and enforce the ordinance;*
3. *incorporate the criteria and specifications of the ordinance in the bidding and contracting processes of their own landscape projects;*
4. *develop a water use efficiency education program that seeks to educate water users in their area;*
5. *promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;*
6. *coordinate with the local retail water purveyor to implement a tiered rate structure as an economic incentive for water use efficiency; and*
7. *encourage licensing and certification programs by professional trade organizations and other educational organizations that promote water use efficiency and best management practices.*

Note: *Authority Cited: Sections 65995, Gov. Code. Reference: Sections 65591, 65593, 65595, 65596, Gov. Code.*

§ 490.3. Applicability.

~~(a) APPLICABILITY~~

~~(1) Except as provided in Section 492 (a) (3), this section shall apply to: (A) all new and rehabilitated landscaping for public agency projects and private development projects that require a permit; and (B) developer-installed landscaping in single-family and multi-family projects.~~

1. *After January 1, 2010, this ordinance shall apply to all of the following landscape projects :*
   (a) new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to and greater than 2,500 square feet; requiring a permit, plan check, or design review;
   (b) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family residential projects with a landscape area equal to and greater than 2,500 square feet requiring a permit, plan check, or design review;

(c) new construction and rehabilitated landscapes which are homeowner-provided and/or homeowner-hired landscaping in single-family and multi-family residential projects with a landscape area equal to and greater than 2,500 square feet;

(d) existing landscapes with a landscape area equal to or greater than 2,500 square feet are limited to Section 493.1;

(e) cemeteries. Recognizing the special landscape management needs of cemeteries, new cemeteries are limited to Sections 492.6, 492.13, 492.14, and 492.18 and existing cemeteries are limited to Section 493.1.

~~(2) Projects subject to this section shall conform to the provisions in Section 492.~~

2. ~~(3) This section~~ *This ordinance does* not apply to:

(a) homeowner-provided *and homeowner-hired* landscaping at single-family and multi-family *residential* projects *less than 2,500 square feet;*

~~(b) cemeteries;~~

(b) registered historical sites;

(c) ecological restoration projects that do not require a permanent irrigation system;

(d) mined-land reclamation projects that do not require a permanent irrigation system; or

(e) any project with a landscape~~d~~ area less than 2,500 square feet.

Note: *Authority Cited: Sections 65595, Gov. Code. Reference: Sections 65591, 65592, 65595, Gov. Code.*

§ 491. Definitions.

The ~~words~~ *terms* used in this ordinance have the meaning set forth below:

1. "application rate" means the depth of water applied to a given area, measured in inches per minute, ~~or~~ inches per hour, *or gallons per hour.*

2. "applied water" means the portion of water supplied by the irrigation system to the landscape.

~~"Automatic controller" means a mechanical or solid state timer, capable of operating valve stations to set the days and length of time of a water application.~~

3. "backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

4. *"check valve"* or "anti-drain valve" means a valve located under a sprinkler head to hold water in the system ~~so it~~ *to prevent* ~~minimizes~~ drainage from ~~the lower elevation sprinkler heads~~ sprinkler heads when the system is off.

5. "conversion factor (0.62)" means ~~a~~ *the* number that converts the maximum applied water allowance from acre-inches per acre per year to gallons per square foot per year. ~~The conversion factor is calculated as follows: (325,851 gallons/43,560 square feet)/12 inches = (0.62) 325,851 gallons = one acre foot 43,560 square feet = one acre 12 inches = one foot To convert gallons per year to 100 cubic feet per year, another common billing unit for water, divide gallons per year by 748. (748 gallons = 100 cubic feet.)~~

6. *"Certificate of Completion" means the document required under Section 492.2 and 492.11.*

7. "certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by a professional trade organization or other educational organization.

8. *"certified irrigation designer" means a person certified to design irrigation systems by a professional trade organization or other educational organization.*
9. *"common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1353.8.*
10. *"controller" means an automatic timing device used to remotely control valves or heads to set an irrigation schedule. A weather-based controller is a controller that uses evapotranspiration or weather data. A self-adjusting irrigation controller is a controller that uses sensor data (i.e., soil moisture sensor).*
11. *"drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate equal to or less than two (2) gallons per hour.*
12. "ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
13. "effective precipitation" or "usable rainfall" means the portion of total precipitation that is used by the plants. ~~Precipitation is not a reliable source of water in summer, *but does contribute towards the water needs of the landscape during the remainder of the year.*~~
14. "emitter" means a drip irrigation ~~fitting~~ *emission device* that delivers water slowly from the system to the soil *measured as gallons per hour.*
15. "established landscape" means the point at which plants in the landscape have developed *significant* root~~s~~ *growth* into the site ~~adjacent to the root ball.~~ *Typically, most plants are established after one or two years of growth*
16. "establishment period *of the plants*" means the first year after installing the plant in the landscape, *or the first two years if irrigation will be terminated after establishment.*
17. "Estimated Applied Water Use" means the portion of the Estimated Total Water Use that is derived from applied water, *as described in Section 492.6.* ~~The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance. The Estimated Applied Water Use may be the sum of the water recommended through the irrigation schedule, as referenced in Section 492 (c) (3).~~
18. "Estimated Total Water Use" means the annual total amount of water estimated to be needed to keep the plants in the landscaped area healthy. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the types of plants, and the efficiency of the irrigation system, as described in Section ~~492 (c) (4)~~ *492.6.*
19. "ET adjustment factor" means a factor of ~~0.8~~ *0.7,* that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ET Adjustment Factor, the *average* irrigation efficiency is ~~0.625~~ *0.71.* Therefore, the ET Adjustment Factor ~~(0.8) = (0.50/0.625)~~ *(0.7) = (0.5/0.71).*
20. "evapotranspiration *rate*" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specific time.
21. "flow rate" means the rate at which water flows through pipes, ~~and~~ valves, *or emission* d*evices, measured in* gallons per minute, gallons per hour, or cubic feet per second.
22. *"hardscapes" means any durable surface material (pervious and non-pervious).*
23. "hydrozone" means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same *irrigation* schedule. ~~A hydrozone may be irrigated or non-irrigated. For example, a naturalized area planted with~~

~~native vegetation that will not need supplemental irrigation once established is a non-irrigated hydrozone.~~ *A hydrozone may also be non-irrigated (no irrigation schedule).*

24. "infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (*i.e.*, inches per hour).
25. "irrigation efficiency" means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of this ordinance is ~~0.625~~ *0.71*.
26. *"Landscape Documentation Package" means the documents required under Section 492.5.*
27. "landscape area" ~~(u) "landscaped area" means the entire parcel less the building footprint, driveways, non-irrigated portions of parking lots, hardscapes- such as decks and patios, and other non-porous areas. Water features are included in the calculation of the landscaped area. Areas dedicated to edible plants, such as orchards or vegetable gardens are not included.~~ *means all of the irrigated planting and turf areas, water features, and up to 10% of the square footage of pervious non-irrigated planting areas in a landscape design plan subject to the Maximum Applied Water Allowance (MAWA) calculation. The 10% of non-irrigated planting area shall be added to the low water use hydrozone area, used in the Landscape Documentation Package. The following is not included in the landscape area: footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (i.e., open spaces). Designated recreation areas and areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens are subject to the MAWA with an ET adjustment factor not to exceed 1.0.*
28. *"landscape architect" means a person who holds a license to practice landscape architecture in the State under the authority of Government Code Section 5615 (Landscape Architects Practice Act).*
29. *"landscape contractor" means a person licensed (i.e., C-27 license) by the State to construct, maintain, repair, install, or subcontract the development of landscape systems and facilities per Business and Professions Code, Section 7058 and 7059.*
30. "landscape irrigation audit" means a process to perform site inspections, evaluate irrigation systems, and develop efficient irrigation schedules.
31. *"landscape project" means a project, for the purposes of this ordinance, meeting the requirements under Section 490.3.*
32. "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
33. *"low volume irrigation" means any irrigation system with a flow rate equal to or less than 0.75 inches per hour, including drip irrigation, subsurface drip, micro-sprinklers and similar irrigation type.*
34. *"local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. A local agency is the entity responsible for the approval of a permit, plan check, and design review for a project.*
35. "main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.

36. "Maximum Applied Water Allowance" means, for design purposes, the upper limit of annual applied water for the established landscaped area as specified in *Section 492.6.* It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape~~d~~ area. The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance.
37. *"microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to wind, sun exposure, plant density, proximity to reflective surfaces, etc.*
38. "mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
39. "mulch" means any *organic* material such as leaves, bark, *and* straw or ~~other~~ *inorganic mineral* ~~mulches~~ *materials such as rocks, gravel, and decomposed granite* left loose and applied to the soil surface for the beneficial purpose*s* of reducing evaporation *and suppressing weeds.*
40. "operating pressure" means the pressure at which a*n irrigation* system ~~of sprinklers~~ is designed by the manufacturer to operate~~, usually indicated at the base of a sprinkler~~.
41. "overhead sprinkler irrigation systems" means ~~those~~ *systems* ~~with high flow rates~~ *that deliver water through the air (i.e.,* ~~pop ups, impulse sprinklers,~~ *spray heads and* rotors, etc.).
42. "overspray" means the water which is delivered beyond the ~~landscaped~~ *target* area, wetting pavements, walks, structures, or other ~~non-landscaped~~ *non-targeted* areas.
43. "plant factor" means a factor that, *in combination with irrigation efficiency,* when multiplied by reference evapotranspiration, estimates the amount of water used by plants. ~~For purposes of this ordinance, the average plant factor of low water use ing plants ranges from 0 to 0.3, for average moderate water use ing plants the ranges is 0.4 to 0.6, and for high water use ing plants the range is 0.7 to 1.0.~~ *For purposes of this ordinance, the plant factor of low water use plants ranges from 0 to 0.3, the plant factor of moderate water use plants ranges from 0.4 to 0.6, and the plant factor of high water use plants ranges from 0.7 to 1.0.*
44. *"precipitation rate" means the rate of application of water measured in inches per hour.*
45. *"project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 492.5, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his/her designee.*
46. *"rain sensor" or* "rain sensing *shutoff* device" means ~~a system which~~ a component which automatically ~~shuts off~~ *suspends* the irrigation ~~system~~ *event* when it rains.
47. "record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
48. "recreational area" ~~means areas dedicated to active play or recreation such as *parks*, *playgrounds*, sports fields, *golf courses*, school yards, picnic grounds, or other areas with intense foot traffic.~~ *means portions of parks, playgrounds, sports fields, golf course, or school yards in public and private projects where turf provides a playing surface or serves other high use recreational purposes.*

49. "recycled water," "reclaimed water," or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. *This water is* not intended for human consumption.
50. "reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year as represented in Section 495, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool season turf that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated.
51. "rehabilitated landscapes" means any re-landscaping project that requires a permit, *plan check, or design review and meets the requirements of Section 490.3.*
52. "runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the *landscape* area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a ~~severe~~ slope.
53. "soil moisture *sensor or* sensing device" means a device that measures the amount of water in the soil.
54. "soil texture" means the classification of soil based on *its* ~~the~~ percentage of sand, silt, and clay ~~in the soil~~.
55. "sprinkler head" means a device which delivers water through a nozzle.
56. "static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.
57. "station" means an area served by one valve or by a set of valves that operate simultaneously.
58. "swing joint" means an irrigation component that provides a flexible, leak-free connection between the sprinkler and lateral pipeline to allow movement in any direction and to prevent equipment damage..
59. "turf" means ~~a surface layer of earth containing mowed grass with its roots~~ *a groundcover surface of mowed grass.* Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are common cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are common warm-season grasses.
60. "valve" means a device used to control the flow of water in the irrigation system. *It may also mean all of the sprinklers or emitters in a line controlled by the valve.*
61. "water use efficiency statement" ~~"water conservation concept statement"~~ means ~~a one page checklist and~~ a narrative summary of the *water use efficiency practices to be applied in the landscape* project ~~as shown in Section 492 (c) (1)~~.
62. *"water conserving plant species" means a plant species identified as using less water than plants in the same water use category.*
63. *"Water Efficient Landscape Worksheet" means the document required under Section 492.6.*

Note: *Authority Cited: Sections 65595, Gov. Code. Reference: Sections 65591, 65592, 65593, 65596, Gov. Code.*

§492. Provisions for New *Construction* or Rehabilitated Landscapes.

Landscape projects under Section 490.3.1 (a), (b), and (c) are subject to all of the provisions in Section 492. New or rehabilitated cemetery landscape projects under Section 490.3.1 (e) are only subject to Sections 492.6, 492.13, 492.14 and 492.18.

§492.1. Compliance with Landscape Documentation Package

1. Prior to construction, the local agency shall:

(a) provide the project applicant with the ordinance and procedures for permits, plan checks, or design reviews;

(b) review the Landscape Documentation Package submitted by the project applicant;

(c) approve the Landscape Documentation Package: and

(d) issue a permit or approve the plan check or design review for the project applicant.

2. Prior to construction, the project applicant shall:

(a) submit a Landscape Documentation Package to the local agency that meets all the criteria and specifications of this ordinance;

(b) upon approval of the Landscape Documentation Package by the local agency,

(1) receive a permit or approval of the plan check or design review and record the date of the permit, etc. in the Certificate of Completion,

(2) submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and

(3) submit a copy of the Water Efficient Landscape Worksheet to the local retail water purveyor.

***Note:** Authority Cited: Sections 65595, Gov. Code. Reference: Sections 65595, 65596, Gov. Code.*

***§492.2. Compliance with the Certificate of Completion** (see also Section 492.11)*

1. The local agency shall:

(a) receive the signed Certificate of Completion from the project applicant;

(b) conduct a final field inspection of the project;

(c) approve the Certificate of Completion; and

(d) issue a Certificate of Occupancy, or equivalent, to the project applicant.

2. The project applicant shall:

(a) prior to backfilling, have a licensed landscape architect, certified irrigation auditor, or licensed landscape contractor conduct a preliminary field observation of the irrigation system;

(b) upon project installation, have a licensed landscape architect or licensed landscape contractor conduct a final field observation for the approval of the certificate;

(c) upon project installation, have a certified irrigation auditor conduct a landscape irrigation audit as required under Section 492.14,

(d) submit the signed Certificate of Completion to the local agency for approval;

(e) receive the Certificate of Occupancy or equivalent from the local agency; and

(f) submit copies of the approved Certificate of Completion to the local retail water purveyor and the property owner or his/her designee.

Note: *Authority Cited: Sections 65595, Gov. Code. Reference: Sections 65593, 65595, 65596, 65599, Gov. Code.*

§492.3. Waivers and Variances.

A local agency may administratively waive or modify one or more requirements of the ordinance when unusual difficulties make their strict application impossible, and upon a determination that the waiver or variance is consistent with the purpose and intent of the ordinance.

Note: *Authority Cited: Sections 65595, Gov. Code. Reference: Sections 65593, 65595, 65596, 65599, Gov. Code.*

§492.4. Penalties.

A local agency may administer penalties to the project applicant for non-compliance with the ordinance, including, but not limited to:

1. *deny Certificate of Occupancy or equivalent until the Certificate of Completion has been submitted, reviewed, and approved by the local agency;*
2. *issue warning letters or citations;*
3. *impose and collect monetary penalties or fines;*
4. *administer an appeals process or equivalent; or*
5. *terminate water service.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65593, 65596, 65599, Gov. Code.*

~~(b) LANDSCAPE DOCUMENTATION PACKAGE~~

~~(1) A copy of the landscape documentation package conforming to this chapter shall be submitted to the city or county. No permit shall be issued until the city or county reviews and approves the landscape documentation package.~~

~~(2) A copy of the approved landscape documentation package shall be provided to the property owner or site manager along with the record drawings and any other information normally forwarded to the property owner or site manager.~~

~~(3) A copy of the Water Conservation Concept statement and the Certificate of Substantial Completion shall be sent by the project manager to the local retail water purveyor.~~

~~(4) Each landscape documentation package shall include the following elements, which are described in Section 492 (c):~~

~~(A) Water Conservation Concept Statement~~
~~(B) Calculation of the Maximum Applied Water Allowance~~
~~(C) Calculation of the Estimated Applied Water Use~~
~~(D) Calculation of the Estimated Total Water Use~~
~~(E) Landscape Design Plan~~
~~(F) lrrigation Design Plan~~
~~(G) Irrigation Schedules~~
~~(H) Maintenance Schedule~~
~~(I) Landscape lrrigation Audit Schedule~~
~~(J) Grading Design Plan~~
~~(K) Soil Analysis~~

~~(L) Certificate of Substantial Completion. (To be submitted after installation of the project.)~~

~~(5) If effective precipitation is included in the calculation of the Estimated Total Water Use, then an Effective Precipitation Disclosure Statement from the landscape professional and the property owner shall be submitted with the Landscape Documentation Package.~~

~~(c) Elements of Landscape Documentation Package~~

~~(1) Water Conservation Concept Statement~~

~~Each landscape documentation package shall include a cover sheet, referred to as the Water Conservation Concept Statement similar to the following example. It serves as a check list to verify that the elements of the landscape documentation package have been completed and has a narrative summary of the project.~~

~~Sample Water Conservation Concept Statement~~

~~Project Site:~~

~~Project Number:~~

~~Project Location:~~

~~Landscape Architect/lrrigation Designer/Contractor:~~

~~Included in this project submittal package are: (Check to indicate completion)~~

~~1. Maximum Applied Water Allowance: ____gallons or cubic feet/year~~

~~2. Estimated Applied Water Use: ____gallons or cubic feetiyear~~

~~*2.(a) Estimated Amount of Water Expected from Effective Precipitation: ____gallons or cubic feet/year~~

~~3. Estimated Total Water Use:____gallons or cubic feet/year~~

~~Note: * If the design assumes that a part of the Estimated Total Water Use will be provided by precipitation, the Effective Precipitation Disclosure Statement in Section 494 shall be completed and submitted.~~

~~4. Landscape Design Plan~~

~~5. Irrigation Design Plan~~

~~6. Irrigation Schedules~~

~~7. Maintenance Schedule~~

~~8. Landscape Irrigation Audit Schedule~~

~~9. Grading Design Plan~~

~~10. Soil Analysis~~

~~Description of Project~~

~~(Briefly describe the planning and design actions that are intended to achieve conservation and efficiency in water use.) Date: ___Prepared By: ___~~

§492.5. Landscape Documentation Package.

1. The Landscape Documentation Package shall include all of the following elements:

(a) Water Efficient Landscape Worksheet

(1) Section A Project Information and Checklist

(2) Section B Water Use Efficiency Statement

(3) Section C Water Budget Calculation

(A) Section C1 Maximum Applied Water Allowance (MAWA)

(B) Section C2 Estimated amount of water expected from Effective Precipitation (Eppt)

(C) Section C3 Estimated Water Use (EWU) for Hydrozones and Estimated Total Water Use (ETWU)
(D) Section C4 Estimated Applied Water Use (EAWU)
(4) Section D Hydrozone Information
(A) Section D1 Hydrozone Map
(B) Section D2 Hydrozone Table
(C) Section D3 Hydrozone Calculation Summary
(b) Soil Management Plan
(1) Soil Analysis Report
(2) On-Site Soil Assessment with Recommendations
(c) Landscape Design Plan
(d) Irrigation Design Plan
(e) Grading Design Plan
(f) Effective Precipitation Disclosure Statement (optional)

2. *Each element of the Landscape Documentation Package is described in Sections 492.6 through Section 492.10, and Section 494. There are also sample forms in Appendix B.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65591, 65596, 65598, Gov. Code.*

§492.6. Water Efficient Landscape Worksheet.

A project applicant shall complete the Water Efficient Landscape Worksheet which contains four (4) sections to meet the criteria and specifications of the ordinance. See sample worksheet in Appendix B.

1. *Section A shall contain general project information and, a checklist of the required elements.*
2. *Section B shall contain the Water Use Efficiency Statement which is a narrative summary of the water use efficiency practices applied in the landscape project.*
3. *Section C shall contain a water budget calculation for the project. For the calculation of the Maximum Applied Water Allowance, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Section 495 Appendix A.*

The example calculations below are hypothetical to demonstrate proper uses of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are historical data for planning purposes only. For actual irrigation scheduling, a project applicant shall use current reference evapotranspiration (ETo) data, such as from the California Irrigation Management Information System (CIMIS) or other self-adjusting device (i.e., soil moisture sensor).

Also, monthly time steps are used for demonstration purposes only. A project applicant may use a time step of their choice (daily, weekly, biweekly, etc.) to complete these calculations.

(a) ~~(2) The~~ *Section C1* Maximum Applied Water Allowance (MAWA). ~~(A)~~ The *landscape* project's Maximum Applied Water Allowance shall be calculated using this ~~formula~~ *equation*:

~~MAWA = (ETo) (0.8) (LA) (0.62)~~
MAWA = (ETo) (0.7) (LA) (0.62)

where:

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration Appendix A (inches per year)
~~0.8~~ *0.7 = ET Adjustment Factor*
LA = Landscaped Area (square feet)
0.62 = Conversion factor (to gallons per square foot)

~~(B) Two example calculations of the Maximum Applied Water Allowance are presented as follows: (i) PROJECT SITE ONE: Landscaped area of 50,000 sq.ft in Fresno.~~

(1) Example MAWA calculation: A hypothetical landscape project in Fresno, CA with an irrigated landscape area of 50,000 sq. ft. To calculate MAWA, the annual (ETo) value for Fresno is 51.1 inches as listed in the Reference Evapotranspiration (ETo) Table in Section 495

~~MAWA = (ETo) (0.8) (LA) (0.62)~~
~~= (51 inches) (0.8) (50,000 square feet) (.62)~~
~~Maximum Applied Water Allowance = 1,264,800 gallons per year (or 1,691 hundred-cubic feet per year: 1,264,800/748 = 1,691)~~

MAWA = (ETo) (0.7) (LA) (0.62)
MAWA = (51.1 inches) (0.7) (50,000 square feet) (0.62)
= 1,108,870 gallons per year

To convert from gallons per year to hundred-cubic-feet per year
= 1,108,870/748 = 1,482 hundred-cubic-feet per year
(100 cubic feet = 748 gallons)

~~(ii) PROJECT SITE TWO: Landscaped area of 50,000 sq. ft. in San Francisco~~
~~MAWA = (ETo) (.8) (LA) (.62) = (35 inches) (.8) (50,000 square feet) (.62)~~
~~Maximum Applied Water Allowance = 868,000 gallons per year~~
~~(or 1,160 hundred-cubic-feet per year)~~

~~(C) Portions of landscaped areas in public and private projects such as parks, playgrounds, sports fields, golf courses, or school yards where turf provides a playing surface or serves other recreational purposes are considered recreational areas and may require water in addition to the Maximum Applied Water Allowance. A statement shall be included with the landscape design plan, designating recreational areas to be used for such purposes and specifying any needed amount of additional water above the Maximum Applied Water Allowance.~~

(b) Section C2 Estimated amount of water expected from Effective Precipitation (Eppt). For this ordinance, the Effective Precipitation is no more than 25 percent of the local annual mean precipitation.

(1) Example Eppt calculation: For Fresno, monthly average total precipitation (Ptot) was obtained from the California Irrigation Management Information

System (CIMIS) data. In areas where precipitation amount is not significant, applicants can skip this section.

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total*
Ptot	*2.53*	*1.97*	*2.17*	*0.90*	*0.60*	*0.20*	*0.03*	*0.02*	*0.11*	*0.56*	*0.87*	*1.67*	*11.64*
Eppt	*0.63*	*0.49*	*0.54*	*0.23*	*0.15*	*0.05*	*0.01*	*0.01*	*0.03*	*0.14*	*0.22*	*0.42*	*2.91*
Eppt (=2.91 inches X 50,000 sq.ft.), inches													*145,500*

~~(4) Estimated Total Water Use.~~

~~(A) A calculation of the Estimated Total Water Use shall be submitted with the Landscape Documentation Package. The Estimated Total Water Use may be calculated by summing the amount of water recommended in the irrigation schedule and adding any amount of water expected from effective precipitation (not to exceed 25 percent of the local annual mean precipitation) or may be calculated from a formula such as the following:The Estimated Total Water Use for the entire landscaped area equals the sum of the Estimated Water Use of all hydrozones in that landscaped area.~~

~~EWU=(ETo)(PF)(HA)(.62)/(IE)~~

~~EWU (hydrozone) = Estimated Water Use (gallons per year)~~

~~ETo = Reference Evapotranspiration (inches per year)~~

~~W = plant factor~~

~~HA = hydrozone area (square feet)~~

~~(.62) = conversion factor~~

~~IE = irrigation efficiency~~

~~(B) If the Estimated Total Water Use is greater than the Estimated Applied Water Use due to precipitation being included as a source of water, an Effective Precipitation Disclosure Statement such as the one in Section 494 shall be included in the Landscape Documentation Package.~~

(c) Section C3 Estimated Water Use (EWU) for a hydrozone and Estimated Total Water Use (ETWU). The landscape project's Estimated Water Use for each hydrozone is calculated using the following equation:

$$EWU = \frac{(ETo)(PF)(HA)(0.62)}{(IE)}$$

where:

EWU = Estimated total water use for a hydrozone (gallons)
ETo = Reference evapotranspiration Appendix A (inches per month)
PF = Plant factor
HA = Hydrozone area (square feet)
0.62 = Conversion factor
IE = Irrigation efficiency

(1) Example EWU calculation for three (3) hydrozones: the hypothetical landscape project in Fresno from the previous section. The following assumptions are made for the landscape: there are three hydrozones one each for high, moderate, and low water using plants; each hydrozone has the same

irrigation type; and soil characteristics and slopes are uniform over the total landscape area.

Hydrozone 1 - High water use plant. The following additional assumptions are made for the high water using plant; landscape coefficient/plant factor is 0.7, landscape area is 16,667 sq. ft., and irrigation efficiency (IE) is 0.65.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo	0.90	1.70	3.30	4.80	6.70	7.80	8.40	7.10	5.20	3.20	1.40	0.60	51.10
PWR	0.63	1.19	2.31	3.36	4.69	5.46	5.88	4.97	3.64	2.24	0.98	0.42	35.77
IWR	0.97	1.83	3.55	5.17	7.22	8.40	9.05	7.65	5.60	3.45	1.51	0.65	55.03
Total for Hydrozone 1 (=55.03 X 16,667 sq.ft.), inches													917,167

Where:

ETo = Reference evapotranspiration Appendix A (inches/month)
PWR = Plant water requirement
= (ETo) (PF)
IWR = Irrigation water requirement
= (PWR)/(IE)

Hydrozone 2 - Moderate water use plant. The following assumptions are made: landscape coefficient/plant factor is 0.4; landscape area is 16,667 sq. ft.; and irrigation efficiency (IE) is 0.8.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo	0.90	1.70	3.30	4.80	6.70	7.80	8.40	7.10	5.20	3.20	1.40	0.60	51.10
PWR	0.36	0.68	1.32	1.92	2.68	3.12	3.36	2.84	2.08	1.28	0.56	0.24	20.44
IWR	0.45	0.85	1.65	2.40	3.35	3.90	4.20	3.55	2.60	1.60	0.70	0.30	25.55
Total for Hydrozone 2 (=25.55 X 16,667 sq.ft.), inches													425,833

Where:

ETo = Reference evapotranspiration Appendix A (inches/month)
PWR = Plant water requirement
= (ETo) (PF)
IWR = Irrigation water requirement
= (PWR)/(IE)

Hydrozone 3 - Low water use plant. The following assumptions are made: landscape coefficient/plant factor is 0.2; landscape area is 16,667 sq. ft.; and irrigation efficiency (IE) is 0.8. If the landscape area includes non-irrigated planting area, 10% of the non-irrigated planting area may be added to the low water use plant hydrozone.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
ETo	0.90	1.70	3.30	4.80	6.70	7.80	8.40	7.10	5.20	3.20	1.40	0.60	51.10
PWR	0.18	0.34	0.66	0.96	1.34	1.56	1.68	1.42	1.04	0.64	0.28	0.12	10.22
IWR	0.23	0.43	0.83	1.20	1.68	1.95	2.10	1.78	1.30	0.80	0.35	0.15	12.78
Total for Hydrozone 3 (=12.78 X 16,667 sq.ft.), inches													213,000

Where:

ETo = Reference evapotranspiration Appendix A (inches/month)
PWR = Plant water requirement
= (ETo) (PF)
IWR = Irrigation water requirement
= (PWR)/(IE)

(2) Example calculation ETWU. The Estimated Total Water Use for the landscape is the sum total of estimated water uses for each hydrozone:

$$ETWU = \sum_{i=1 \text{ to } n} (EWU_i)$$

Where:

i=hydrozone number
n= total number of hydrozones

ETWU = 917,167 inches + 425,833 inches + 213,000 inches
= 1,556,000 inches per year

To convert from inches per year to gallons per year:
= 1,556,000 X 0.62 = 964,720 gallons per year

To convert Effective Precipitation from inches to gallons per year:
= 145,500 inches X 0.62 = 90,210 gallons per year

~~(4) Estimated Applied Water Use.~~
~~(A) The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance.~~
~~(B) A calculation of the Estimated Applied Water Use shall be submitted with the Landscape Documentation Package. It may be calculated by summing the amount of water recommended in the irrigation schedule.~~

(d) Section C4 Estimated Applied Water Use (EAWU). The Estimated Applied Water Use is calculated as the Estimated Total Water Use minus Effective Precipitation or:

EAWU = ETWU – Eppt

(1) Example EAWU calculation:
EAWU = ETWU – Eppt
= 964,720 gallons - 90,210 gallons
= 874,510 gallons

(e) For the example water budget calculation, the EAWU (874,510 gallons) is less than the MAWA (1,108,870 gallons per year) and therefore, the water budget is acceptable.
(f) Recreational areas (see definitions) and areas permanently and solely dedicated to edible plants, such as orchards and vegetable gardens, may require water in addition to the Maximum Applied Water Allowance. A statement shall be included in the landscape

design plan and the irrigation schedule designating those portions of the landscape to be used for such purposes and specifying any additional water needed above the Maximum Applied Water Allowance. The total amount of irrigation water allowed for these areas shall not exceed 1.0 of ETo.

4. *Section D shall contain hydrozone information for the landscape project including a hydrozone map, hydrozone table, and hydrozone calculation summary. See sample worksheet in Appendix B, Section D.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65595, Gov. Code.*

~~(11) Soils~~
~~(A) A soil analysis satisfying the following conditions shall be submitted as part of the Landscape Documentation Package.~~
~~(i) Determination of soil texture, indicating the percentage of organic matter.~~
~~(ii) An approximate soil infiltration rate (either measured or derived from soil texture infiltration rate tables.) A range of infiltration rates shall be noted where appropriate.~~
~~(iii) Measure of pH, and total soluble salts.~~
~~(B) A mulch of at least three inches shall be applied to all planting areas except turf.~~

§492.7. Soil Management Plan.

A soil management plan that addresses the soil attributes of the project site shall include a laboratory soil analysis and an on-site assessment with a statement of recommendations by a qualified soil specialist. A soil management plan meeting the following criteria shall be submitted as part of the Landscape Documentation Package.

1. *A laboratory soil analysis of soil sample(s) from the project site, prior to installation, that evaluates physical and chemical properties shall be required. At a minimum, the soil analysis report shall include:*
   (a) soil texture (percent clay, silt, sand), indicating the percentage of organic matter;
   (b) approximate soil infiltration rate (either measured or derived from soil texture infiltration rate tables). A range of infiltration rates shall be noted where appropriate;
   (c) pH;
   (d) total soluble salts; and
   (e) other soil physical or chemical properties relevant to improving water use efficiency and maintaining plant health (e.g., conductivity, nitrogen, phosphorus, potassium, calcium, magnesium, sodium, sulfur, etc.).
2. *A laboratory soil analysis may be excluded if a certified statement addressing reasons for not completing such a soil analysis is provided by a qualified soil specialist or scientist.*
3. *Prior to installation, an on-site soil assessment by a qualified soil specialist that identifies soil attributes or conditions that may minimize water use efficiency or limit plant growth shall be required. The on-site soil assessment shall:*
   a) identify planting or turf areas that may need amendment;
   b) provide a statement of recommendations to correct or improve soil conditions (i.e., applying organic compost as a soil amendment in planting and turf areas);
   c) conduct a further analysis of soil conditions (i.e., soil profile, hardpan, bulk density, soil toxicity, salinity, etc.),where applicable; and

4. *A project applicant shall implement the recommendations from the on-site soil assessment and apply any relevant information from the on-site soil assessment to the design plans.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.8. Landscape Design Plan.

For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following ~~requirements~~ *design criteria and specifications* shall be submitted as part of the Landscape Documentation Package.

~~(A) Plant Selection and Grouping~~
~~(i) Any plants may be used in the landscape, providing the Estimated Applied Water Use recommended does not exceed the Maximum Applied Water Allowance and that the plants meet the specifications set forth in (ii), (iii) and (iv).~~
~~(ii) Plants having similar water use shall be grouped together in distinct hydrozones.~~
~~(iii) Plants shall be selected appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the site. Protection and preservation of native species and natural areas is encouraged. Avoidance of invasive species is encouraged. The planting of trees is encouraged wherever it is consistent with the other provisions of this ordinance.~~
~~(iv) Fire prevention needs shall be addressed in areas that are fire prone. Information about fire prone areas and appropriate landscaping for fire safety is available from local fire departments or the California Department of Forestry.~~

1. Criteria

(a) Plant Material

(1) Any plant may be selected for the landscape, providing the Estimated Applied Water Use recommended for the project site does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:

(A) Protection and preservation of native species and natural vegetation.

(B) Selection of water conserving plant species and turf species.

(C) Selection of trees based on applicable local tree ordinances or tree shading guidelines.

(D) Selection of plants from local and regional landscape program plant lists (e.g., California Friendly Landscapes, Bay Friendly Landscaping, River Friendly Landscaping, Lush & Efficient, etc.).

(2) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:

(A) Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate.

(B) Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots, etc.) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines, etc.).

(C) Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(3) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per California Public Resources Code 4291(a) and (b). Avoid fire-prone plant materials and mulches.

(4) Invasive species of plants shall be avoided especially near parks, buffers, greenbelts, water bodies, and open spaces because of their potential to cause harm in sensitive areas.

(5) The architectural guidelines of a common interest development, which include community apartment projects, condominium projects, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

Notes: *Authority Cited: Section 65596, Gov. Code and Section 1353.8, Civil Code. Reference: Section 65596, Gov. Code and Section 1353.8, Civil Code.*

(b) Turf

(1) Turf areas shall be sized and shaped to minimize irrigation overspray and runoff.

(2) Installation of turf on slopes greater than 4:1 (horizontal to vertical) shall not be permitted.

(3) Installation of long, narrow, or irregularly shaped turf areas less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or other low volume irrigation technology.

(4) Irrigated areas (including turf) within 24 inches of non-permeable hardscape shall be irrigated with drip irrigation or subsurface irrigation technology.

(c) Water Features

(1) ~~(i)~~ Recirculating water shall be used for decorative water features.

(2) Where available, recycled water shall be used as the source for water features.

(3) Surface area of a water feature shall be included in the Maximum Applied Water Allowance (MAWA) calculation. The evaporation rate for all water features shall be equivalent to the evapotranspiration rate of a high water use plant.

(4) ~~(ii)~~ Pool and spa covers are *highly recommended* ~~encouraged~~.

(d) Mulch

(1) A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, and creeping or rooting groundcovers. In mulched planting areas, the use of drip irrigation is highly recommended.

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

~~(C) Landscape Design Plan Specifications~~

~~The landscape design plan shall be drawn on project base sheets at a scale that accurately and clearly identifies:~~

~~(i) Designation of hydrozones.~~

~~(ii) Landscape materials, trees, shrubs, groundcover, turf, and other vegetation. Planting symbols shall be dearly drawn and plants labeled by botanical name, common name, container size, spacing, and quantities of each group of plants indicated.~~
~~(iii) Property lines and street names.~~
~~(iv) Streets, driveways, walkways, and other paved areas.~~
~~(v) Pools, ponds, water features, fences, and retaining walls.~~
~~(vi) Existing and proposed buildings and structures including elevation if applicable.~~
~~(vii) Natural features including but not limited to rock outcroppings, existing trees, shrubs that will remain.~~
~~(viii) Tree staking, plant installation, soil preparation details, and any other applicable planting and installation details.~~
~~(ix) A calculation of the total landscaped area.~~
~~(x) Designation of recreational areas.~~

2. Specifications
The landscape design plan shall be drawn on project base sheets at a scale that accurately and clearly identifies the following specifications, where applicable:

(a) Site
(1) Location map with north arrow, scale, and legal description of the property.
(2) Project name.
(3) Title block with name, license number, mailing address, email address, and telephone number of licensed landscape architect.
(4) Total landscape area (square feet).
(5) Benchmark name, elevation, and location.
(6) Topography with proposed contour lines and elevations.
(7) Property lines and setbacks.
(8) Street names.
(9) Location of all utilities, (e.g. telephone, electrical, gas, sewer, drainage, etc.). The use of this information is limited to the landscape design and installation.
(10) Location and details of existing and proposed public improvements within right-of-way (e.g. curb, gutter, sidewalk, street light, fire hydrants, driveways, other approaches, etc.).

(b) Hydrozone (See also Section 492.5.1(a)(4) of the Landscape Documentation Package and Section D of the Water Efficient Landscape Worksheet)
(1) Delineate and label each hydrozone by number, letter, or other method.
(2) Indicate the square footage of each hydrozone.
(3) Identify each hydrozone as low, moderate, high water use, etc.
(4) Identify recreational areas (see Section 491.48).
(5) Identify areas permanently and solely dedicated to edible plants.
(6) Identify any other pertinent factors (e.g., sun exposure, microclimate, etc.)

(c) Plant
(1) Location of all plant material (e.g., turf, annuals, perennials, groundcovers, shrubs, trees and other vegetation, etc.).
(2) Detailed legend explaining all the symbols used in the landscape design plan including botanical names, common names, quantity, container size, etc.

(d) Mulch
(1) Type of mulch.
(2) Depth (inches).
(e) Design Elements
(1) Water features.
(2) Hardscapes (pervious and non-pervious).
(3) Existing natural features including, but not limited to, rock outcroppings, creeks or streams, wetlands, and plant materials that will remain.
(f) Other
(1) Installation details for the landscape including soil preparation, plant material installation, tree planting and staking, and any other applicable details.
(2) Location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Examples include, but not limited to:
(A) Infiltration beds, swales, and basins that allow water to collect and soak into the ground.
(B) Constructed wetlands and retention ponds that retain water, handle excess flows, and filter pollutants.
(C) Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff (volume and velocity).
(3) Rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.)
(4) Each sheet of the landscape design plan shall contain the following statement along with a licensed landscape architect's or licensed landscape contractor's stamp and signature: "I have agreed to comply with the criteria and specifications of the ordinance and I have applied them accordingly for the efficient use of water in the landscape design plan."

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

~~(A) lrrigation Design Criteria~~
~~(i) Runoff and Overspray. Soil types and infiltration rate shall be considered when designing irrigation systems. All irrigation systems shall be designed to avoid runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures. Proper irrigation equipment and schedules, including features such as repeat cycles, shall be used to closely match application rates to infiltration rates therefore minimizing runoff. Special attention shall be given to avoid runoff on slopes and to avoid overspray in planting areas with a width less than ten feet, and in median strips.~~
~~No overhead sprinkler irrigation systems shall be installed in median strips less than ten feet wide.~~
~~(ii) Irrigation Efficiency. For the purpose of determining the maximum applied water allowance, irrigation efficiency is assumed to be 0.625. Irrigation systems shall be designed, maintained, and managed to meet or exceed 0.625 efficiency.~~
~~(iii) Equipment. Water meters. Separate landscape water meters shall be installed for all projects except for single family homes or any project with a landscaped area of less than 5,000 square feet.~~

~~Controllers. Automatic control systems shall be required for all irrigation systems and must be able to accommodate all aspects of the design.~~
~~Valves. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only plants with similar water use shall be used in that area. Anti-drain (check) valves shall be installed in strategic points to minimize or prevent low-head drainage.~~
~~Sprinkler heads. Heads and emitters shall have consistent application rates within each control valve circuit. Sprinkler heads shall be selected for proper area coverage, application rate, operating pressure, adjustment capability, and ease of maintenance.~~
~~Rain Sensing Override Devices. Rain sensing override devices shall be required on all irrigation systems.~~
~~Soil Moisture Sensing Devices. It is recommended that soil moisture sensing devices be considered where appropriate.~~

§492.9. Irrigation Design Plan.

For the efficient use of water, an irrigation system shall meet all irrigation design criteria and specifications, manufacturer's specifications, and any local agency code requirements. An irrigation system and its related components shall be planned and designed to allow for proper installation, management and maintenance. An irrigation design plan meeting the following ~~conditions~~ *design criteria and specifications* shall be submitted as part of the Landscape Documentation Package.

1. Criteria

(a) System

(1) Dedicated (separate) landscape water meters shall be installed for all projects greater than 5,000 square feet, except for single family residences (Authority Cited: Statutes of 2006, AB 1881, Chapter 559, Article 44.5, Section 535). Dedicated landscape water meters are highly recommended on landscape areas less than 5,000 square feet to facilitate water management.

(2) Weather-based irrigation controllers, soil moisture based controllers or other self-adjusting irrigation controllers, shall be required for all irrigation systems. The controller must be able to accommodate all aspects of the landscape and irrigation design plans.

(3) All irrigation systems shall be designed to avoid excessive pressure. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the time of day the system will operate. These pressure and flow measurements shall be conducted at the design phase, if available, or, prior to installation, if not available at the design phase.

(4) If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure regulators, booster pumps or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

(5) Sensors (e.g., rain, freeze, wind, etc.), either integral or auxiliary, that suspend irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climactic conditions.

(6) Ball valves (i.e., gate valve or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss due to an emergency (i.e., main line break) or repair.

(7) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the local agency code (i.e., public health) for additional backflow prevention requirements.

(8) High-flow check valves, or other technology to interrupt operation in high flow conditions created by irrigation system damage or malfunction, shall be required.

(9) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways or structures.

(10) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

(11) Consideration of the prevailing wind direction and speed is highly recommended.

(12) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

(b) Hydrozone

(1) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use.

(2) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

(3) Sprinkler heads shall have matched application rates for uniform coverage

(4) Head to head coverage shall be required when designing the sprinkler system.

(5) Swing joints or other riser-protection components shall be required on all risers adjacent to high traffic areas

(6) Check valves or anti-drain valves shall be required for all sprinkler heads.

(7) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers and turf.

(8) Long, narrow, or irregularly shaped areas less than eight (8) feet in width in any direction shall be irrigated with drip irrigation or low *volume irrigation technology.*

(9) Irrigated areas (including turf) within 24 inches of non-permeable hardscape shall be irrigated with drip irrigation or subsurface irrigation technology.

(10) Slopes greater that 4:1 shall be irrigated with drip irrigation or other low volume irrigation technology.

(11) Individual hydrozones that mix plants of moderate and low water use plants or moderate and high water use plant, may be allowed if the MAWA calculation is based on the proportions of the respective plant water uses and their plant factors. Individual hydrozones that mix high and low water use plants shall not be permitted.

***Note:** Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

~~(C) Irrigation Design Plan Specifications Irrigation systems shall be designed to be consistent with hydrozones. - The irrigation design plan shall be drawn on project base sheets. lt shall be separate from, but use the same format as, the landscape design plan. The scale shall be the same as that used for the landscape design plan described in Section 492 (c) (5) (C). The irrigation design plan shall accurately and clearly identify:~~

~~(i) Location and size of separate water meters for the landscape.~~

~~(ii) Location, type, and size of all components of the irrigation system, including automatic controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, and backflow prevention devices.~~
~~(iii) Static water pressure at the point of connection to the public water supply.~~
~~(iv) Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (psi) for each station.~~
~~(v) Recycled water irrigation systems as specified in the Section 492 (c) (4) (6).~~

2. Specifications

The irrigation design plan shall be drawn on separate project base sheets at a scale identical to the landscape design plan to accurately and clearly identify the following specifications, where applicable:

(a) Site

(1) Location map with north arrow, scale, and legal description of the property.
(2) Project name.
(3) Title block with name, license/certification number, mailing address, email address, and phone number of licensed landscape architect or certified irrigation designer, etc.
(4) Benchmark name, elevation, and location.
(5) Topography with proposed contour lines and elevations.
(6) Property lines and setbacks.
(7) Street names.
(8) Location of all utilities (e.g. telephone, electrical, gas, sewer, drainage, etc. The use of this information is limited to the landscape design and installation.
(9) Location and details of existing and proposed public improvements within right-of-way (e.g., curb, gutter, sidewalk, street light, fire hydrants, driveways, other approaches, etc.).

(b) Irrigation System

(1) Layout of the irrigation system and all related components.
(2) Detailed legend explaining all the symbols used in the irrigation design plan.
(3) Location, manufacturer, model, type, and size of all components of the irrigation system such as: ~~including automatic controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, and backflow prevention devices~~.
(4) Water meters
(5) Controllers
(6) Valves
(7) Check valves
(8) Main lines and lateral lines (indicate depth)
(9) Swing joints or other riser-protection components
(10) Sprinkler heads, drip emitters and other emission devices
(11) Sensors (e.g., rain, freeze, wind, etc.)
(12) Soil moisture sensors
(13) Pressure regulators
(14) Pumps
(15) Backflow prevention devices

(16) Quick couplers
(17) Other related components

(c) Hydrozone (see also Section 492.5.(a)(4) of the Landscape Documentation Package and Section D of the Water Efficient Landscape Worksheet)
(1) Delineate and label each hydrozone by number, letter, or other method.
(2) Indicate the square footage of each hydrozone.
(3) Identify each hydrozone as low, moderate, or high water use, etc.
(4) Identify recreational areas (see Section 491.48).
(5) Identify areas permanently and solely dedicated to edible plants.
(6) Identify any other pertinent factors (e.g., sun exposure, microclimate, etc.).

(d) Hydraulics
(1) Static water pressure (pounds per square inch, psi).
(2) Recommended system operating pressure range (psi).
(3) Acceptable system operating pressure range (psi), minimum and maximum.
(4) Flow rate (gallons per minute, gpm) and application rate (inches per hour) for each valve.

(e) Other
(1) Details for recycled water irrigation systems as specified in Section 492.16.
(2) Construction or installation details for irrigation system.
(3) Each sheet of the irrigation design plan shall contain the following statement along with a licensed landscape architect's, certified irrigation designer's, or licensed landscape contractor's stamp and signature: "I have agreed to comply with the criteria and specifications of the ordinance and I have applied them accordingly for the efficient use of water in the irrigation design plan."
(4) Apply best management practices for installation of irrigation systems.

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.10. Grading Design Plan.

For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading design plan ~~satisfying~~ *meeting* the following ~~conditions~~ *design criteria and specifications* shall be submitted as part of the Landscape Documentation Package.

1. Criteria

(a) The grading design plan shall ~~indicate finished~~ *delineate configurations* and elevations of *all* the landscape~~d~~ areas, including the height of graded slopes, drainage patterns, pad elevations, and finish*ed* grade.

(b) Grading of a project site shall avoid disturbing natural drainage patterns and avoid soil compaction in landscape areas.

2. Specifications

The ~~A~~ grading design plan shall be drawn on project base sheets ~~It shall be separate from but use the same format as the landscape design plan~~ *at a scale identical to the landscape design plan to accurately and clearly identify the following specifications, where applicable:*

(a) Site
(1) Location map with north arrow, scale, and legal description of the property.
(2) Project name.

(3) Title block with name, license number, address, and phone number of registered civil engineer, licensed landscape architect, or licensed landscape contractor.
(4) Benchmark name, elevation, and location.
(5) Property lines and setbacks.
(6) Street names.
(7) Location of all utilities (e.g., telephone, electrical, gas, sewer, drainage, etc.). The use of this information is limited to the landscape design and installation.
(8) Location and details of existing and proposed public improvements within right-of-way (e.g., curb, gutter, sidewalk, street light, fire hydrants, driveways, other approaches, etc.).
(9) Topography with contours and elevations of existing, proposed, and finished grade.
(10) Cross-sections of cuts, fills, building pads, sidewalks, driveways, etc.

(b) Other
(1) Any supporting slope or other engineering calculations.
(2) Installation details of any applicable stormwater best management practices.
(3) Refer to the local agency guidelines for additional grading requirements.
(4) Each sheet of the grading design plan shall contain the following statement along with a registered civil engineer's, licensed landscape architect's, or licensed landscape contractor's stamp and signature: "I have agreed to comply with the criteria and specifications of the ordinance and I have applied them accordingly for the efficient use of water in the grading design plan."

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

~~(12) Certification~~
~~(A) Upon completing the installation of the landscaping and the irrigation system, an irrigation audit shall be conducted by a certified landscape irrigation auditor prior to the final field observation. (See Landscape Irrigation Auditor Handbook as referenced in Section 492 (c) (9) (A)).~~
~~(B) A licensed landscape architect or contractor, certified irrigation designer, or other licensed or certified professional in a related field shall conduct a final field observation and shall provide a certificate of substantial completion to the city or county. The certificate shall specifically indicate that plants were installed as specified, that the irrigation system was installed as designed, and that an irrigation audit has been performed, along with a list of any observed deficiencies.~~
~~(C) Certification shall be accomplished by completing a Certificate of Substantial Completion and delivering it to the city or county the retail water supplier, and to the Owner of Record.~~
~~A sample of such a form, which shall be provided by the city or county is:~~
~~SAMPLE CERTIFICATE OF SUBSTANTIAL COMPLETION~~
~~Project Site:~~
~~Project Number:~~
~~Project Location:~~
~~Preliminary Project Documentation Submitted: (check indicating submittal)~~
~~- 1. Maximum Applied Water Allowance:(gallons or cubic feet per year)~~
~~- 2. Estimated Applied Water Use:(gallons or cubic feet/year)~~

~~* 2a. Estimated Amount of Water Expected from Effective Precipitation: (gallons or cubic feet/year)~~
~~3. Estimated Total Water Use:(gallons or cubic feet year)~~
~~Note: * If the design assumes that a part of the Estimated Total Water Use will be provided by precipitation, the Effective Precipitation Disclosure Statement in Section 495 shall be completed and submitted. The Estimated Amount of Water Expected from Effective Precipitation shall not exceed 25 percent of the local annual mean precipitation (average rainfall .)~~
~~4. Landscape Design Plan~~
~~5. Irrigation Design Plan~~
~~6. Irrigation Schedules~~
~~7. Maintenance Schedule~~
~~8. Landscape Irrigation Audit Schedule~~
~~9. Grading Design Plan~~
~~10. Soil Analysis~~
~~Post-Installation Inspection: (Check indicating substantial completion)~~
~~A. Plants installed as specified~~
~~B. Irrigation system installed as designed~~
~~- dual distribution system for recycled water~~
~~- minimal run off or overspray~~
~~C. Landscape Irrigation Audit performed~~
~~(Certificate of Substantial Completion, continued)~~
~~Project submittal package and a copy of this certification has been provided to owner /manager and local water agency~~
~~Comments:~~
~~l/we certify that work has been installed in accordance with the contract documents. Contractor Signature Date State License Number l/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the Water Efficient Landscape Ordinance and that the landscape planting and irrigation installation conform with the approved plans and specifications. Landscape Architect Signature Date State License Number or Irrigation Designer/Consultant or Licensed or Certified Professional in a Related Field l/we certify that l/we have received all of the contract documents and that it is our responsibility to see that the project is maintained in accordance with the contract documents. Owner Signature Date~~

§492.11. Certificate of Completion.

1. *The project applicant and the local agency shall comply with the Certificate of Completion as specified under Section 492.2. See Appendix C for a sample Certificate of Completion.*
2. *The Certificate shall specifically indicate that:*
   (a) plants were installed as specified;
   (b) the irrigation system was installed as designed;
   (c) an irrigation audit has been performed;
   (d) other criteria of the ordinance have been met along with a list of any observed deficiencies.
3. *The following shall be submitted with the Certificate of Completion;*
   (a) Irrigation Schedule, see Section 492.12;

(b) Landscape and Irrigation Maintenance Schedule, see Section 492.13;
(c) Landscape Irrigation Audit Schedule, see Section 492.14; and
(d) Irrigation Audit Report.

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.12. Irrigation Scheduling ~~Schedule~~

For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules ~~satisfying the following conditions shall be submitted as part of the Landscape Documentation Package~~ *meeting the following criteria shall be submitted with the Certificate of Completion.*

1. ~~(E) Whenever possible,~~ Irrigation scheduling shall incorporate the use of evapotranspiration data such as those from the California Irrigation Management Information System (CIMIS) weather stations *or other validated weather data or soil moisture monitoring systems* to apply the appropriate levels of water for different climates.
2. ~~(G) Whenever possible, landscape irrigation shall be scheduled between 2:00 a.m. and 10:00 a.m. to avoid irrigating during times of high wind or temperature unless weather conditions are unfavorable.~~ *Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions are unfavorable. If allowable hours of irrigation differ from the local retail water purveyor, the stricter of the two shall apply.*
3. *For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current ETo, so that applied water meets the Estimated Applied Water Use. Total annual applied water shall be less than or equal to MAWA.*
4. *Using an appropriate controller, a*n annual irrigation program with monthly irrigation schedules shall be developed and submitted for each of the following:
   (a) the plant establishment period;
   (b) the established landscape; and
   (c) temporarily irrigated areas.
5. ~~(B) The irrigation schedule shall:~~
   ~~(i) include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for each station; and~~
   ~~(ii) provide the amount of applied water (in hundred cubic feet, gallons, or in whatever billing units the local water supplier uses) recommended on a monthly and annual basis.~~
   Each Irrigation Schedule shall include for each station all that apply:
   (a) Irrigation interval (days between irrigation);
   (b) Irrigation run times (hours or minutes per irrigation event to avoid runoff);
   (c) Number of cycle starts required for each irrigation event to avoid runoff;
   (d) Amount of applied water scheduled to be applied on a monthly basis;
   (e) Application rate setting;
   (f) Root depth setting;
   (g) Plant type setting;
   (h) Soil type;
   (i) Slope factor setting;
   (j) Shade factor setting;

(k) Irrigation uniformity or efficiency setting;

~~(C) The total amount of water for the landscape project shall include water designated in the Estimated Total Water Use calculation plus water needed for any water features, which shall be considered as a high water using hydrozone.~~

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.13. Landscape and Irrigation Maintenance Schedule.

1. Landscapes shall be maintained to ensure water *use* efficiency. A regular maintenance schedule shall be submitted *with the Certificate of Completion.*
2. A regular maintenance schedule shall include, but not be limited to, ~~checking,~~ *routine inspection,* ~~adjusting~~ *adjustment,* and ~~repairing~~ *repair of* the irrigation *system and its components* ~~equipment; resetting adjusting the automatic controllers~~; *conducting water audits; and prescribing the amount of water applied per landscaped acre;* aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning, and weeding in all landscape~~d~~ areas.
3. ~~Whenever possible,~~ Repair of *all* irrigation equipment shall be done with the originally specified ~~materials~~ components or their equivalents.
4. *A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.*

~~(9) Landscape lrrigation Audit Schedules~~

~~A schedule of landscape irrigation audits, for all but single family residences, satisfying the following conditions shall be submitted to the city or county as part of the Landscape Documentation Package.~~

~~(A) At a minimum, audits shall be in accordance with the State of California Landscape Water Management Program as described in the Landscape lrrigation Auditor Handbook, the entire document, which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook (June 1990) version 5.5 [formerly Master Auditor Training].)~~

~~(B) The schedule shall provide for landscape irrigation audits to be conducted by certified landscape irrigation auditors at least once every five years.~~

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.14. Landscape Irrigation Audits and Audit Schedules.

1. *At a minimum, all landscape irrigation audits shall be in accordance with the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004)," the entire document, which is hereby incorporated by reference.*
2. *All landscape irrigation audits and audit reports shall be conducted by a certified landscape irrigation auditor.*
3. *For new construction and rehabilitated landscape projects installed on or after January 1, 2010, the project applicant shall fulfill the following requirements for landscape irrigation audits:*
   (a) submit a landscape irrigation audit report with the Certificate of Completion to the local agency;

(b) For landscapes equal to or greater than one acre submit a schedule of landscape irrigation audits with the Certificate of Completion to the local agency;
(c) implement the recommendations from the landscape irrigation audit report; and
(d) For landscapes equal to or greater than one acre submit a landscape irrigation audit report every 5 years to the local agency.

4. For new construction and rehabilitated landscape projects installed after January 1, 2010, except for home owner-installed, home owner-provided landscape less than 2500 square feet, the local agency shall fulfill the following requirements for landscape irrigation audits:
(a) annually compare customers' maximum applied water allowances, which are found in the Water Efficient Landscape Worksheet (Section C) submitted as part of the Landscape Documentation Package, to customers' water use and identify customers whose landscapes exceed the maximum applied water allowance for at least one year, to the extent that customer water use information is available to the local agency.
(b) annually conduct landscape irrigation audits on a minimum 20% of the total customer landscapes identified in 492.14 (4) (a).
(1) The local agency shall obtain permission from the project applicant to access the property for the purposes of conducting a landscape irrigation audit.
(2) The local agency's cost of conducting the landscape irrigation audit shall be paid by the project applicant.
(3) A local agency that is not the local retail water purveyor shall make a good faith effort to obtain necessary water use information from the local retail water purveyor.

***Note:** Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.15. Irrigation Efficiency.
~~(ii) Irrigation Efficiency.~~
For the purpose of determining the maximum applied water allowance, irrigation efficiency is assumed to be ~~0.625~~ *0.71*. Irrigation systems shall be designed, maintained, and managed to meet or exceed ~~0.625~~ *0.71* efficiency.

***Note:** Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.16. Recycled Water.
1. ~~(i)~~ The installation of recycled water irrigation systems *(i.e.,* dual distribution systems) shall be required to allow for the current and future use of recycled water, unless a written exemption has been granted as described in ~~the following~~ 492.16.2. ~~ii~~.
2. ~~(ii)~~ Irrigation systems shall make use of recycled water unless a written exemption has been granted by the local water agency, stating that recycled water meeting all *public* health *codes and* standards is ~~are~~ not available and will not be available in the foreseeable future.
3. ~~(iii)~~ All ~~The~~ recycled water irrigation systems shall be designed and operated in accordance with all local *agency* and State codes.
4. *If the irrigation water (recycled water or blended water) has electrical conductivity equal to or greater than 3 deciSeimens per meter (dS/m) or 3 millimhos per centimeter (mmh/cm) or 2000 mg per liter total dissolved solids (TDS), a leaching fraction of up to 10% may be included in the MAWA calculation. The leaching fraction shall not exceed 10% of MAWA.*

5. *For more information on recycled water, see the University of California Agriculture & Natural Resources "Landscape Plant Salt Tolerance Selection Guide for Recycled Water Irrigation (2005)," the entire document, which is hereby incorporated by reference.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.17. Stormwater Management

1. *Stormwater management combines practices to minimize runoff and water waste to recharge groundwater, and to improve water quality. Implementing stormwater best management practices into the landscape, irrigation, and grading design plans to minimize runoff, and increase on-site retention and infiltration are highly recommended.*
2. *Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

§492.18. ~~(d)~~ ***Public Education.***

1. ~~(1)~~ Publications~~. (A) Local agencies shall provide information to owners of all new, single family residential homes regarding the design, installation, and maintenance of water efficient landscapes. (B) Information about the efficient use of landscape water shall be provided to water users throughout the community.~~ *Education is a critical component to promoting the efficient use of water in landscapes. Encouraging the use of appropriate principles of design, installation, management, and maintenance that save water shall occur at all levels in the community.*
   (a) A local agency shall provide information to owners of new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes.
2. ~~(2)~~ Model Homes. At ~~least one model home that is landscaped in each project consisting of eight or more homes shall demonstrate via signs and information the principles of water efficient landscapes described in this ordinance.~~ *All model homes that are landscaped shall demonstrate via signs and information the principles of water efficient landscapes described in this ordinance.*
   (a) ~~(A)~~ Signs shall be used to identify the model as an example of a water efficient landscape and featuring elements such as hydrozones, irrigation equipment, and others which contribute to the overall water efficient theme.
   (b) ~~(B)~~ Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

Note: *Authority cited: Sections 65593, 65594, Gov. Code. Reference: Sections 65596, 65597, Gov. Code.*

§492.19. Environmental Review.

1. *This ordinance is not subject to California Environmental Quality Act (CEQA) as there is no knowledge of specific projects that may be implemented as a result of the ordinance.*
2. *All local agencies are required to adopt specific objectives, criteria, and procedures for the evaluation of projects under CEQA. It is the local agency's responsibility to conduct*

environmental reviews before taking any action to approve projects subject to the ordinance. A multidisciplinary environmental review is a set of procedures used to identify potential environmental impacts of a proposed project.

Note: *Authority cited: Sections 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.*

§493. Provisions for Existing Landscapes.

~~(a) Water Management~~
~~All existing landscaped areas to which the city or county provides water that are one acre or more, including golf courses, green belts, common areas, multi-family housing, schools, businesses, parks, cemeteries, and publicly owned landscapes shall have a landscape irrigation audit at least every five years. At a minimum, the audit shall be in accordance with the California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Auditor Handbook, Dept. of Water Resources, Water Conservation Office (June 1 990) version 5.5.) (1) If the project's water bills indicate that they are using less than or equal to the Maximum Applied Water Allowance for that project site, an audit shall not be required.~~
~~(2) Recognition of projects that stay within the Maximum Applied Water Allowance is encouraged.~~

§493.1. Landscape Irrigation Audits. *For existing landscapes installed before January 1, 2010, the following shall apply;*

1. *At a minimum, all landscape irrigation audits shall be in accordance with the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004)" in Section 492.14.*
2. *All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.*
3. *For existing landscapes equal to or greater than one acre (43,560 square feet), the property owner or his/her designee of the landscape project shall fulfill the following requirements for landscape irrigation audits:*
   (a) Submit a landscape irrigation audit report every 5 years to the local agency.
   (b) Implement the water management and maintenance recommendations from the landscape irrigation audit report.
4. *For existing landscapes equal to or greater than 2,500 square feet, the local agency shall fulfill the following irrigation audit requirements:*
   (a) Annually survey and compare customers' landscape water use to local reference evapotranspiration and identify customers whose landscapes exceed 80% of local reference evapotranspiration for at least one year, to the extent that customer water use information is available to the local agency.
   (b) Annually conduct landscape irrigation audits on a minimum 20% of the total customer landscapes identified in Section 493.1.4 (a)
      (1) The local agency shall obtain permission from the property owner or his/her designee to access the property for the purposes of conducting a landscape irrigation audit.
      (2) The local agency's cost of conducting the landscape irrigation audit shall be paid by the property owner or his/her designee.

(3) A local agency that is not the local retail water purveyor shall make a good faith effort to obtain necessary water use information from the local retail water purveyor.

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

~~**(b) Water Waste Prevention**~~

~~Cities and counties shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff, low head drainage, overspray, or other. similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures. Penalties for violation of these prohibitions shall be established locally. Authority cited: Section 65594, Gov. Code. Reference: Section 65597, Gov. Code.~~

§493.2. Water Waste Prevention.

Water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, overspray, etc, is prohibited. Similar conditions where water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures are also prohibited. Penalties for violation of these prohibitions shall be subject to procedures of the local agency.

Note: *Authority cited: Sections 65593, 65594, Gov. Code. Reference: Sections 65596, 65597, Gov. Code.*

§494. Effective Precipitation.

If effective precipitation is included in the calculation of the Estimated Total Water Use, then an Effective Precipitation Disclosure Statement from the ~~landscape professional~~ *licensed landscape architect or certified irrigation designer* and the property owner *or his/her designee* shall be submitted with the Landscape Documentation Package. *See Appendix D for a sample Effective Precipitation Disclosure Statement.*

Note: *Authority Cited: Sections 65596, Gov. Code. Reference: Sections 65596, Gov. Code.*

~~SAMPLE EFFECTIVE PRECIPITATION DISCLOSURE STATEMENT~~

~~I certify that I have informed the project owner and developer that this project depends on (gallons or cubic feet) of effective precipitation per year. This represents percent of the local mean precipitation of inches per year.I have based my assumptions about the amount of precipitation that is effective upon: I certify that I have informed the project owner and developer that in times of drought, there may not be enough water available to keep the entire landscape alive. Licensed or Certified Landscape Professional~~

~~I certify that I have been informed by the licensed or certified landscape professional that this project depends upon (gallons or cubic feet) of effective precipitation per year. This represents percent of the local mean precipitation of inches per year. I certify that I have been informed that in times of drought, there may not be enough water available to keep the entire landscape alive. Owner Developer~~

~~Section 495. Reference Evapotranspiration~~

~~in inches (Historical Data, extrapolated from 12-month Normal Year ETo Maps and U.C. publication 21426).~~

***§495. Appendix A* – Reference Evapotranspiration (ETo) Table.**

REFERENCE EVAPOTRANSPIRATION

In inches (Historical Data, extrapolated from 12-month Normal Year Eto Maps and U.C

County	City	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN. Eto
ALAMEDA	Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
	Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
ALPINE	Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
AMADOR	Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
BUTTE	Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
	Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
	Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
CALAVERAS	San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
COLUSA	Colusa	1.1	1.7	2.8	4.8	6.6	7.4	8.2	7.0	5.7	3.5	1.7	1.0	51.4
	Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
CONTRA COSTA	Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
	Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
	Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
	Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
	Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
	Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
DEL NORTE	Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
EL DORADO	Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
FRESNO	Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
	Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
	Five Points	0.9	1.6	3.3	5.0	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.1
	Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
	Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
	Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
	Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
	Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
GLENN	Orland	1.2	1.6	3.1	4.8	6.7	7.4	8.8	7.3	5.8	3.8	1.7	1.1	53.3
	Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
HUMBOLDT	Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
	Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
	Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
	Hoopa	0.5	1.1	2.1	3.0	4.4	5.4	6.1	5.1	3.8	2.4	0.9	0.7	35.6
IMPERIAL	Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
	Calipatria	2.9	3.9	6.1	8.3	10.5	11.8	12.0	10.4	8.6	6.5	3.8	2.3	86.9
	El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
	Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
	Yuma	3.1	4.1	6.6	8.7	11.0	12.4	12.7	11.0	8.9	6.6	4.0	2.6	91.5

County	City	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN.
INYO	Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
	Death Valley	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
	Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
	Lower Haiwee	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
	Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
KERN	Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
	Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
	Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
	China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
	Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
	Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
	Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
	Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
	Lost Hills	0.6	1.1	2.6	4.4	7.0	7.7	8.5	7.1	5.0	3.9	0.8	0.4	49.0
	Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
	Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
	Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
KINGS	Corcoran	0.9	1.5	3.3	5.2	7.2	7.9	8.4	7.3	5.8	3.4	1.4	0.7	53.1
	Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
	Kettleman City	1.0	1.8	3.4	5.3	7.2	7.9	8.4	7.4	5.9	3.7	1.7	1.0	54.6
	Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
LAKE	Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
	Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4
LASSEN	Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
	Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
LOS ANGELES	Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
	Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
	Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
	Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
	Long Beach	2.2	2.5	3.4	3.8	4.8	5.0	5.3	4.9	4.5	3.4	2.4	2.0	44.0
	Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
	Palmdale	2.0	2.7	4.2	5.1	7.6	8.5	9.9	9.8	6.7	4.2	2.6	1.7	64.8
	Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
	Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
	Redondo	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
	San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
MADERA	Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
	Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
	Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
MARIN	Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
	San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
MARIPOSA	Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
	Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
	Yosemite	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
MENDOCINO	Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
	Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
	Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6
	Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9

County	City	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN.
MERCED	Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
	Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5
MONO	Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
MONTEREY	Castroville	1.6	1.8	2.7	3.5	4.4	4.4	4.5	4.2	3.8	2.8	1.8	1.3	36.7
	King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
	Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
	Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
	Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
	Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
NAPA	St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
	Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
NEVADA	Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
	Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
ORANGE	Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
	Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
PLACER	Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
	Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
	Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
	Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
	Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
	Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
PLUMAS	Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
	Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
RIVERSIDE	Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
	Blythe	3.2	4.2	6.7	8.9	11.1	12.4	12.8	11.1	9.1	6.7	4.0	2.7	92.9
	Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1
	Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
	Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
	Indio	2.9	4.0	6.2	8.3	10.5	11.9	12.3	10.0	8.9	6.4	3.8	2.4	87.6
	Palm Desert	2.0	3.5	4.9	7.7	8.5	10.6	9.8	9.2	8.4	6.1	2.7	1.8	75.1
	Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
	Riverside	2.1	2.9	4.0	4.1	6.1	7.1	7.9	7.6	6.1	4.2	2.6	2.0	56.6
SACRAMENTO	Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
	Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
SAN BENITO	Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
SAN BERNARDINO	Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
	Barstow	2.6	3.6	5.7	7.9	10.1	11.6	12.0	10.4	8.6	5.7	3.3	2.1	83.6
	Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
	Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
	Lucerne	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
	Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
	San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
	Twentynine	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
	Victorville	2.3	3.1	4.9	6.7	9.3	10.0	11.2	9.8	7.4	5.1	2.8	1.8	74.6

County	City	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN.
SAN DIEGO	Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
	Escondido	2.1	2.8	3.8	4.7	5.6	6.7	6.8	6.5	5.4	3.8	2.5	2.0	52.6
	Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
	Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
	Ramona	2.1	2.5	4.0	4.7	5.6	6.5	7.3	7.0	5.6	3.9	2.5	1.7	53.4
	San Diego	2.2	2.5	3.3	3.4	4.4	4.0	4.6	4.6	3.9	3.3	2.2	2.0	40.6
	Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
	Warner	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0
SAN FRANCISCO	San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
SAN JOAQUIN	Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
	Lodi	0.9	1.5	2.9	5.1	6.5	7.0	7.7	7.7	5.2	3.1	1.3	0.7	49.5
	Manteca	1.5	1.5	3.0	4.7	6.4	7.6	8.1	6.8	5.3	3.3	1.4	0.6	50.1
	Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
	Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
SAN LUIS OBISPO	Arroyo	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
	Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
	Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
	Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
	San Luis	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
	San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
	San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
SAN MATEO	Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
	Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
SANTA BARBARA	Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
	Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
	Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
	Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
	Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
	Santa Maria	1.8	2.2	3.2	4.0	5.0	5.1	5.1	5.1	4.5	3.5	2.4	1.7	43.7
	Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
SANTA CLARA	Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
	Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
	Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
	San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
SANTA CRUZ	Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6
	Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
SHASTA	Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
	Fall River	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
	Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
	Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
SIERRA	Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
	Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
SISKIYOU	Happy Camo	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
	Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
	Tulelake	0.5	0.9	2.1	3.4	5.3	5.9	7.9	6.7	4.4	2.7	0.9	0.5	41.2
	Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
	Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2

County	City	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN.
SOLANO	Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
	Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
SONOMA	Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
	Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
	Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
	Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
	Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
	Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
STANISLAUS	La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
	Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
	Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
	Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
	Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
SUTTER	Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
TEHAMA	Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
	Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1
TOULOMNE	Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
	Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
TRINITY	Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
	Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
TULARE	Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
	Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
	Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
	Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
	Visalia	1.0	1.8	3.4	5.4	7.0	8.2	8.4	7.2	5.7	3.8	1.7	0.9	54.3
VENTURA	Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
	Thousand	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
	Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
YOLO	Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
	Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
	Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
YUBA	Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
ALAMEDA													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	10.9	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	53.3
ALPINE													
Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
AMADOR													
Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
Shanandoah Valley	1.0	1.7	2.9	4.4	5.6	6.8	7.9	7.1	5.2	3.6	1.7	1.0	48.8
BUTTE													
Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
Durham	1.1	1.8	3.2	5.0	6.5	7.4	7.8	6.9	5.3	3.6	1.7	1.0	51.1
Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
CALAVERAS													
San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
COLUSA													
Colusa	1.0	1.7	3.4	5.0	6.4	7.6	8.3	7.2	5.4	3.8	1.8	1.1	52.8
Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
CONTRA COSTA													
Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
Moraga	1.2	1.5	3.4	4.2	5.5	6.1	6.7	5.9	4.6	3.2	1.6	1.0	44.9
Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
Walnut Creek	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
DEL NORTE													
Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
EL DORADO													
Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
FRESNO													
Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
Firebaugh	1.0	1.8	3.7	5.7	7.3	8.1	8.2	7.2	5.5	3.9	2.0	1.1	55.4
FivePoints	1.3	2.0	4.0	6.1	7.7	8.5	8.7	8.0	6.2	4.5	2.4	1.2	60.4
Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
Fresno State	0.9	1.6	3.2	5.2	7.0	8.0	8.7	7.6	5.4	3.6	1.7	0.9	53.7
Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
Mendota	1.5	2.5	4.6	6.2	7.9	8.6	8.8	7.5	5.9	4.5	2.4	1.5	61.7
Orange Cove	1.2	1.9	3.5	4.7	7.4	8.5	8.9	7.9	5.9	3.7	1.8	1.2	56.7
Panoche	1.1	2.0	4.0	5.6	7.8	8.5	8.3	7.3	5.6	3.9	1.8	1.2	57.2
Parlier	1.0	1.9	3.6	5.2	6.8	7.6	8.1	7.0	5.1	3.4	1.7	0.9	52.0
Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Westlands	0.9	1.7	3.8	6.3	8.0	8.6	8.6	7.8	5.9	4.3	2.1	1.1	58.8

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
GLENN													
Orland	1.1	1.8	3.4	5.0	6.4	7.5	7.9	6.7	5.3	3.9	1.8	1.4	52.1
Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
HUMBOLDT													
Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
Hoopa	0.5	1.1	2.1	3.0	4.4	5.4	6.1	5.1	3.8	2.4	0.9	0.7	35.6
IMPERIAL													
Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
Calipatria/Mulberry	2.4	3.2	5.1	6.8	8.6	9.2	9.2	8.6	7.0	5.2	3.1	2.3	70.7
El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
Meloland	2.5	3.2	5.5	7.5	8.9	9.2	9.0	8.5	6.8	5.3	3.1	2.2	71.6
Palo Verde II	2.5	3.3	5.7	6.9	8.5	8.9	8.6	7.9	6.2	4.5	2.9	2.3	68.2
Seeley	2.7	3.5	5.9	7.7	9.7	10.1	9.3	8.3	6.9	5.5	3.4	2.2	75.4
Westmoreland	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Yuma	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
INYO													
Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
Death Valley Jct	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
Lower Haiwee Res.	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
KERN													
Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
Bakersfield/Bonanza	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Bakersfield/Greenlee	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Belridge	1.4	2.2	4.1	5.5	7.7	8.5	8.6	7.8	6.0	3.8	2.0	1.5	59.2
Blackwells Corner	1.4	2.1	3.8	5.4	7.0	7.8	8.5	7.7	5.8	3.9	1.9	1.2	56.6
Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
Famoso	1.3	1.9	3.5	4.8	6.7	7.6	8.0	7.3	5.5	3.5	1.7	1.3	53.1
Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
Lamont	1.3	2.4	4.4	4.6	6.5	7.0	8.8	7.6	5.7	3.7	1.6	0.8	54.4
Lost Hills	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
McFarland/Kern	1.2	2.1	3.7	5.6	7.3	8.0	8.3	7.4	5.6	4.1	2.0	1.2	56.5
Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
KINGS													
Caruthers	1.6	2.5	4.0	5.7	7.8	8.7	9.3	8.4	6.3	4.4	2.4	1.6	62.7
Corcoran	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
Kettleman	1.1	2.0	4.0	6.0	7.5	8.5	9.1	8.2	6.1	4.5	2.2	1.1	60.2
Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
Stratford	0.9	1.9	3.9	6.1	7.8	8.6	8.8	7.7	5.9	4.1	2.1	1.0	58.7
LAKE													
Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
LASSEN													
Buntingville	1.0	1.7	3.5	4.9	6.2	7.3	8.4	7.5	5.4	3.4	1.5	0.9	51.8
Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
LOS ANGELES													
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	44.2
MADERA													
Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
MARIN													
Black Point	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
Point San Pedro	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
MARIPOSA													
Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
Yosemite Village	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
MENDOCINO													
Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6
Sanel Valley	1.0	1.6	3.0	4.6	6.0	7.0	8.0	7.0	5.2	3.4	1.4	0.9	49.1
Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9
MERCED													
Kesterson	0.9	1.7	3.4	5.5	7.3	8.2	8.6	7.4	5.5	3.8	1.8	0.9	55.1
Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5
MODOC													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
MONO													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
MONTEREY													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
NAPA													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
NEVADA													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
ORANGE													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
PLACER													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
PLUMAS													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
RIVERSIDE													
Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1
Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
Indio	**3.1**	3.6	6.5	8.3	10.5	11.0	10.8	9.7	8.3	5.9	3.7	2.7	83.9
La Quinta	2.4	2.8	5.2	6.5	8.3	8.7	8.5	7.9	6.5	4.5	2.7	2.2	66.2
Mecca	2.6	3.3	5.7	7.2	8.6	9.0	8.8	8.2	6.8	5.0	3.2	2.4	70.8
Oasis	2.9	3.3	5.3	6.1	8.5	8.9	8.7	7.9	6.9	4.8	2.9	2.3	68.4
Palm Deser	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
Rancho California	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
Rancho Mirage	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Ripley	2.7	3.3	5.6	7.2	8.7	8.7	8.4	7.6	6.2	4.6	2.8	2.2	67.8
Salton Sea North	2.5	3.3	5.5	7.2	8.8	9.3	9.2	8.5	6.8	5.2	3.1	2.3	71.7
Temecula East II	2.3	2.4	4.1	4.9	6.4	7.0	7.8	7.4	5.7	4.1	2.6	2.2	56.7
Thermal	2.4	3.3	5.5	7.6	9.1	9.6	9.3	8.6	7.1	5.2	3.1	2.1	72.8
Riverside UC	2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	56.4
Winchester	2.3	2.4	4.1	4.9	6.4	6.9	7.7	7.5	6.0	3.9	2.6	2.1	56.8

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
SACRAMENTO													
Fair Oaks	1.0	1.6	3.4	4.1	6.5	7.5	8.1	7.1	5.2	3.4	1.5	1.0	50.5
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
Twitchell Island	1.2	1.8	3.9	5.3	7.4	8.8	9.1	7.8	5.9	3.8	1.7	1.2	57.9
SAN BENITO													
Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
San Benito	1.2	1.6	3.1	4.6	5.6	6.4	6.9	6.5	4.8	3.7	1.7	1.2	47.2
San Juan Valley	1.4	1.8	3.4	4.5	6.0	6.7	7.1	6.4	5.0	3.5	1.8	1.4	49.1
SAN BERNARDINO													
Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
Barstow NE	2.2	2.9	5.3	6.9	9.0	10.1	9.9	8.9	6.8	4.8	2.7	2.1	71.7
Big Bear Lake	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
Lake Arrowhead	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Lucerne Valley	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
Newberry Springs	2.1	2.9	5.3	8.4	9.8	10.9	11.1	9.9	7.6	5.2	3.1	2.0	78.2
San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
Twentynine Palms	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
Victorville	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
SAN DIEGO													
Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
Escondido SPV	2.4	2.6	3.9	4.7	5.9	6.5	7.1	6.7	5.3	3.9	2.8	2.3	54.2
Miramar	2.3	2.5	3.7	4.1	5.1	5.4	6.1	5.8	4.5	3.3	2.4	2.1	47.1
Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
Otay Lake	2.3	2.7	3.9	4.6	5.6	5.9	6.2	6.1	4.8	3.7	2.6	2.2	50.4
Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
Ramona	2.1	2.1	3.4	4.6	5.2	6.3	6.7	6.8	5.3	4.1	2.8	2.1	51.6
San Diego	2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	46.5
Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
Torrey Pines	2.2	2.3	3.4	3.9	4.0	4.1	4.6	4.7	3.8	2.8	2.0	2.0	39.8
Warner Springs	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0
SAN FRANCISCO													
San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
SAN JOAQUIN													
Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
Lodi West	1.0	1.6	3.3	4.3	6.3	6.9	7.3	6.4	4.5	3.0	1.4	0.8	46.7
Manteca	0.9	1.7	3.4	5.0	6.5	7.5	8.0	7.1	5.2	3.3	1.6	0.9	51.2
Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
SAN LUIS OBISPO													
Arroyo Grande	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
Nipomo	2.2	2.5	3.8	5.1	5.7	6.2	6.4	6.1	4.9	4.1	2.9	2.3	52.1
Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
San Luis Obispo	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
SAN MATEO													
Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.6	1.0	43.0
Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
Woodside	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
SANTA BARBARA													
Betteravia	2.1	2.6	4.0	5.2	6.0	5.9	5.8	5.4	4.1	3.3	2.7	2.1	49.1
Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.4	6.9	7.9	8.5	7.7	5.9	4.5	2.6	2.0	59.7
Goleta	2.1	2.5	3.9	5.1	5.7	5.7	5.4	5.4	4.2	3.2	2.8	2.2	48.1
Goleta Foothills	2.3	2.6	3.7	5.4	5.3	5.6	5.5	5.7	4.5	3.9	2.8	2.3	49.6
Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
Santa Maria	1.8	2.3	3.7	5.1	5.7	5.8	5.6	5.3	4.2	3.5	2.4	1.9	47.4
Santa Ynez	1.7	2.2	3.5	5.0	5.8	6.2	6.4	6.0	4.5	3.6	2.2	1.7	48.7
Sisquoc	2.1	2.5	3.8	4.1	6.1	6.3	6.4	5.8	4.7	3.4	2.3	1.8	49.2
Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
SANTA CLARA													
Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
Morgan Hill	1.5	1.8	3.4	4.2	6.3	7.0	7.1	6.0	5.1	3.7	1.9	1.4	49.5
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
SANTA CRUZ													
De Laveaga	1.4	1.9	3.3	4.7	4.9	5.3	5.0	4.8	3.6	3.0	1.6	1.3	40.8
Green Valley Rd	1.2	1.8	3.2	4.5	4.6	5.4	5.2	5.0	3.7	3.1	1.6	1.3	40.6
Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6
Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
Webb	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.2
SHASTA													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
Fall River Mills	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
McArthur	0.7	1.4	2.9	4.2	5.6	6.9	8.2	7.2	5.0	3.0	1.1	0.6	46.8
Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
SIERRA													
Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
SISKIYOU													
Happy Camp	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
MacDoel	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
Tule lake FS	0.7	1.3	2.7	4.0	5.4	6.3	7.1	6.4	4.7	2.8	1.0	0.6	42.9
Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2
SOLANO													
Dixon	0.7	1.4	3.2	5.2	6.3	7.6	8.2	7.2	5.5	4.3	1.6	1.1	52.1
Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
Hastings Tract	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Putah Creek	1.0	1.6	3.2	4.9	6.1	7.3	7.9	7.0	5.3	3.8	1.8	1.2	51.0
Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
Suisun Valley	0.6	1.3	3.0	4.7	5.8	7.0	7.7	6.8	5.3	3.8	1.4	0.9	48.3
Winters	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
SONOMA													
Bennett Valley	1.1	1.7	3.2	4.1	5.5	6.5	6.6	5.7	4.5	3.1	1.5	0.9	44.4
Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
Valley of the Moon	1.0	1.6	3.0	4.5	5.6	6.6	7.1	6.3	4.7	3.3	1.5	1.0	46.1
Windsor	0.9	1.6	3.0	4.5	5.5	6.5	6.5	5.9	4.4	3.2	1.4	1.0	44.2

Appendix A - Reference Evapotranspiration (ETo) Table

County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Eto
STANISLAUS													
Denair	1.0	1.9	3.6	4.7	7.0	7.9	8.0	6.1	5.3	3.4	1.5	1.0	51.4
La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
Patterson	1.3	2.1	4.2	5.4	7.9	8.6	8.2	6.6	5.8	4.0	1.9	1.3	57.3
Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
SUTTER													
Nicolaus	0.9	1.6	3.2	4.9	6.3	7.5	8.0	6.9	5.2	3.4	1.5	0.9	50.2
Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
TEHAMA													
Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
Gerber	1.0	1.8	3.5	5.0	6.6	7.9	8.7	7.4	5.8	4.1	1.8	1.1	54.7
Gerber Dryland	0.9	1.6	3.2	4.7	6.7	8.4	9.0	7.9	6.0	4.2	2.0	1.0	55.5
Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1
TRINITY													
Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
TULARE													
Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
Delano	1.1	1.9	4.0	4.9	7.2	7.9	8.1	7.3	5.4	3.2	1.5	1.2	53.6
Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Lindcove	0.9	1.6	3.0	4.8	6.5	7.6	8.1	7.2	5.2	3.4	1.6	0.9	50.6
Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
Visalia	0.9	1.7	3.3	5.1	6.8	7.7	7.9	6.9	4.9	3.2	1.5	0.8	50.7
TUOLUMNE													
Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
VENTURA													
Camarillo	2.2	2.5	3.7	4.3	5.0	5.2	5.9	5.4	4.2	3.0	2.5	2.1	46.1
Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
Piru	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Port Hueneme	2.0	2.3	3.3	4.6	4.9	4.9	4.9	5.0	3.7	3.2	2.5	2.2	43.5
Thousand Oaks	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
YOLO													
Bryte	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
Esparto	1.0	1.7	3.4	5.5	6.9	8.1	8.5	7.5	5.8	4.2	2.0	1.2	55.8
Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
Zamora	1.1	1.9	3.5	5.2	6.4	7.4	7.8	7.0	5.5	4.0	1.9	1.2	52.8
YUBA													
Browns Valley	1.0	1.7	3.1	4.7	6.1	7.5	8.5	7.6	5.7	4.1	2.0	1.1	52.9
Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4

The values in this table were derived from:1) California Irrigation Management Information System (CIMIS) 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999, 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

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§495.1 Appendix B – Sample Water Efficient Landscape Worksheet.

WATER EFFICIENT LANDSCAPE WORKSHEET

Please complete the entire worksheet. This worksheet it is part of the Landscape Documentation Package.

SECTION A. PROJECT INFORMATION

Date _____

Project Name _____

Project Applicant _____

Project Address and Location

Street Address		Parcel Number(s)
City		Tract or Lot Number(s)
State	Zip Code	Latitude/Longitude Coordinates (optional)

Please use the checklist below to indicate completion of a Landscape Documentation Package.

Landscape Documentation Package

- Water Efficient Landscape Worksheet
- Soil Management Plan (Soil Analysis Report and On-site soil Assessment with Recommendations)
- Landscape Design Plan
- Irrigation Design Plan
- Grading Design Plan
- Effective Precipitation Disclosure Statement (optional)

Please fill in the information below to describe the landscape project, where applicable:

Total project area _____ (square feet)

Total irrigated landscape area* _____ (square feet)
Turf area_____ (square feet)
Non-turf area _____ (square feet)
Recreation areas_____(square feet)
Areas permanently and solely dedicated to edible plants_____(square feet)
* Additional information is also required in Part #3 of the worksheet.

Total non-irrigated landscape area _____(square feet)

Water supply type *Please check all that apply.*

□ Potable water
□ Recycled water
□ Graywater
□ Groundwater or well water
□ Mixed use
□ Rainwater
□ Other _____

Project Type *Please check only one.*

□ Public or community facility (i.e., park, playground, etc.)
□ Commercial
□ Industrial
□ Institutional (i.e., school, etc.)
□ Single Family Residential
□ Multi-Family Residential
□ Model Home
□ Mixed Use
□ Other _____

Project Contacts

The project applicant and other individuals may receive inquiries or notifications of all proceedings regarding the Water Efficient Landscape Worksheet from the local agency. Please provide the name, address, and telephone, etc. of each person to receive such inquiries and notifications.

1. Project Applicant

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

2. Property Owner

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

3. Licensed Landscape Architect or Licensed Landscape Contractor

Name	Telephone No.	
	Fax No.	
Title	Email Address	
License No.		
Company	Street Address	
City	State	Zip Code

4. Certified Irrigation Designer

Name	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

5. Landscape Installation Contractor (if different from #3 above)

Name	Telephone No.	
	Fax No.	
Title	Email Address	
License No.		
Company	Street Address	
City	State	Zip Code

6. Landscape Maintenance Contractor (if known)

Name	Telephone No.	
	Fax No.	
Title	Email Address	
License No.		
Company	Street Address	
City	State	Zip Code

7. Local retail water purveyor

Name of contact at water purveyor	Telephone No. Fax No.	
Title	Email Address	
Name of company or water purveyor	Street Address	
City	State	Zip Code

SECTION B. WATER USE EFFICIENCY STATEMENT

Provide a narrative summary of the water use efficiency practices applied to the landscape project and answer the all of the following questions (attach additional sheets if necessary):

Narrative Statement:

Questions:

(1) Did you review the ordinance to learn about the criteria and specifications for landscape design plans?

(2) Did you coordinate with the local agency or local retail water purveyor on the landscape design plan?

(3) Which criteria and specifications did you apply to the landscape design plan?

(4) Did you review the ordinance to learn about the criteria and specifications for irrigation design plans?

(5) Did you coordinate with the local agency or local retail water purveyor on the irrigation design plan?

(6) Which criteria and specifications plan did you apply to your irrigation design plan?

(7) Did you ask for assistance from the local agency/local retail water purveyor to calculate a project water budget?

(8) Did you receive any water efficient landscape publications from the local agency or local retail water purveyor?

(9) How will you assure the overall quality of the irrigation system?

(10) How will you manage the irrigation system for optimum operation and performance?

(11) How will you manage the irrigation system to respond to the changing requirement for water in the landscape?

(12) Did you apply any stormwater best management practices to the design?

(13) If recycled water was available, did you design and install a dual distribution system?

(14) Did you select plants from plant lists provided by a local or regional landscape program such as California Friendly Landscapes, Bay Friendly Landscaping, River Friendly Landscaping, Lush & Efficient, etc.?

SECTION C. WATER BUDGET CALCULATION

Section CI. Maximum Applied Water Allowance

The project's *Maximum Applied Water Allowance* shall be calculated using this equation:

$$MAWA = (ETo)\ (0.7)\ (LA)\ (0.62)$$

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
0.7 = ET Adjustment Factor
LA = Landscaped Area (square feet)
0.62 = Conversion factor (to gallons per square foot)

Maximum Applied Water Allowance = _____**gallons or cubic feet/year**

Show calculations.

If the irrigation water (recycled water or blended water) has electrical conductivity equal to, or greater than, 3 deci Siemens per meter (dS/m) or 3 millimhos per centimeter (mmh/cm)or 2000 mg per liter total dissolved solids (TDS), a leaching fraction of up to 10% may be included in the MAWA calculation. The leaching fraction shall not exceed 10% of MAWA.

Section C2. Estimated amount of water expected from effective precipitation (Eppt)

Estimated Amount of Water expected from Eppt* = _____**gallons or cubic feet/year**

** This Effective Precipitation value should be identical to the value in the Effective Precipitation Disclosure Statement.*

Show calculations.

Section C3. Estimated Water Use for hydrozones and Estimated Total Water Use

The project's *Estimated Total Water Use* is calculated using the following formula:

$$EWU = \frac{(ETo)(PF)(HA)(0.62)}{(IE)}$$

EWU = Estimated total water use for a hydrozone (gallons)
ETo = Reference evapotranspiration (inches per month)
PF = Plant factor
HA = Hydrozone area (square feet)
0.62 = Conversion factor
IE = Irrigation efficiency

Show calculations for each hydrozone (attach additional sheets if necessary).

$$ETWU = \sum_{i=1 \text{ to } n} (EWU_i)$$

i=hydrozone number
n= total number of hydrozones

Estimated Total Water Use = _____**gallons**

Show calculations.

Section C4. Estimated Applied Water Use
The *Estimated Applied Water Use* is calculated as the estimated total water use (Section C3) minus effective precipitation (Section C2).

$$EAWU = ETWU - Eppt$$

Estimated Applied Water Use = _____**gallons**

Show calculations.

Section C5. Additional Water Requirements
Recreational areas and areas permanently and solely dedicated to edible plants may require water in addition to the Maximum Applied Water Allowance. Please be sure to provide a statement in the landscape design plan and in the irrigation schedule, designating those portions of the landscape to be used for such purposes and specifying any additional water needed above the Maximum Applied Water Allowance. The total amount of irrigation water allowed for these areas shall not exceed 1.0 of ETo.

Show calculations.

SECTION D. HYDROZONE INFORMATION

Section D1. Hydrozone Map
Attach a hydrozone map to the Water Efficient Landscape Worksheet. Hydrozones shall be designated by number, letter, or other designation. Designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in Section D2 - Hydrozone Table. This map can also assist with pre and final inspections of the irrigation system, and programming the controller.

Section D2. Hydrozone Table (Blank Form)
Please complete the hydrozone table(s) for each irrigation point of connection. Use as many worksheets as necessary to provide square footage of landscape area per valve.

Irrigation Point of Connection (P.O.C.) #_____					
Controller #	**Valve Circuit #**	**Plant Type(s)***	**Irrigation Method****	**Area (Sq. Ft.)**	**% of Landscape Area**
			TOTAL		**100%**

***Plant Type**
CST= Cool Season Turf
WST= Warm Season Turf
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

****Irrigation Method**
MS = Microspray
S = Spray
R = Rotor
B= Bubbler
D= Drip
O = Other

Section D3. Hydrozone Calculation Summary (Blank Form)
Please complete a hydrozone calculation summary for each irrigation point of connection.

Irrigation Point of Contact #		
Hydrozone	**Total Square Feet**	**% of Total Landscape Area**
Cool Season Turf		
Warm Season Turf		
High Water Use Plants		
Moderate Water Use Plants		
Low Water Use Plants		
High and Medium Water Mix		
Medium and Low Water Mix		
TOTAL		**100%**

Comments

_____
_____
_____
_____
_____

The hydrozone table and hydrozone calculation summary are provided below as examples only.

Irrigation Point of Connection (P.O.C.) # 1 (Main Street)					
Controller #	**Valve Circuit #**	**Plant Type**	**Irrigation Method**	**Area (Sq. Ft.)**	**% of Landscape Area**
1	1	HW/MW	Bubbler	275	2.8%
1	2	HW	Bubbler	275	2.8%
1	3	LW	Drip	1040	10.5%
1	4	CST	Spray	496	5.0%
1	5	LW	Drip	600	6.1%
1	6	CST	Spray	1600	16.2%
1	7	LW	Drip	724	7.3%
1	8	MW/LW	Drip	1852	18.8%
2	1	CST	Spray	1600	16.2%
2	2	HW	Bubbler	80	0.8%
2	3	LW	Drip	780	7.9%
2	4	LW	Drip	548	5.6%
			TOTALS	**9870**	**100%**

Irrigation Point of Contact #	**1 (Main Street)**	
Hydrozone	**Total Square Feet**	**% of Total Landscape Area**
Cool Season Turf	3696	37.0
Warm Season Turf	0	0
High Water Use Plants	355	3.6
Moderate Water Use Plants	0	0
Low Water Use Plants	3692	37.6
High and Medium Water Mix	275	2.3
Medium and Low Water Mix	1852	18.7
TOTAL	**9870**	**100%**

SIGNATURES

I further acknowledge and agree under penalty of perjury under the laws of the State of California that the information contained in the Water Efficient Landscape Worksheet is true and correct.

_____ _____

Signature of Project Applicant Date

THIS SECTION BELOW IS FOR LOCAL AGENCY USE ONLY.

Signature of the Local Agency Representative	
Name of the Local Agency Representative	
Title	
Telephone No.	
Email Address	
Name of Local Agency	
Name of Department or Division or Unit	
Street Address	
City	
State	Zip Code

For this project the Permit, Plan Check, or Design Review has been:

□ **Issued.**
Date:_____
Notes:_____

□ **Denied.**
Date:_____
Notes:_____

Comments:

_____

_____

_____

_____

_____

_____

_____

§495.2 Appendix C – Sample Certificate of Completion.

CERTIFICATE OF COMPLETION

See ordinance Section 492.1, Section 492.2 and Section 492.11 for details on how to comply with the Certificate of Completion.
This certificate is completed by the project applicant upon installation at the final field observation of a landscape project.
Please complete all sections below.

SECTION A. PROJECT INFORMATION

Date _____
Project Name _____
Project Applicant _____
Project Address and Location

Street Address		Parcel Number
City		Tract or Lot Number
State	Zip Code	Latitude/Longitude (optional)

Please answer the questions below:

1. Did you submit a Landscape Documentation Package to your local agency? □ Yes □ No
2. Was your Landscape Documentation Package approved by the local agency? □ Yes □ No
3. When were issued a permit or approval for the plan check or design review? Date:_____
4. Did you submit the Water Efficient Landscape Worksheet (including the Water Budget Calculation) to your local retail water purveyor? □ Yes, Date:_____ □ No

SECTION B. FINAL INSPECTION

Please use this checklist to verify the following has been completed:

□	The preliminary field observation of the irrigation system or plumbing, prior to backfilling, is completed. Date of preliminary field observation: _____
□	Date of final field observation by project applicant:_____
□	The plant materials are installed as specified.
□	The Irrigation system is designed as specified.
□	If applicable, the dual distribution system for recycled water is installed as specified.
□	There is minimal run off or overspray from the irrigation system.
□	The irrigation schedule is submitted for the plant establishment period.
□	The project submittal package including any as built modifications to the landscape design or irrigation system design and a copy of this Certificate of Completion has been provided to the property owner or his/her designee.
Fill in any additional criteria or specifications from the ordinance.	
□	
□	
□	
□	
□	

Comments:

_____
_____
_____
_____
_____
_____

SECTION D. IRRIGATION (WATERING) SCHEDULE

Attach the irrigation schedule per ordinance Section 492.12

SECTION D. LANDSCAPE IRRIGATION AUDIT REPORT

Attach the Landscape Irrigation Audit Report per ordinance Section 492.14.

SECTION E. SCHEDULE OF LANDSCAPE IRRIGATION AUDITS

Attach the schedule of Landscape Irrigation Audits per ordinance Section 492.14

SECTION F. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach the schedule of Landscape and Irrigation Maintenance per ordinance Section 492.13

SECTION G. SIGNATURES

CONTRACTOR

"I/we certify that work has been installed in accordance with the contract documents."

Signature of Contractor	Date	
Name of Contractor (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No.		
Company	Street Address	
City	State	Zip Code

LANDSCAPE ARCHITECT, CERTIFIED IRRIGATION DESIGNER, OR LICENSED LANDSCAPE CONTRACTOR

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

Signature of Landscape Architect/Certified Irrigation Designer	Date	
Name of Landscape Architect/Certified Irrigation Designer/Licensed Landscape Contractor (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

PROPERTY OWNER

"I/we certify that I/we have received all of the contract documents and that it is our responsibility to see that the project is maintained in accordance with the contract documents and to comply with the provisions of the ordinance pertaining to landscape irrigation audits."

Signature of Property Owner or his/her Designee	Telephone No. Fax No.	
Property Owner or his/her Designee Name (print)		
Title	Email Address	
Company	Street Address	
City	State	Zip Code

THIS SECTION BELOW IS FOR LOCAL AGENCY USE ONLY.

Signature of the Local Agency Representative	
Name of the Local Agency Representative	
Title	
Telephone No.	
Email Address	
Name of Local Agency	
Name of Department or Division or Unit	
Street Address	
City	
State	Zip Code

For this project, the **Certificate of Completion** has been:

□ **Approved.**
Date:_____
Notes:_____

□ **Denied.**
Date:_____
Notes:_____

For this project, the **Certificate of Occupancy or equivalent** has been:

□ **Issued.**
Date:_____
Notes:_____

□ **Denied.**
Date:_____
Notes:_____

§495.3 Appendix D – Sample Effective Precipitation Disclosure Statement.

EFFECTIVE PRECIPITATION DISCLOSURE STATEMENT

See ordinance Section 492.6 and Section 494 for additional information on Effective Precipitation.
Please complete Section A, B and C.

SECTION A. PROJECT INFORMATION

Date _____

Project Name _____

Project Applicant _____

Project Address and Location

Street Address		Parcel Number(s)
City		Tract or Lot Number(s)
State	Zip Code	Latitude/Longitude Coordinates (optional)

SECTION B. LICENSED LANDSCAPE ARCHITECT OR CERTIFIED IRRIGATION DESIGNER

"I certify that I have informed the project owner and developer that this project depends on _____ gallons or cubic feet of Effective Precipitation per year*. This represents _____ percent of the local mean precipitation of _____inches per year. I have based my assumptions about the amount of precipitation that is effective upon (please attach additional pages if necessary):

_____

_____

I certify that I have informed the project owner and developer that in times of drought, there may not be enough water available to keep the entire landscape alive." ** This Effective Precipitation value should be identical to the value in the Water Efficient Landscape Worksheet (Section C).*

Signature of Licensed Landscape Architect or Certified Irrigation Designer	Telephone No. Fax No	
Name of Licensed Landscape Architect or Certified Irrigation Designer (Print)	Email Address	
Title License No. or Certification No. Company	Street Address	
City	State	Zip Code

SECTION C. PROPERTY OWNER

"I certify that I have been informed by the licensed or certified landscape professional that this project depends upon _____ gallons or cubic feet of Effective Precipitation per year*. This represents percent of the local mean precipitation of _____inches per year. I certify that I have been informed that in times of drought, there may not be enough water available to keep the entire landscape alive." ** This Effective Precipitation value should be identical to the value in the Water Efficient Landscape Worksheet (Section C).*

Signature of Property Owner or his/her designee	Telephone No. Fax No.	
Name of Property Owner or his/her designee (Print)	Email Address	
Title Company	Street Address	
City	State	Zip Code

§495.4 Appendix E – Conversion Factors and Calculations

A. Conversion Factors

To convert from	To	Multiply by
Inches of water	gallons	Landscape area (sq. ft.) X 0.62
cubic feet	gallons	7.48
ccf	gallons	748
acre feet	gallons	325,851
acre feet	cubic feet	43,560
gallons	pounds	8.34
Cubic feet per second (cfs)	gallons per minute (gpm)	448.83
hectare	acres	2.47
acres	square feet	43,560

B. Calculations

ET Adjustment Factor

ETAF = (PF)/(IE)

Where:

ETAF = Evapotranspiration adjustment factor
PF = plant factor
IE = irrigation efficiency
= (Distribution Uniformity) X (Management Efficiency)

Landscape Coefficient (refer to Water Use Classification of Landscape Species or WUCOLS for details)

$K_L = (k_s)\ (k_d)\ (k_{mc})$

K_L = landscape coefficient or plant factor.
k_s = species factor
k_d = density factor
k_{mc} = microclimate factor

Maximum Applied Water Allowance

MAWA = (ETo) (0.7) (LA) (0.62)

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
0.7 = ET Adjustment Factor
LA = Landscaped Area (square feet)
0.62 = Conversion factor

Estimated Water Use (for a Hydrozone)

$$EWU = \frac{(ETo)(PF)(HA)(0.62)}{(IE)}$$

EWU = Estimated total water use for a hydrozone (gallons)
ETo = Reference evapotranspiration (inches per month)
PF = Plant factor (or landscape coefficient)
HA = Hydrozone area (square feet)
0.62 = Conversion factor
IE = Irrigation efficiency (fraction)

Assembly Bill No. 1881

CHAPTER 559

An act to add Section 1353.8 to the Civil Code, to repeal and add Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code, to add Section 25401.9 to the Public Resources Code, and to add Article 4.5 (commencing with Section 535) to Chapter 8 of Division 1 of the Water Code, relating to water conservation.

[Approved by Governor September 28, 2006. Filed with Secretary of State September 28, 2006.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1881, Laird. Water conservation.

(1) Existing law, the Davis-Sterling Common Interest Development Act, defines and regulates common interest developments, which include community apartment projects, condominium projects, planned developments, and stock cooperatives.

This bill would provide that the architectural guidelines of a common interest development shall not prohibit or include conditions that have the effect of prohibiting the use of low water-using plants as a group.

(2) The Water Conservation in Landscaping Act requires the Department of Water Resources to appoint an advisory task force to work with the department to draft a model local water efficient landscape ordinance that local agencies may adopt, requires the task force to submit the ordinance to the department on or before May 1, 1991, and requires the task force to cease to exist on the date the department adopts the model ordinance or January 1, 1992, whichever occurs first. The act requires the department, not later than January 1, 1992, to adopt a model local water efficient landscape ordinance which each local agency may adopt. The act makes the model local water efficient landscape ordinance adopted by the department applicable within the jurisdiction of a local agency if that local agency, by January 1, 1993, has not adopted a water efficient landscape ordinance or has not adopted certain findings that the adoption of the ordinance is unnecessary.

This bill would specify that the provision making the model ordinance applicable to a local agency on and after January 1, 1993, does not apply to chartered cities. The bill would require the department, to the extent funds are appropriated, not later than January 1, 2009, by regulation, to update the model ordinance in accordance with specified requirements. The bill would require the department to prepare and submit to the Legislature a prescribed report before the adoption of the updated model ordinance. The bill would require a local agency, not later than January 1, 2010, to adopt the updated model ordinance or other water efficient

landscape ordinance that is at least as effective in conserving water as the updated model ordinance. The bill would make the updated model ordinance applicable within the jurisdiction of a local agency, including a chartered city, if, by January 1, 2010, the local agency has not adopted its own water efficient landscape ordinance or the updated model ordinance. The bill would require each local agency, not later than January 31, 2010, to notify the department as to whether the local agency is subject to the department's updated model ordinance and, if not, to submit to the department a copy of the water efficient landscape ordinance adopted by the local agency, among other documents. The bill would require the department, to the extent funds are appropriated, not later than January 31, 2011, to prepare and submit a report to the Legislature relating to the status of water efficient landscape ordinances adopted by local agencies.

By imposing requirements on local agencies in connection with the adoption of water efficient landscape ordinances, the bill would impose a state-mandated local program.

(3) Existing law requires the State Energy Resources Conservation and Development Commission (Energy Commission), after one or more public hearings, to take specified action to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy. Existing law requires the Energy Commission, by January 1, 2004, to amend specified regulations to require that residential clothes washers manufactured on or after January 1, 2007, be at least as water efficient as commercial clothes washers, and to take certain other related action.

This bill would require the Energy Commission, in consultation with the department, to adopt, to the extent funds are available, by regulation performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water. The bill would require the Energy Commission to adopt those requirements for landscape irrigation controllers and moisture sensors by January 1, 2010, and, on and after January 1, 2012, would prohibit the sale or installation of an irrigation controller or moisture sensor for landscape use unless the controller or sensor meets those adopted requirements. The bill would require the Energy Commission, on or before January 1, 2010, to prepare and submit to the Legislature a report that sets forth a proposed schedule for adopting performance standards and labeling requirements for emission devices and valves.

(4) Existing law generally requires an urban water supplier to install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

This bill would require a water purveyor as defined, to require as a condition of new retail water service on and after January 1, 2008, the installation of separate water meters to measure the volume of water used exclusively for landscape purposes. The bill would make this requirement applicable to specified service connections.

(5) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to these statutory provisions.

The people of the State of California do enact as follows:

SECTION 1. Section 1353.8 is added to the Civil Code, to read:

1353.8. The architectural guidelines of a common interest development shall not prohibit or include conditions that have the effect of prohibiting the use of low water-using plants as a group.

SEC. 2. Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code is repealed.

SEC. 3. Article 10.8 (commencing with Section 65591) is added to Chapter 3 of Division 1 of Title 7 of the Government Code, to read:

Article 10.8. Water Conservation in Landscaping

65591. This article shall be known and may be cited as the Water Conservation in Landscaping Act.

65592. Unless the context requires otherwise, the following definitions govern the construction of this article:

(a) "Department" means the Department of Water Resources.

(b) "Local agency" means any city, county, or city and county, including a charter city or charter county.

(c) "Water efficient landscape ordinance" means an ordinance or resolution adopted by a local agency, or prepared by the department, to address the efficient use of water in landscaping.

65593. The Legislature finds and declares all of the following:

(a) The waters of the state are of limited supply and are subject to ever increasing demands.

(b) The continuation of California's economic prosperity is dependent on adequate supplies of water being available for future uses.

(c) It is the policy of the state to promote the conservation and efficient use of water and to prevent the waste of this valuable resource.

(d) Landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development.

(e) Landscape design, installation, maintenance, and management can and should be water efficient.

(f) Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the

beneficial use to be served and the right does not and shall not extend to waste or unreasonable use or unreasonable method of use.

(g) (1) The Legislature, pursuant to Chapter 682 of the Statutes of 2004, requested the California Urban Water Conservation Council to convene a stakeholders work group to develop recommendations for improving the efficiency of water use in urban irrigated landscapes.

(2) The work group report includes a recommendation to update the model water efficient landscape ordinance adopted by the department pursuant to Chapter 1145 of the Statutes of 1990.

(3) It is the intent of the Legislature that the department promote the use of this updated model ordinance.

(h) Notwithstanding Article 13 (commencing with Section 65700), this article addresses a matter that is of statewide concern and is not a municipal affair as that term is used in Section 5 of Article XI of the California Constitution. Accordingly, it is the intent of the Legislature that this article, except as provided in Section 65594, apply to all cities and counties, including charter cities and charter counties.

65594. (a) Except as provided in Section 65595, if by January 1, 1993, a local agency did not adopt a water efficient landscape ordinance and did not adopt findings based on climatic, geological, or topographical conditions, or water availability that state that a water efficient landscape ordinance is unnecessary, the model water efficient landscape ordinance adopted by the department pursuant to Chapter 1145 of the Statutes of 1990 shall apply within the jurisdiction of the local agency as of that date, shall be enforced by the local agency, and shall have the same force and effect as if adopted by the local agency.

(b) Notwithstanding subdivision (b) of Section 65592, subdivision (a) does not apply to chartered cities.

(c) This section shall apply only until the department updates the model ordinance.

65595. (a) (1) To the extent funds are appropriated, not later than January 1, 2009, by regulation, the department shall update the model water efficient landscape ordinance adopted pursuant to Chapter 1145 of the Statutes of 1990, after holding one or more public hearings. The updated model ordinance shall be based on the recommendations set forth in the report prepared pursuant to Chapter 682 of the Statutes of 2004 and shall meet the requirements of Section 65596.

(2) Before the adoption of the updated model ordinance pursuant to paragraph (1), the department shall prepare and submit to the Legislature a report relating to both of the following:

(A) The extent to which local agencies have complied with the model water efficient landscape ordinance adopted pursuant to Chapter 1145 of the Statutes of 1990.

(B) The department’s recommendations regarding the landscape water budget component of the updated model ordinance described in subdivision (b) of Section 65596.

(b) Not later than January 31, 2009, the department shall distribute the updated model ordinance adopted pursuant to subdivision (a) to all local agencies and other interested parties.

(c) On or before January 1, 2010, a local agency shall adopt one of the following:

(1) A water efficient landscape ordinance that is, based on evidence in the record, at least as effective in conserving water as the updated model ordinance adopted by the department pursuant to subdivision (a).

(2) The updated model ordinance described in paragraph (1).

(d) If the local agency has not adopted, on or before January 1, 2010, a water efficient landscape ordinance pursuant to subdivision (c), the updated model ordinance adopted by the department pursuant to subdivision (a) shall apply within the jurisdiction of the local agency as of that date, shall be enforced by the local agency, and shall have the same force and effect as if adopted by the local agency.

(e) Nothing in this article shall be construed to require the local agency's water efficient landscape ordinance to duplicate, or to conflict with, a water efficiency program or measure implemented by a public water system, as defined in Section 116275 of the Health and Safety Code, within the jurisdictional boundaries of the local agency.

65596. The updated model ordinance adopted pursuant to Section 65595 shall do all the following in order to reduce water use:

(a) Include provisions for water conservation and the appropriate use and groupings of plants that are well-adapted to particular sites and to particular climatic, soil, or topographic conditions. The model ordinance shall not prohibit or require specific plant species, but it may include conditions for the use of plant species or encourage water conserving plants. However, the model ordinance shall not include conditions that have the effect of prohibiting or requiring specific plant species.

(b) Include a landscape water budget component that establishes the maximum amount of water to be applied through the irrigation system, based on climate, landscape size, irrigation efficiency, and plant needs.

(c) Promote the benefits of consistent local ordinances in neighboring areas.

(d) Encourage the capture and retention of stormwater onsite to improve water use efficiency or water quality.

(e) Include provisions for the use of automatic irrigation systems and irrigation schedules based on climatic conditions, specific terrains and soil types, and other environmental conditions. The model ordinance shall include references to local, state, and federal laws and regulations regarding standards for water-conserving irrigation equipment. The model ordinance may include climate information for irrigation scheduling based on the California Irrigation Management Information System.

(f) Include provisions for onsite soil assessment and soil management plans that include grading and drainage to promote healthy plant growth and to prevent excessive erosion and runoff, and the use of mulches in shrub areas, garden beds, and landscaped areas where appropriate.

(g) Promote the use of recycled water consistent with Article 4 (commencing with Section 13520) of Chapter 7 of Division 7 of the Water Code.

(h) Seek to educate water users on the efficient use of water and the benefits of doing so.

(i) Address regional differences, including fire prevention needs.

(j) Exempt landscaping that is part of a registered historical site.

(k) Encourage the use of economic incentives to promote the efficient use of water.

(*l*) Include provisions for landscape maintenance practices that foster long-term landscape water conservation. Landscape maintenance practices may include, but are not limited to, performing routine irrigation system repair and adjustments, conducting water audits, and prescribing the amount of water applied per landscaped acre.

(m) Include provisions to minimize landscape irrigation overspray and runoff.

65597. Not later than January 31, 2010, each local agency shall notify the department as to whether the local agency is subject to the department's updated model ordinance adopted pursuant to Section 65595, and if not, shall submit to the department a copy of the water efficient landscape ordinance adopted by the local agency, and a copy of the local agency's findings and evidence in the record that its water efficient landscape ordinance is at least as effective in conserving water as the department's updated model ordinance. Not later than January 31, 2011, the department shall, to the extent funds are appropriated, prepare and submit a report to the Legislature summarizing the status of water efficient landscape ordinances adopted by local agencies.

65598. Any model ordinance adopted pursuant to this article shall exempt cemeteries from all provisions of the ordinance except those set forth in subdivisions (h), (k), and (*l*) of Section 65596. In adopting language specific to cemeteries, the department shall recognize the special landscape management needs of cemeteries.

65599. Any actions or proceedings to attach, review, set aside, void, or annul the act, decision, or findings of a local agency on the ground of noncompliance with this article shall be brought pursuant to Section 1085 of the Code of Civil Procedure.

SEC. 4. Section 25401.9 is added to the Public Resources Code, to read:

25401.9. (a) To the extent that funds are available, the commission, in consultation with the Department of Water Resources, shall adopt by regulation, after holding one or more public hearings, performance standards and labeling requirements for landscape irrigation equipment, including, but not limited to, irrigation controllers, moisture sensors, emission devices, and valves, for the purpose of reducing the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

(b) For the purposes of complying with subdivision (a), the commission shall do all of the following:

(1) Adopt performance standards and labeling requirements for landscape irrigation controllers and moisture sensors on or before January 1, 2010.

(2) Consider the Irrigation Association's Smart Water Application Technology Program testing protocols when adopting performance standards for landscape irrigation equipment, including, but not limited to, irrigation controllers, moisture sensors, emission devices, and valves.

(3) Prepare and submit a report to the Legislature, on or before January 1, 2010, that sets forth on a proposed schedule for adopting performance standards and labeling requirements for emission devices and valves.

(c) On and after January 1, 2012, an irrigation controller or moisture sensor for landscape irrigation uses may not be sold or installed in the state unless the controller or sensor meets the performance standards and labeling requirements established pursuant to this section.

SEC. 5. Article 4.5 (commencing with Section 535) is added to Chapter 8 of Division 1 of the Water Code, to read:

Article 4.5. Irrigated Landscape

535. (a) A water purveyor shall require as a condition of new retail water service on and after January 1, 2008, the installation of separate water meters to measure the volume of water used exclusively for landscape purposes.

(b) Subdivision (a) does not apply to either of the following:

(1) Single-family residential connections.

(2) Connections used to supply water for the commercial production of agricultural crops or livestock.

(c) Subdivision (a) applies only to a service connection for which both of the following apply:

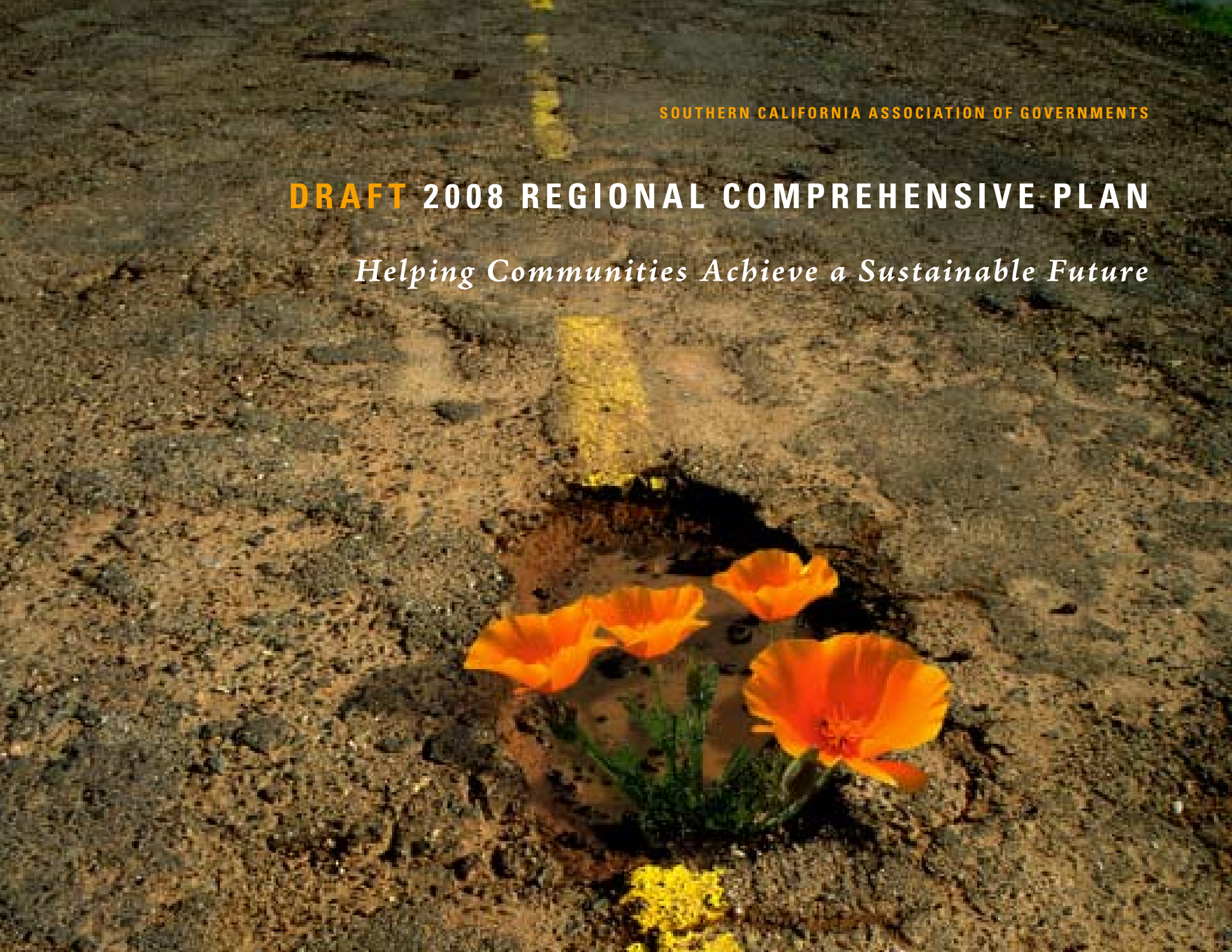
(1) The connection serves property with more than 5,000 square feet of irrigated landscape.

(2) The connection is supplied by a water purveyor that serves 15 or more service connections.

(d) For the purposes of this section, "new retail water service" means the installation of a new water meter where water service has not been previously provided, and does not include applications for new water service submitted before January 1, 2007.

SEC. 6. If the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

O



SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

DRAFT 2008 REGIONAL COMPREHENSIVE PLAN

Helping Communities Achieve a Sustainable Future

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

REGIONAL COMPREHENSIVE PLAN 2008

PACIFIC
INSTITUTE

Waste Not, Want Not:
The Potential for Urban Water Conservation in California

Peter H. Gleick

Dana Haasz

Christine Henges-Jeck

Veena Srinivasan

Gary Wolff

Katherine Kao Cushing

Amardip Mann

November 2003

Summary
Proposed Water Conservation Legislation
Assemblymembers Laird and Feuer

California has tremendous opportunity to transform water use practices and reclaim a leadership role in water conservation. Growing population, local and regional water shortages, climate change, and the need to protect California's fish and wildlife make it imperative that the State manage its water resources as efficiently as possible. In addition to helping existing water supplies go further, investments in water conservation also help to:

- Reduce dependence on water diversions from severely stressed ecosystems;
- Reduce dependence on imported water supplies that are at vulnerable to seismic events, flooding and climate change;
- Reduce energy use associated with water delivery, treatment and use
- Reduce greenhouse gas emissions, helping to reach California's climate change and greenhouse gas emissions reduction goals;
- Increase local water self-reliance; and
- Improve water quality by reducing polluted urban and agricultural runoff.

California has already achieved a great deal in the area of water conservation: over the past decade local agencies from across the state have invested in programs to help reduce water use by hundreds of thousands of acre-feet per year. However, much remains to be done.

Improvements in technology and management practices offer the potential for increasing water conservation in California over time, better enabling California to meet its water supply needs for urban, agricultural, and environmental water uses.

The Department of Water Resource's California Water Plan (Bulletin 160-05) projects that, in addition to current conservation efforts, expanded urban water conservation has the potential to reduce water demand by between 2 and 3 million acre feet per year by the year 2030 through feasible and cost-effective measures. Bulletin 160-05 also projects that agricultural water conservation has the potential to provide up to 1 million acre feet per year by 2030 in additional water savings.

This legislation seeks to ensure that California manages its water resources as efficiently as possible, thereby stretching state and local water and energy supplies, reducing energy use and greenhouse gas emissions, reducing costs, and protecting the Bay/Delta and other aquatic ecosystems.

This legislation will:

- Expand upon existing plans and processes to establish and track water conservation targets, including Bulletin 160, Urban Water Management Plans, AB 1420, and the California Urban Water Conservation Council. This bill would build upon the recently enacted AB 1420 by establishing a statewide target for water conservation, and encouraging the development of new technologies and investments necessary to meet that target.

- Require the Department of Water Resources, as part of the Bulletin 160 update, to set a statewide target for water conservation. The target would provide for the maximum feasible and cost effective increase in water conservation, and would be updated every five years. The bill would set the initial target at 3 million acre feet per year by 2030 for combined agricultural and urban water conservation.

- Require the department to publish a list of technically feasible urban and agricultural water conservation measures. Require water suppliers to adopt a numeric water conservation target for 2030 based on either the implementation of those water conservation measures identified by the department which are both technically feasible and cost–effective for the local area, OR alternative measures that achieve equal or greater water savings.

- Require water suppliers to report to the department, confirmed by independent evaluation, on the basis of their adopted water conservation target and their progress in reaching the target. The department will develop standardized evaluation methodologies and reporting formats. Based on the water supplier report and the independent evaluation, the department may require additional conservation measures if there is insufficient progress in meeting the target, or if the conservation target does not meet specified methodology and guidelines.

- Because of the broad public benefits associated with achieving the state's greatest conservation potential, require the department to implement a plan of action, including funding, sufficient to fill the gap if the locally cost effective conservation targets do not meet the statewide target.

Future amendments are expected to include:

  - Measures to increase implementation of the bill. Consistent with AB 1420, eligibility for receipt of state grants should be conditioned on compliance with the bill's requirements. In addition, compliance may be tied to the amendment or issuance of water right permits, or issuance of fines.

  - Identification of funding sources sufficient to achieve the state targets.

  - Establish the role of the State Water Resources Control Board in carrying out the provisions of this Act.

Part 2.65 is added to Division 6 of the Water Code to read:

PART 2.65. WATER CONSERVATION

CHAPTER 1. GENERAL DECLARATIONS AND POLICY

10608. The Legislature finds and declares the following:

(a) Water is a public trust resource in California that must be protected against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect California's fish and wildlife make it essential that the State manage its water resources as efficiently as possible.

(c) Reduced water use through conservation provides significant energy and environmental benefits, can help protect water quality and reduces greenhouse gas emissions.

(d) Improvements in technology and management practices offer the potential for increasing water conservation in California over time providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(e) The California Water Plan (Bulletin 160-05?) projects that urban water conservation can reduce water demand by between 2 and 3 million acre feet per year by the year 2030 through feasible and cost-effective measures. The Water Plan also projects that agricultural water conservation has the potential to provide up to 1 million acre feet per year by 2030 in additional water savings.

10608.1. It is the policy of the State to require all water suppliers to identify, adopt and implement the maximum feasible and cost effective water conservation measures to avoid waste and unreasonable use of this essential resource.

CHAPTER 2. DEFINITIONS

10608.2. The following definitions apply to this part:

(a) "Locally cost effective" means that the present value of the local benefits of implementing a water conservation measure are greater than or equal to the present value of the local costs of implementing that measure.

(b) "Water conservation" means those measures, programs and incentives that result in reduced demand, prevent the waste of water, and promote the efficient use of available supplies.

(c) "Water supplier" includes both of the following:

(1) Urban water suppliers as defined in Section 10617, and

(2) Agricultural water suppliers as defined in Section 531(b).

CHAPTER 3. WATER CONSERVATION TARGETS

10608.3. The department shall establish a numeric water conservation target for California that provides for the maximum feasible and cost effective increase in water

conservation. The target for the year 2030 shall be not less than a 3 million acre feet reduction from current projected demand in the absence of additional urban and agricultural water conservation measures. On or before December 31, 2012 and not less than every five years thereafter, the department shall review and may increase the water conservation target for 2030, based on consideration of all relevant information including but not limited to estimates of maximum feasible and locally cost effective water conservation potential determined pursuant to 10608.5 and 10608.6.

10608.4. On or before December 31, 2012, the department shall establish interim urban and agricultural water conservation targets for the years 2015, 2020 and 2025, and every five years thereafter, based on the information identified in Section 10608.3, for each hydrologic region of the state, that reflect the unique conditions of each region and which include consideration of relative per capita water consumption, agricultural economics, and conservation and water use efficiency measures adopted prior to establishment of state and regional water conservation targets. These regional targets shall be designed to cumulatively achieve the statewide water conservation target established and updated pursuant to Section 10608.3.

10608.5. (a) On or before December 31, 2010 and every 5 years thereafter, the department shall develop and publish a list of technically feasible urban water conservation measures available to meet the urban targets identified in 10608.3 and 10608.4. The developing the list of water conservation measures the department shall consider all relevant information including but not limited to information provided by the independent technical panel established pursuant to Section 10631.7.

(b) On or before December 31, 2012, and every five years thereafter, every urban water supplier shall either adopt those water conservation measures identified in (a) which are locally cost-effective, or implement alternative measures that achieve equal or greater water savings. Water suppliers shall adopt a numeric water conservation target, based on the proposed conservation measures, for 2012 and every five years thereafter. A water supplier shall submit documentation indicating that a water conservation measure is not locally cost effective.

(c) On or before December 31, 2014, and every two years thereafter, urban water suppliers shall report to the department, confirmed by independent evaluation, on the basis for their adopted water conservation target and their progress in reaching the target.

(d) Based on the urban water supplier report and independent evaluation, the department may require additional conservation measures if the department determines the proposed target is not consistent with (a) or if there is insufficient progress in meeting the target.

10608.6 (a) On or before December 31, 2012, and every five years thereafter, the department shall develop and publish a list of efficient agricultural water management practices available to meet the agricultural targets identified in 10608.3 and 10608.4.

(b) On or before December 31, 2015, and every five years thereafter, every agricultural water suppliers shall either adopt those conservation practices identified in (a) that are both technically feasible and cost–effective for the local area, or implement alternative measures that achieve equal or greater water savings. Water suppliers shall

adopt a numeric water conservation target, based on the proposed conservation practices, for 2015 and every five years thereafter. A water supplier shall submit documentation indicating that a water conservation measure is not locally feasible or not locally cost effective

(c) On or before December 31, 2015 and every five years thereafter, agricultural water suppliers shall report to the department, confirmed by independent evaluation, on the basis of their adopted water conservation target and their progress in reaching the target.

(d) Based on the agricultural water supplier report and independent evaluation, the department may require additional conservation measures if the department determines the proposed target is not consistent with (a) or if there is insufficient progress in meeting the target.

10608.7. To the extent that the aggregate of the local conservation targets identified in 10608.5 and 10608.6 do not meet the state targets identified in Section 10608.3 and 10608.4, the department shall propose and adopt a plan of action sufficient to fill the gap and meet the state targets. This plan should specify the increased levels of conservation that should be implemented at the state and local level, that would be in addition to the locally cost effective measures proposed in Sections 10608.5 10608.6. This increased level of conservation should be supported by state or federal funding because of the broad public benefits.

10608.8 Water suppliers may comply with sections 10608.5 and 10608.6 individually or regionally and the requirements may be met through the submission of an Urban Water Management Plan or Agricultural Water Management Plan.

10608.9. (a) The department shall develop methodologies and guidelines as necessary to implement this chapter.

(b) All state water conservation targets, methodologies and guidelines, and lists of feasible water conservation measures or practices identified under this part, shall be established only after the department, or at the department's request, the California Water Commission, conducts a series of public hearings and workshops to allow participation of the diverse geographical areas and interests of the state.

10608.10. The Legislature hereby finds that the development, adoption, and implementation of water conservation targets as provided in this part is an issue of statewide significance that is critical to the effective implementation of integrated regional water management in California and funds provided by Section 75026 of the Public Resources Code shall be available, consistent with the provisions and requirements of Division 43 of the Public Resources Code, and upon appropriation by the Legislature, for grants and expenditures to implement this part.

Integrated Regional Water Management Plan Update
Meeting #3
Thursday 28 February 2008
1:30 – 4:00 ±
Western MWD Board Room – 450 E. Alessandro Blvd. Riverside, CA 951-789-5000

1. Welcome and Introductions (5 min)– WMWD
2. USBR/SAWPA One Water, One Watershed – Regional RW Planning
3. Overview of RW Opportunities within WMWD
4. Overview of Groundwater Recharge Opportunities within WMWD
5. Overview of Flood Control Opportunities as Related to Groundwater Recharge - Riverside County Flood Control and Water Conservation District
6. Brainstorming of Multi-benefit Project Opportunities
7. Regional Water Objectives
    a. SAWPA
    b. WMWD
    c. SBVMWD
8. Project Evaluation Process and Criteria
9. Follow-up Meetings/Conference Call Topics–Kennedy/Jenks Consultants (5 min)
    a. 3/13/08 – Meeting at WMWD: Summary of Project Input Received, Supply Reliability Evaluation, and Finalize Regional and Plan Objective
    b. 3/27/08 – Meeting at WMWD: Future Land–Use Projections and Impacts on Water – Present WMWD Land-Use based water demand projections
    c. 4/10/08 – Meeting at WMWD: IRWMP Implementation and Funding (e.g. Prop 84/1E)
    d. 4/24/08 – Meeting at WMWD: Presentation of Regional Project Concepts/draft IRWMP Update
    e. New! 5/8/08 (tentative) Meeting at WMWD:- DPH and SWRCB Interpretation of RW Regulations for GW Recharge
10. Other topics
    a. Information requests and what's next for project review

Western Municipal Water District

Integrated Regional Water Management Plan (IRWMP) Update

Meeting #3

February 28, 2008

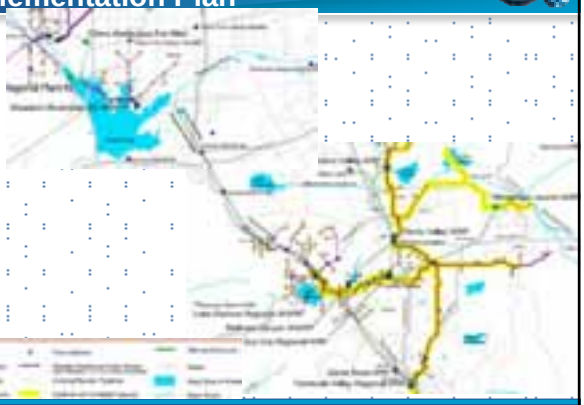
Agenda

- Welcome and Introductions
- Regional RW Planning –USBR and SAWPA/EMWD
- Overview of RW Opportunities within WMWD
- Overview of Groundwater Recharge Opportunities within WMWD
- Overview of Flood Control Opportunities as Related to Groundwater Recharge
- Brainstorming of Multi-benefit Project Opportunities
- Regional Objectives/Goals
- Project Evaluation Approach
- Follow-up Meetings/Conference Call Topics

Regional Recycled Water Planning Activities

- USBR Southern California Comprehensive Water Reclamation and Reuse Study, Phase II (July 2002)
- SAWPA One Water, One Watershed – Recycled Water Pillar
- Recycled Water (Water Management Strategy) in WMWD IRWMP Update

USBR Study: Short Term (2010) Implementation Plan



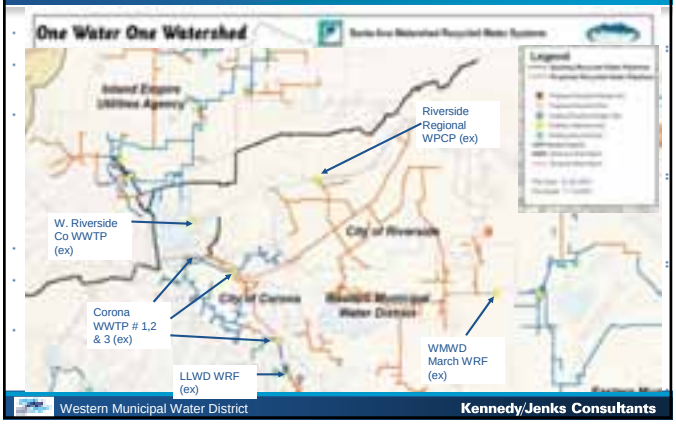
SAWPA One Water, One Watershed – Water Recycling

- Eastern MWD is leading effort
- Draft report in progress including
  - Current conditions
    - facilities,
    - recycled water use,
    - projected plant capacities and recycled water use
  - Current Management Strategies
    - Current Efforts
    - Barriers and Constraints
      - Regulatory
      - Brine line
      - Storage/seasonal
      - Water quality
      - Public perception

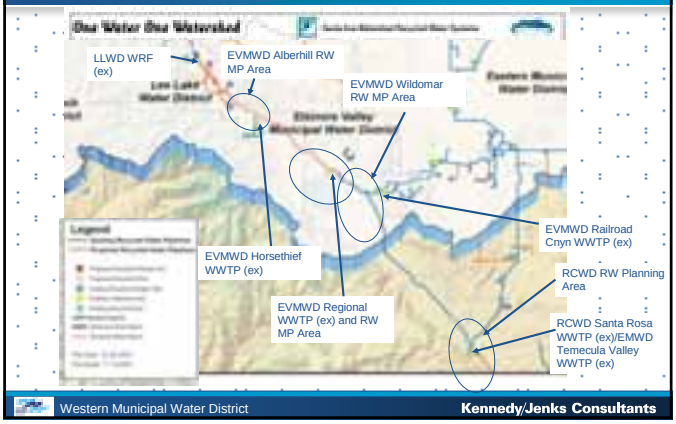
SAWPA One Water, One Watershed – Water Recycling

- Concepts and Ideas for the Future
  - Increase Direct Reuse
  - Increase Recycled Water Recharge
  - Increase Recycled Water/Energy Savings
- Collaboration and Integration with Other Pillars
  - Climate Change
  - Environment and Habitat
  - Water Supply Reliability
  - Water Use Efficiency
  - Water Quality
  - Flood Control and Stormwater Management

Preliminary Recycled Water Mapping



Preliminary Recycled Water Mapping



Riverside County Flood Control

Opportunities for integration of flood control, stormwater quality to groundwater recharge

GW Recharge Opportunities

WMWD - Arlington Recharge

Riverside/WMWD – Riverside GW Basin Recharge

Corona- RW Percolation/Recharge

LLWD – RW Recharge

GW Recharge Opportunities Within WMWD

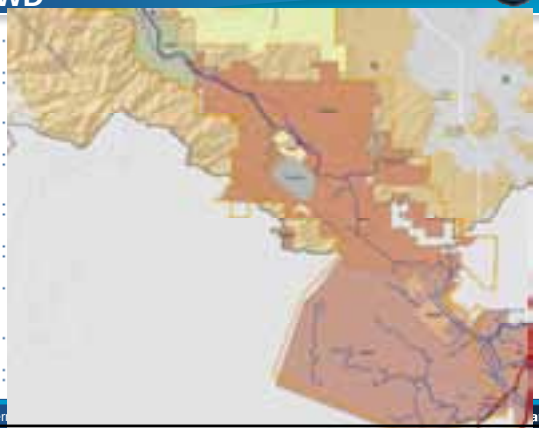
GW Recharge Opportunities

EVMWD - Back Basin Conjunctive Use

WMWD – Murrieta Division – Murrieta Creek Recharge

RCWD –Vail Lake Recharge

GW Recharge Opportunities Within WMWD



Brainstorming of Multi-Benefit Projects

Regional Objectives: SAWPA One Water, One Watershed

Provide Reliable Water Supply
- Reduce dependency on imported water
- Meet current and future water demands during all hydrologic conditions
- Meet water demands during emergency or catastrophic conditions
- Maximize water use efficiency(conservation)
- Increase use of recycled water

Promote Sustainable Water Solutions
- Promote strategies that link land and water use
- Reduce greenhouse gas emissions
- Reduce energy consumption and promote urban greening projects
- Develop partnerships for planning and implementation of economically, environmentally, and socially sustainable watershed projects

Ensure High Quality Water for All Users
- Attain water quality standards in fresh and marine environments
- Match water quality with intended uses
- Protect and improve source water
- Manage salinity

Manage Rainfall as a Resource
- Provide appropriate flood control capacity and other benefits to the community
- Maximize beneficial use of rain water

Preserve and Enhance the Environment
- Protect and enhance the ecological function of open-space
- Protect and enhance water related habitats
- Reduce or eliminate invasive riparian and aquatic species
- Protect sensitive marine and estuarine environments
- Consider ecological functionality in new development

Regional Objectives: SAWPA One Water, One Watershed

Provide Economically Effective Solutions
- Leverage existing financial and infrastructure assets
- Minimize capital, O & M, and life-cycle cost
- Promote aggressive pursuit of grants and loans
- Pursue innovative, nontraditional revenue-generating concepts

Improve Regional Integration and Coordination
- Engage stakeholders in planning and implementation of watershed projects
- Increase communication and coordination
- Search for projects that meet multiple goals across geographic and water resource services

Preserve Open-Space and Recreation Opportunities
- Increase opportunities for recreation and open-space
- Provide useable open-space for all residents of the watershed

Maintain Quality of Life
- Balance quality of life, and social, environmental and economic impacts when implementing projects
- Consider the needs of disadvantaged communities

Regional Objectives and Goals

WMWD IRWMP (2006) Goals

Implement selected SAWPA One Water, One Watershed Pillars by identifying and evaluating projects on a regional basis that:

- **Provide water supply reliability for dry periods as well as short-term outages**
- **Address regional surface water and groundwater quality concerns**
- **Provide operational redundancy, especially for MWD outages**

Provide an on-going process to evaluate and compare water opportunities

Others?

SBVMWD IRWMP Objectives

Broad water management objectives to guide a wide range of water management activities of the region.

1. **Water Supply Reliability Improvement including surface water management and groundwater management (adapt UWMP reliability criteria)**
2. **Water Quality Protection.**
3. **Ecosystem Restoration and Environmental Improvement.**

Basin Management Objectives (**BMOs)** for management of the groundwater basins (esp SBBA) including

1. **Reducing the risk of liquefaction in the pressure Zone and**
2. **Avoiding impacts to and from the contaminant plumes.**
3. **Maximize conjunctive use**

Modify Project Evaluation Approach

Ref: SBVMWD, IRWMP 2007

Project Evaluation Approach

Ref: SBVMWD, IRWMP 2007

Follow-up Meetings/Conference Call Topics

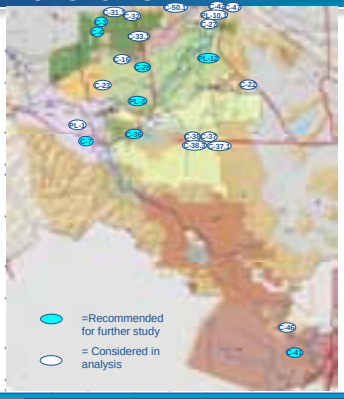
- 3/13/08 –Summary of Project Input Received, Supply Reliability Evaluation, and Finalize Regional and Plan Objective
- 3/27/08 –Future Land-Use Projections and Impacts on Water – Present WMWD Land-Use based water demand projections – Susan Lien Longville - invited
- 4/10/08 –IRWMP Implementation and Funding (e.g. Prop 84/1E)
- 4/24/08 –Presentation of Regional Project Concepts/draft IRWMP Update
- New! 5/8/08 Meeting at WMWD:- DPH and SWRCB Interpretation of RW Regulations for GW Recharge

Other Topics?

WMWD IRWMP Goals and Objectives

- Implement selected SAWPA One Water, One Watershed Pillars by identifying and evaluating projects on a regional basis that:
  - Provide water supply reliability for dry periods as well as short-term outages
  - Address regional surface water and groundwater quality concerns
  - Provide operational redundancy, especially for MWD outages
- Provide an on-going process to evaluate and compare water opportunities

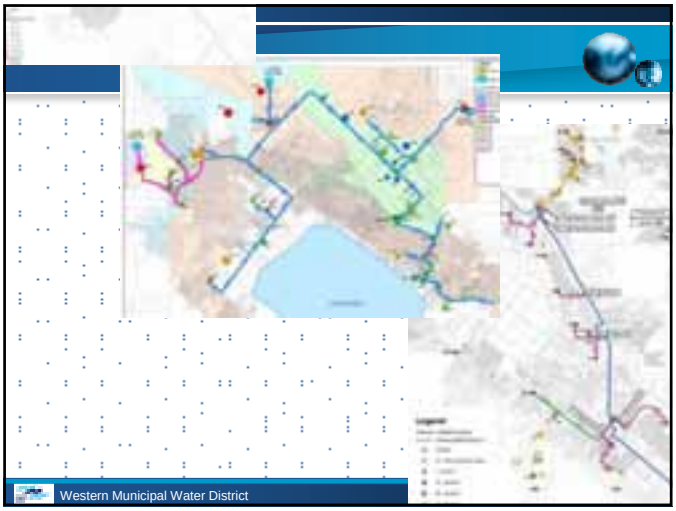
High Priority Projects with Regional Benefit from WMWD IRWMP



- C-3 Chino II Ultimate Expansion from 14 – 18 mgd
- C-4 Chino III Desalter
- C-7 Corona – El Sobrante GW Treatment Project
- C-28 -Riverside- GW Basin South Additional Supply
- C-36 Eagle Valley WTP
- C-41-RCWD – Hybrid 1 Alternative
- PL-3 Arlington Desalter Expansion of 3.6 MGD
- PL-12 Riverside/Corona Feeder

SBVMWD IRWMP Projects

- 13 – Riv N. Recharge Basin
- 19 – R/C Feeder
- 43 – Riv Regl WQCP
- 46 – Pellesier Ranch Barrier Wells and WTP
- 98 – Waterman-Gage Intertie
- 122 – Riv/Arl GW Basin Model
- 124/125 – SAR Trail Ph III + IV



Integrated Regional Water Management Plan Update
Meeting #4 –Revised Agenda
Thursday 13 March 2008
1:30 – 4:00 ±
Western MWD Board Room – 450 E. Alessandro Blvd. Riverside, CA 951-789-5000

1. Welcome and Introductions – WMWD
2. Regional Water and IRWMP Objectives -– WMWD and Kennedy/Jenks Consultants
3. Project Evaluation Process and Criteria – WMWD and Kennedy/Jenks Consultants
4. Summary of Projects Received – Kennedy/Jenks Consultants
5. Follow-up Meetings/Conference Call Topics–Kennedy/Jenks Consultants (5 min)
    a. 3/27/08 – Meeting at WMWD: Future Land–Use Projections and Impacts on Water – Present WMWD Land-Use based water demand projections
    b. 4/10/08 – CANCELLED
    c. 4/24/08 – Joint Meeting with WUEMP at WMWD: John Koeller - "Emerging Technologies in Indoor Water Conservation", IRWMP Implementation and Funding (e.g. Prop 84/1E); Presentation of Regional Project Concepts/draft IRWMP Update
    d. New! 5/8/08 (tentative) Meeting at WMWD:- DPH and SWRCB Interpretation of RW Regulations for GW Recharge
6. Other topics
    a. Information requests and what's next for project review

Western Municipal Water District

Integrated Regional Water Management Plan (IRWMP) Update

Meeting #4
IRWMP Objectives and Project Evaluation

Jack Safely, WMWD
Sachi Itagaki, Kennedy/Jenks Consultants
March 13, 2008

Agenda

- Welcome and Introductions
- Regional Water and IRWMP Objectives
- Project Evaluation Process and Criteria
- Summary of Projects Received
- Supply Reliability Evaluation
- Overview of Follow-up Meetings/Conference Calls
- Other Topics

Regional Water and IRWMP Objectives

- Water Management Objectives
  - IRWMP Objectives
    - Water Supply Reliability
    - Water Quality Improvement
    - Operational Redundancy
  - Integration of multiple water management strategies
    - Ex: conservation, flood control, water quality, wetlands preservation…
  - Consider needs of disadvantaged communities

Project Evaluation Process and Criteria

- Overview
  - Collaborate with stakeholders
  - Model after SBVMWD IRWMP Project Ranking Criteria
  - Emphasis on projects that provide additional water supply
  - Identify and rank projects that:
    - Meets IRWMP objectives
    - Supports water management strategies
    - Show readiness to proceed

Project Evaluation Process and Criteria

- Possible Scoring Criteria
  - Project Effectiveness
    - Meets IRWMP objectives
    - Supports multiple water management strategies
    - Serves Disadvantaged Communities
  - Project Commitment
    - Ready for implementation
    - Local funds availability
  - Other Criteria
    - Regional benefits
    - Other benefits
  - Quantity of water or storage produced
    - Not a ranking criteria

Project Evaluation Process and Criteria

1. Meets IRWMP Objectives
   - 2 points for 1 objective
   - 1 point for each additional objective met
   - Proposed objectives
     - Water Supply Reliability
     - Water Quality Protection
     - Operational Redundancy

Project Evaluation Process and Criteria

2. Supports Multiple Water Management Strategies
   - 1 point - Single strategy
   - 2 points - Integrated
   - 3 points - Integrated and supports multiple strategies

Project Evaluation Process and Criteria

Proposed Water Management Strategies…

- Water treatment and recycling
- Conservation
- Conveyance and intertie
- Storage
- Groundwater management
- Groundwater quality protection
- Conjunctive use
- Water supply
- Surface water management
- Flood and storm water management
- TDS and nitrogen management
- Surface water quality improvement
- Ecosystem protection and habitat enhancement
- Wetlands restoration
- Land use
- Recreation

Project Evaluation Process and Criteria

3. Serves Disadvantaged Communities
   - 2 points - Regional benefit that include disadvantaged communities within the region
   - 5 points - Specific benefit to disadvantaged communities and serves environmental justice concerns

Project Evaluation Process and Criteria

4. Ready for Implementation
   - 1 point – Limited information
   - 3 points – Feasibility study/pre-design documents, preliminary scope of work, budget estimate
   - 5 points – Feasibility study, detailed scope and budget, environmental documents

Project Evaluation Process and Criteria

5. Available Local Funds
   - 0 points – No Funds
   - 2 points – 10%
   - 3 points – 50%
   - 5 points – 90%+

Project Evaluation Process and Criteria

6. Serves Region
   - 1 point – Single Agency
   - 3 points – Up to 3 agencies
   - 5 points – 3+ agencies, Regional Project

Project Evaluation Process and Criteria

7. Other Benefits
   - 1 point per benefit
   - Criteria provides consideration for smaller projects or non-water supply projects
   - Ex.
     - Locally needed project
     - Recreation/open space
     - Environmental restoration

Project Evaluation Process and Criteria

8. Quantity of Water or Storage Produced
   - Not ranking criteria
   - Evaluate magnitude of project benefit

Project Evaluation Process and Criteria

Project Tiers

Tier 1a

- **Ready to proceed - Environmental documentation, feasibility studies, scope of work and cost estimates complete or soon to be completed**
- **Have local funding**
- **Serve region and reduce water supply vulnerability**
- *Regional benefit score is XX and Total score is more than YY*

Tier 1b

- **Like 1a, but not regional – emphasis on local projects?**
- *If total score is more than YY*

Project Evaluation Process and Criteria

Project Tiers

Tier 2

- **Not ready for implementation or no local funding**
- *If Regional benefit score is less than AA and Total Score is less than BB*

Tier 3

- **Still conceptual**
  - **Technically or economically not feasible at this time**
  - **Lack of local support/sponsor**
  - **Inconsistent with current water management goals and objectives**
  - **Inconsistent with regulatory or institutional setting**
- *If score for project commitment is Z or less*

Summary of Projects Received

- Total as of 3/12/08 - 42
  - WMWD – 13
  - OCWD - 1
  - City of Norco - 2
  - City of Riverside – 8
  - BSMWC - 3
  - EWD – 1
  - HGCWD – 1
  - JCSD – 7
  - SARWC – 2
  - EVMWD - 4

Upcoming Meeting Topics

- 3/27/08-Future Land Use projections and Impacts on Water
- 4/10/08-CANCELLED
- 4/24/08-Joint meeting with WUEMP
  - John Koeller-"Emerging Technologies in Indoor Water Conservation"
  - IRWMP Implementation and Funding (e.g. Prop 84/1E)
  - Presentation of Regional Project Concepts/draft IRWMP Update
- 5/8/08 (tentative) New! -DPH and SWRCB Interpretation of RW Regulations for GW Recharge

Other Topics

- Information requests
- What's next for project review…

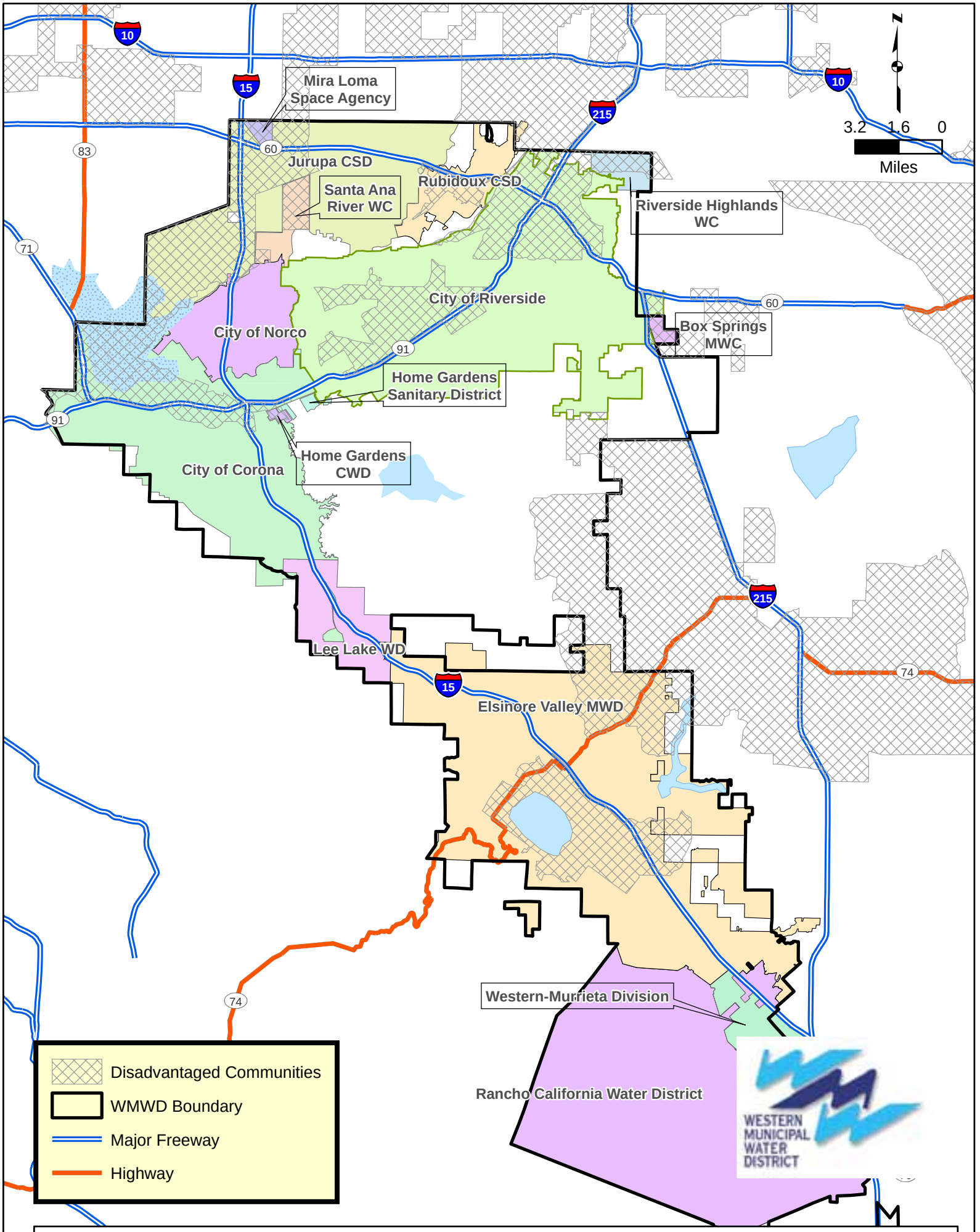


Figure 1 - Disadvantaged Communities

Integrated Regional Water Management Plan Update
Meeting #5 –Agenda
Thursday 27 March 2008
1:30 – 4:00 ±
Western MWD Board Room – 450 E. Alessandro Blvd. Riverside, CA 951-789-5000

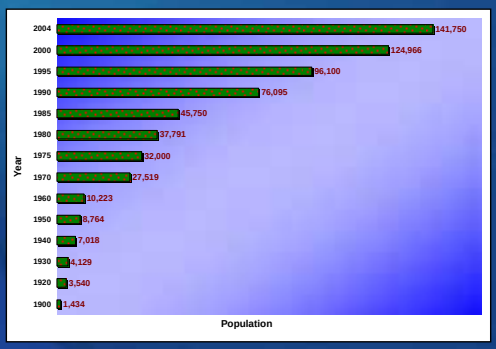
1. Welcome and Introductions – WMWD
2. Future Land- Use Projections in the Inland Empire – Susan Lien-Longville, CSUSB and SAWPA One Water, One Watershed Land Use Pillar Chair
3. City of Corona:Impacts of Densification on Water Demand and Sewer Flows – Gary Hobson, AKM
4. Land-Use based Ultimate Water Demands in Western Service Area – Fakhri Mangi and Jack Safely, WMWD
5. Summary of Projects Received (hand out)– Kennedy/Jenks Consultants
6. Draft Project Evaluation (hand out)–Kennedy/Jenks Consultants
7. Follow-up Meeting Topics–Kennedy/Jenks Consultants (5 min)
    a. 4/10/08 – CANCELLED
    b. 4/24/08 –possible move to am and venue change -IRWMP Implementation and Funding (e.g. Prop 84/1E); Presentation of draft IRWMP Update and draft WUEMP
    c. New! 5/8/08 (tentative) Meeting at WMWD:- Joint Meeting with WUEMP at WMWD: John Koeller - "Emerging Technologies in Indoor Water Conservation" AND DPH and SWRCB Interpretation of RW Regulations for GW Recharge
8. Other topics
    a. IRWMP Adoption

Impact of Densification on Water and Wastewater Systems

The City of Corona

Presented by: Gary Hobson

Population Growth



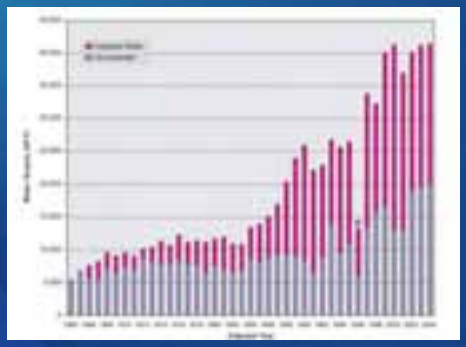
* Population data from U.S. Census Bureau and California State Department of Finance

Water Use

The City of Corona Water Use (AF/Y)

Year	Water Use Sectors	Single Family	Multi-family	Commercial	Industrial	Special Acct	Institutional/Governmental	Landscape	Agricultural	Total
2000	# of accounts	33,616	1,355	792	792	3	99	583	35	37,275
	Deliveries AF/Y	22,863	3,405	4,122	4,122	666	817	3,230	480	39,637
	# of accounts									
	Deliveries AF/Y									
2005	# of accounts	38,164	1,538	899	899	3	112	662	40	42,319
	Deliveries AF/Y	25,956	3,866	4,680	4,680	756	927	3,668	545	45,000
	# of accounts									
	Deliveries AF/Y									
2010	# of accounts	42,593	3,213	339	631	3	10	485	34	47,308
	Deliveries AF/Y	28,968	8,072	1,766	3,282	740	79	2,686	468	46,062
	# of accounts									
	Deliveries AF/Y									
2015	# of accounts	44,140	3,329	352	654	3	10	502	35	49,026
	Deliveries AF/Y	30,020	8,366	1,831	3,401	767	82	2,783	485	47,735
	# of accounts									
	Deliveries AF/Y									
2020	# of accounts	47,743	3,601	380	707	4	11	543	38	53,028
	Deliveries AF/Y	32,471	9,048	1,980	3,679	830	89	3,010	524	51,631
	# of accounts									
	Deliveries AF/Y									

Water Supply



* Missing Data from July 1996 to December 1996

Treatment Plant Capacities

City of Corona's Existing and Recommended Future Treatment Capacity

Wastewater Treatment Plant	Current Treatment Plant Capacity (MGD)	Existing Flows (MGD)	Future Flows Excluding County Service Area (MGD)	Future Flows Including County Service Area (MGD)	Recommended Treatment Plant Capacity* (MGD)
WWTP 1	11.50	9.89	11.73	12.05	15.50
WWTP 2	3.00	2.90	4.69	5.25	6.00
WWTP 3	1.00	0.54	2.90	3.47	5.00

* Based on 80% treatment plant capacity utilization, modular expansion capabilities at individual treatment plants, and the City's ability to bypass upstream flows to downstream treatment plants.

Summary

- Population Growth is increasing at an exponential rate (with a recent shift from Single Family Residential to Higher Densifications).
- Water Use per customer account is decreasing. This may be contributed to less persons per dwelling unit in the higher densification areas. However, overall water use is increasing but at a lower rate.
- Water Supply is increasing at a constant upward progression.
- Wastewater flows are increasing exponentially with higher densifications.

Conclusions

- Water return to sewer flow rate is increasing while natural recharge is decreasing (higher density units require less irrigation per person).
- The City's Groundwater Management Plan recognizes the need to supplement decreasing natural recharge with recycled water, in order to ensure adequate water supply for the future.

Water Demand Forecasting Using GIS

Presented by

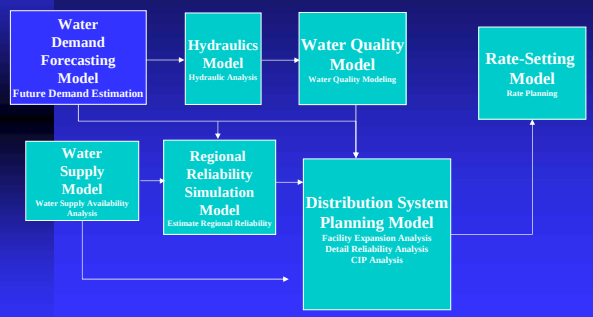
DCSE

March 27th, 2008

Presentation

- Overview
- WDF Capabilities
- Apply WDF on WMWD Service Area
- Discussions

Water Supply Planning



Residential Water Demand Forecasting Techniques

- Demographics Based Forecasting
  - Per Capita Use Rates
  - Econometric Models
- Land Use Based Forecasting
  - Land Use Based Demand Factors
  - Spreadsheet Based
  - GIS
- Approximation Technique

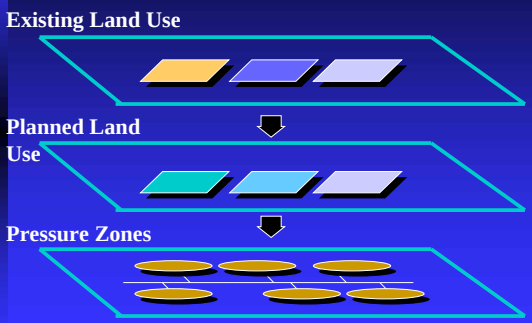
Land Use Based Forecasting

- Appropriate in areas experiencing growth
  - New development
  - Redevelopment
- Preferred approach when facility planning process should be tied directly to land use planning

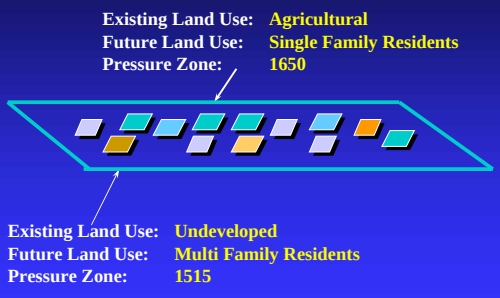
WDF - GIS Based Forecasting

- Automation of land use based forecasting
- Ability to play "what-if" analysis
  - Land Use Changes
  - Growth Rate
  - Growth Targets
  - Demand Factors
- Forecasting of Residential, M&I, Agricultural (limited) water demand
- Using Information from General Plans, Specific Plans
- Climate Zones – for demand factors
- Conservation – reduction of water use
- Pressure Zone – produce water demand for H_2O Net and InfoWater

Approach



GIS Overlay Processing



Methods of Demand Calculation

- Developing Area – Land Use Base
- Developing Units – Combination of Land Use for existing and Units for Future
- Build Out Area – Use known Units, Use Land Use for Irrigation Demand
- Demand Override – Use Existing and Future Units
- Expansion – Use Existing and Future Units, Use Land Use for Irrigation
- Redevelopment – Existing Demand, Demand goes to zero in the Demolition year, Future Demand

WMWD Service Area

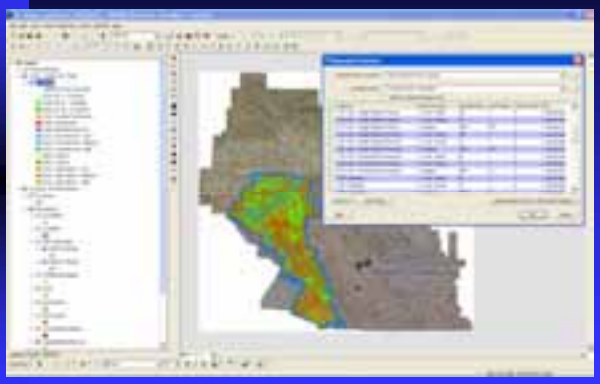
WMWD Landuse Category

- Existing Landuse and Future Landuse Classification

	Description	Count
1122	SF (< 1 du/ac)	5,692
1132	SF (1 - 5 du/ac)	91,031
1142	SF (6 - 10 du/ac)	96,191
1183	Condo/Townhouse	2,713
1184	Apartment	1,385
1186	Mobilehome Park	78
1211	Commercial - Low	1,264
1221	Commercial - Medium	5,103
1231	Commercial - High	1,499
1261	School	55
1901	Vacant	38,536
2111	Agriculture - Low	243
2121	Agriculture - Medium	1,187
2131	Agriculture - High	281
		245,258

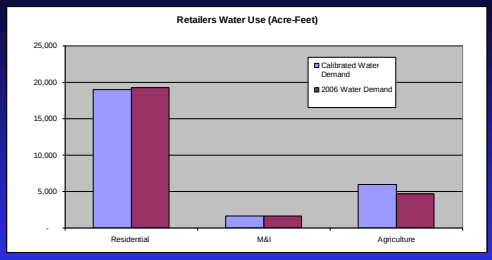
WMWD Landuse Category

WMWD Demand Factors



WMWD Retailer Water Demand Forecasting

Retailers Water Demand Calibration



	Calibrated Water Demand	2006 Water Demand
Residential	19,002	19,247
M&I	1,633	1,644
Agriculture	5,997	4,695
Total	**26,632**	**25,586**

Water Demand Forecast

- Input Data Preparation
  - Water Demand Factors
  - 2006 water use data from agencies
- Calibration
- 20 Years Demand Forecast
  - By Retailers
  - By Agencies


Discussions
dcse

Integrated Regional Water Management Plan Update
Meeting #6 –Agenda - REVISED
Thursday 24 April 2008
1:00 – 3:30 ±
Western MWD Board Room – 450 E. Alessandro Blvd. Riverside, CA 951-789-5000

1. Welcome and Introductions – WMWD
2. Draft IRWMP Project Categorization– Kennedy/Jenks Consultants (30 - 40 min)
3. Potential Funding Opportunities for Projects – Kennedy/Jenks Consultants (20 min)
    a. Overview of Prop 84/Prop 1E – DWR Meeting at 5/15/08 10:30 am @ SAWPA
    b. Projects and Potential Future Funding Sources
4. Draft IRWMP Report Results and Review schedule– Kennedy/Jenks Consultants (20 min)
5. Preliminary Analysis Results and Proposed Strategies for Water Use Efficiency - Kennedy/Jenks Consultants (2:30 pm start - 60 minutes)
6. Follow-up Meeting Topics–Kennedy/Jenks Consultants (5 min)
    a. 5/8/08 Meeting at WMWD: DPH and RWQCB/SWRCB Interpretation of RW Regulations for GW Recharge
    b. 5/30/08 – Water Use Efficiency Master Plan Stakeholder Outreach
7. Other topics
    a. Quarterly follow-up meetings
        i. Implementation Updates
        ii. Funding Updates
        iii. Project Coordination and Development

Western Municipal Water District

Water Use Efficiency Master Plan

Progress Report

Steven Wallner
Kennedy/Jenks Consultants
April 24, 2008

Why Complete a WUEMP?

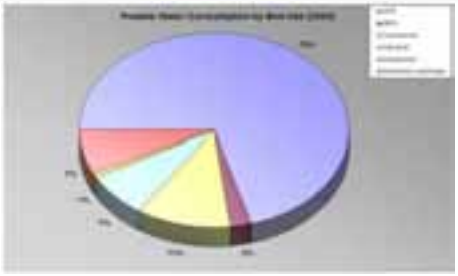
- Increasing focus on water conservation by Legislature; State grant funding now contingent on conservation program performance
- Regulatory and judicial actions have impacted imported water supplies (State Water Project)
- Ongoing drought on Colorado River
- WMWD wishes to increase its support services to retailers for urban water conservation programs, and to provide support to smaller retailers
- WUEMP provides structure, equity, economies of scale for the wholesale service area
- NEW: Governor's mandate for a 20% reduction in per capita water usage (gpcd) by 2020 has increased the need for additional effort

WUEMP Steps

- Analyze water use to target WUE strategies
- Gather data on current conservation programs
- Determine "local" cost effectiveness of CUWCC BMPs
- Identify emerging technologies
- Evaluate/Screen potential WUE programs
- Develop short term and long term strategies
- Obtain input on proposed strategies (that's today!)
- Develop implementation plan
- Submit draft WUEMP for comment

Water Use by WMWD Retailers

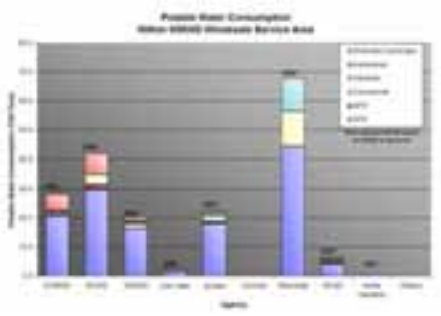
- 71% of water use is for SFR sector
- Only 7% of water use is for dedicated landscape accounts



Agricultural water use and reclaimed/recycled water use not included in this study

Water Use by WMWD Retailers

- Commercial, Institutional and Industrial Combined
  ~ 20%
- Highest in City of Riverside

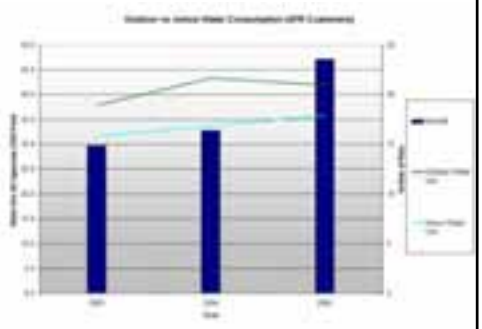


Water Use by WMWD Retailers

SFR Sector

Outdoor > Indoor water use

(55-60% of total)



Current Conservation Programs

- Some retailers are extremely active, implementing multiple conservation programs
- Some retailers are not signatories to the Urban MOU

Current Conservation Programs

- BMPs are not being implemented evenly across the board
- Many BMPs are being implemented, but not to target compliance levels contained in the Urban MOU

Cost-Effectiveness of BMPs (examples)

- Avoided cost of water purchases
  = Tier II Treated
  ($695/AF 2009 rate – MWD)
- Avoided wastewater treatment cost
  = $800/AF (K/J estimate)

Program Evaluated	Cost-benefit Ratio
BMP 1 – Residential water use survey	0.6
BMP 2 – Residential plumbing retrofits	2.9
BMP5 – Large landscape (Water budget)	3.0
BMP5 – Large landscape (Water survey)	2.2
BMP 6 – HEWs	1.8
BMP 9 – CII Account Surveys	2.6
BMP14 – ULFT Replacement	3.1

Screening Criteria

Main Group	Heading	Heading Weighting	Main Group Weighting
Cost	Total Cost	25%	25%
Water Savings	Area-wide Savings	15%	20%
	Reliability and Longevity	10%	
Implementation	Public Acceptance & Equity Considerations	15%	50%
	Ease of Implementation	15%	
	Synergies	10%	
	Funding Potential	10%	
Total			**100%**

Evaluation Results

- Switch to Spreadsheet

Short Term Strategy

- CUWCC has embarked on a major revision of the MOU and the BMPs
- Will allow MOU signatories more flexibility in BMP program design
- Revisions will incorporate new/emerging technologies to bring BMPs up to date (for example: ULFTs vs. HETs)
- Provide support for:
  - Residential Weather-based Irrigation Controllers
  - Audits for Public Sector customers
  - All cost effective BMPs
- Design a marketing strategy

Long Term Strategy

- Effect continual improvement in BMP and other conservation program implementation throughout WMWD service area (future grant funding implications), as cost-effective and appropriate
- Device maintenance and replacement
- Utilize all appropriate conservation incentive programs supported by MWDSC
- Monitor Emerging Technologies, particularly in landscape sector
- When 20% gpcd reduction requirements enacted by Legislature and promulgated by DWR, review and update WUEMP to reflect new requirements
- Update successive Urban Water Management Plans with demand reductions attained through conservation programs

Stakeholder Consultation Process

- Kick off Meeting 31st Jan
- Present draft strategies 24th April
- Hold stakeholder meeting 30th May
- Possible stakeholder meeting 12th June

Feedback

- Questions

Appendix C

Miscellaneous Outreach Materials

WMWD Integrated Regional Water Management Plan Project Information Form
Please submit no later than 2/27/08 via e-mail to: bobtran@kennedyjenks.com. Questions, please contact Bob at 949-261-1577 ext. 168

Agency Information		
Agency or Organization:		
Contact Name	First:	Last:
Mailing Address	Street Address:	
City:	State: CA	Zip:
Email:	Phone:	Fax:

Project Information		
Project Name:		
Project Location:		
Watershed/Sub-watershed:		
Groundwater Basin:		
Project Type (check applicable) ___Construction ___Planning		
Project Description (incl. goal of project):		
Annual Water Yield (AF):	Total Project Cost: $ year of estimate: _____ Fixed O&M: $___/yr Variable O&M: $___/yr	
Funds Requested: $	Cost Matching Funds: $	
Is your agency/org. able to fund pre-construction work, design, CEQA, etc.? ___Yes ___No		
Describe any other funding opportunities under consideration/available to this project:		
Project phases completed: ___Planning ___Design	Construction contract award date:	

Work completed to date included: (Tech memo's, planning studies, design reports, etc.)		
Title:	Consultant:	Date:
Title:	Consultant:	Date:
Title:	Consultant:	Date:
Title:	Consultant:	Date:

Has CEQA been completed? ___Yes ___No	If no, Expected Date of Adoption: If yes, Date of Adoption:	
CEQA-document type (Cat Ex; ND/MND, EIR):		
Permits Required and Status:		
Land Acquisition Status, if required:		
This project is an: ___Independent operable project ___Operable segment of larger project If larger project, # of expected phases____		
Larger project:	Start Date:	Complete Date:
Project Partners identified, if any:		
Main Challenges to Project Implementation:		

Does the project include any of the following elements? (check all that apply)	Briefly explain how project includes element
Water Supply	
___Water conservation and water use efficiency.	
___Safe and reliable drinking water supply for small or disadvantaged communities.	
___Drinking water treatment and distribution.	
___Resolution of significant water-related conflicts.	
___Increased local/regional water supply reliability through water banking, exchange, groundwater recharge, or management.	
___Treatment (including desalting) or distribution of reclaimed waste or contaminated water.	
Stormwater Management	
___Multipurpose flood management programs to integrate flood control and water supply systems	
___Floodplain mapping and local land-use planning to avoid or reduce flood risks.	
___Non-point source pollution reduction, management and monitoring.	
___Storm water capture, storage, clean-up, and treatment.	
Land Use/Sustainability	
___Watershed protection and management.	
___Integration of water management with land use planning to promote sustainable development, reduce greenhouse gases, or revitalize community centers.	
___Evaluation of climate change impacts on the state's water supply and flood control systems	
___Removal of invasive non-native species; the creation, enhancement, or protection of ecosystems, open space, park space, and watershed lands.	

INTEGRATED RESOURCE WATER MANAGEMENT PLAN UPDATE

HOW THE RCD CAN PROVIDE ASSISTANCE

Shelli Lamb
District Manager
Riverside-Corona
Resource Conservation District

RCD OVERVIEW

- Division 9 of the Public Resources Code.
- Works to achieve conservation of native habitats, urban areas and agricultural lands.
- Non-regulatory.
- Provides onsite technical assistance.

AREAS OF FOCUS

- Habitat Restoration and Mitigation.
- Irrigation Water Conservation.
- Prevention and Control of Soil Erosion.
- Prevention of Storm Water Pollution.
- Listed Species Management.

HABITAT RESTORATION and MITIGATION

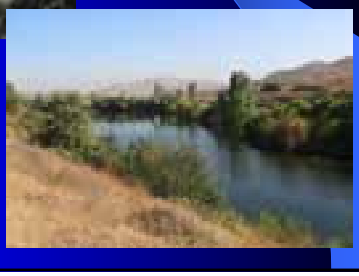
RCD MITIGATION PROVIDES:

- Enhancement, Restoration or Creation of Native Habitats.
- Meets 1600, 401 and 404 permit requirements for construction impacts.
- Both onsite and offsite mitigation and conservation easement creation.
- Fee-title or third party conservation easements.

Temescal Creek Easement

Temescal Open Space Easement

Lee Lake Water District Mitigation Site



Lee Lake Water District Conservation Easement

The RCD provides technical assistance to land users to help manage their natural resources.

Maintaining quality and conserving quantity.

The RCD can help sustain native habitats on open space through land treatments…

LAND TREATMENTS

- Exotic Species Removal
- Promotion of Native Plants
- Seed Collection in Native Habitats
- Species Monitoring on Easements
- Erosion Control
- Water Quality Testing

Use of native plants near open space areas.

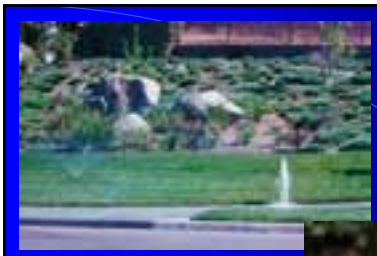
Removal and Control of Exotic Invasive Plant Species

Water Quality Testing

IRRIGATION WATER MANAGEMENT

WATER MANAGEMENT and CONSERVATION

- Irrigation Mobile Lab Services
- Technical assistance with drainage and irrigation design
- Irrigation Water and Soil Testing
- Irrigation Schedules and Plant Water Use Data for water users.



Onsite System Troubleshooting

Water Use Analysis by Controller

PREVENTION and CONTROL of SOIL EROSION and SEDIMENTATION

EROSION and SEDIMENTATION

- Drainage design and onsite erosion control assistance.
- BMP's for erosion and sediment control
- Effects on water quality and habitat

Erosion Control and Prevention

Slope Stabilization

STORM WATER POLLUTION PREVENTION

STORMWATER

- Water Quality Testing
- Clean-up Events
- Non-point source prevention
- "Only Rain Down The Storm Drain" school program
- IPM in agiculture and landscapes

First-flush basin

Erosion control mats

LISTED SPECIES MANAGEMENT

Effluent Discharge and Native Vegetation for Species

Before

After

RIX Plant Sucker Revegetation Site

50 Arroyo Chub were released at this grade stabilizer after water quality improvements were made to Sycamore Creek.

Santa Ana Sucker

Speckled Dace

Arroyo Chub

Native fish are good indicators of both water quality and quantity, with many populations being present in tertiary treated water discharge sites.

Least Bell's Vireo Nest with Cowbird egg.

OPPORTUNITIES

- Water Management Programs
- Restoration of Improvement Projects (pipelines, tanks, pump stations, levee).
- Purchasing land for mitigation/easements off-site of construction projects.
- Providing conservation easements on lands currently owned by a water district.

RCRCD

RIVERSIDE-CORONA RESOURCE CONSERVATION DISTRICT

Questions: Email Shelli Lamb, District Manager at Lamb@ rcrcd.com

or Kerwin Russell, Natural Resources Manager at Russell@rcrcd.com

Regulation of Recycled Water Discharges by Regional Water Quality Control Board – Santa Ana Region

May 8, 2008

Presentation Topics

- State Water Recycling Policy
- Reclamation Guidance Document
- Expectations of Water Reclamation Projects by Regional Board
  - Permitting process
  - Permit limits
  - Permit schedule
  - Example permits

- State Water Recycling Policy
- Regional Water Reclamation Document

Permits for Water Reclamation Projects by Regional Board

- Discharge from wastewater reclamation facilities are regulated the same as other discharges
- Closely coordinated with DPH to incorporate DPH requirements into the permits
- What's in a name?
  - Water Recycling Requirements, User Reclamation Requirements, Waste Discharge Requirements and Master Reclamation Permit, Waste Discharge and Producer/User Reclamation Requirements

Permits for Discharge of Recycled Water

- Live Stream Discharge: NPDES permit
- Landscape Irrigation: Waste Discharge Requirements (WDRs)
- Groundwater Recharge: Waste Discharge Requirements (WDRs)
- All Uses: Master Permits

Permit Application Process

- Form 200, instructions, and Q&A
- Contact Regional Board early (at least 120 days before proposed discharge to land (WDRs), and 180 days for discharge to surface water (NPDES); Ideally during CEQA process

Discharge Limits – Considerations

- Discharges to Ground
  - Beneficial uses and water quality objectives specified in Basin Plan for ground water management zones (Resolution R8-2004-0001)
  - Nitrogen and TDS Assimilative Capacity findings
  - Nitrogen loss coefficients
  - DPH human health criteria

Discharge Limits – Considerations

- Discharges to Surface Waters
  - Beneficial uses and water quality objectives specified in Basin Plan for surface waters and any underlying or downstream groundwater management zones
  - Other applicable state or federal WQ criteria
  - Waste load allocation for discharge to SAR or tributaries
  - Toxicity Requirements: no acute or chronic toxicity

Other Supporting Documentation

- CEQA determination and documents (EIR)
- Anti-degradation analysis
- Mitigation and offset plan
- Proposal to revise existing water quality objectives (to provide maximum benefit to the people of the state of California)

Monitoring and Reporting

- Effluent compliance monitoring
  - Toxicity
  - Other constituents
- Groundwater or surface water monitoring
- Maximum benefit commitments
- Reporting

Example Permits

- Order No. R8-2005-0033
  - Water Recycling Requirements for IEUA and CBWM, Phase I China Basin Recycled Water Groundwater Recharge Project
- Order No. R8-2007-0012
  - Waste Discharge and Producer/User Reclamation Requirements for the Yucaipa Valley Water Reclamation Requirements

For more information contact:

Jun Martirez, Senior WRCE,
951-782-3258
jmartirez@waterboards.ca.gov

To download the application form and adopted permits, go to our website:
www.waterboards.ca.gov/santaana/

Water Recycling in California
The Role of the California Department of Public Health

Heather Collins & Kurt Souza
S CA Regional Engineers
Drinking Water Field Operations Branch
May 2008

1

CDPH – Division of Drinking Water and Environmental Management

- Regulates public water systems
- Sets standards for wastewater reuse to protect public health
  - "Water Recycling Criteria" in Title 22 of California Code of Regulations
- These regulations specify treatment and use requirements for various types of recycled water use
  - Irrigation (agricultural, golf courses, parks, etc.), cooling towers, dual plumbed recycled water systems
- RWQCBs have the permitting and ongoing oversight authority of Recycled Water projects

2

CDPH – SWRCB - RWQCB

- Due to the potential for confusion and duplication of effort between CDPH and RWQCBs, CDPH and SWRCB signed a Memorandum of Agreement (MOA) in 1996
- MOA delineates responsibilities of each agency in review and approval of RW projects
- Submission of engineering report to RWQCB is considered a "request" for CDPH review
- CDPH requirements for permit approval are to be incorporated in RWQCB permit
- CDPH will meet with RWQCB staff and attend RWQCB hearings as necessary to explain any CDPH requirements or recommendations

3

CDPH DDWEM Drinking Water Program

- Reviews recycled water proposals for compliance with Title 22 Criteria
- Collects fees from project applicants for CDPH reviews
- Provides requirements and recommendations to RWQCB for recycled water permits
- Coordinates with other agencies
- Interfaces with recycled water industry
- Develops guidance and training materials for CDPH staff
- Reviews new and emerging technologies

4

Is it a Recycled Water Project?

- "Recycled water"--water which, as a result of treatment of *waste*, is suitable for a *direct beneficial use* or a controlled use that would not otherwise occur….
- Direct Beneficial Use - The use of recycled water which has been transported from the point of production to the point of use without an intervening discharge to waters of the state….

5

Groundwater Recharge Reuse Project (GRRP)

- "Groundwater Recharge Reuse Project (GRRP) means a project that uses
  recycled municipal wastewater,
  has been planned and is operated for the purpose of recharging a groundwater basin designated in the Water Quality Control Plan [defined in Water Code section 13050(j)]
  for use as a source of domestic water supply,
  and has been identified as a GRRP by the RWQCB."

6

Overview

- Sources of Groundwater Recharge
  - Storm Water Runoff and Capture
  - Planned Recharge with Purchased Surface Water
  - Infiltration of Precipitation or Irrigation Water
  - Planned Recycled Wastewater through either percolation or injection

7

CA Groundwater Recharge Projects

- Montebello Forebay – County Sanitation Districts of Los Angeles County
- West Basin MWD
- Harbor Recycling Project
- Alamitos Barrier
- Inland Empire Utility Agency
- Orange County Water District—GWRS

8

Draft Recharge Criteria

- Reclaimed water from domestic sewage
- Aquifer designated as a drinking water source
- Indirect potable reuse
  - Effective natural barrier
  - Time to identify and respond to problems
- Multiple barriers for each type of contaminants
- Ongoing monitoring program in recycled water and groundwater
- Treatment processes required
- Source water control

9

Criteria Goals

- Address spreading basins & direct injection
- Protect the beneficial uses of each separate aquifer
  - Wellhead treatment not an option
  - blending of aquifers in a well is not acceptable
- Must make a finding that the project will not degrade any groundwater aquifers
- Maintain public, policy maker, and government agency confidence

10

CDPH DDWEM Drinking Water Program

- DHS will hold a public hearing for each GRRP prior to submitting its recommendations for the initial permit to the RWQCB and at any time an increase in RWC is proposed

11

Groundwater Recharge with Recycled Water

- For indirect potable reuse ONLY
- CDPH draft regulations address:
  - Wastewater source control programs
  - Treatment processes
  - Water quality
  - Dilution (% Recycled Water)
  - Recharge methods
  - Operational controls
  - Residence time underground
  - Travel distance to extraction
  - Contingencies
  - Monitoring wells
  - Engineering report

12

Source Water Control

- An industrial pretreatment and pollutant source control program that includes
  - an assessment of the fate of Department-specified contaminants,
  - contaminant source investigations and contaminant monitoring
  - an outreach program to industrial, commercial, and residential for the purpose of managing and minimizing the discharge of contaminants
  - an up-to-date inventory of contaminants discharged into the wastewater collection system so that new contaminants of concern can be readily evaluated

13

Water Quality

- Pathogenic microorganisms
- Regulated Chemicals
- Nitrogen compounds
- Unregulated chemicals

14

Microorganism Control

- Tertiary Filtration - 2 NTU avg. media filters or 0.2 NTU membranes
- Disinfection
  - 7-day median of 2.2 total coliform MPN/100mL
  - 450 CT or alternative (5-log viruses inactivation)
- Minimum distance requirement:
  - 500 feet for spreading and
  - 2,000 feet for injection
- Residence time (time of travel) in the environment
  - Spreading – 6 months
  - Direct injection – 12 months

15

Regulated Chemical Control

- Drinking Water Standards
  - Primary and
  - Secondary
- Future Maximum Contaminant Levels
  - chromium-6,
  - NDMA,
  - 1,4-dioxane,
  - 1,2,3-trichloropropane &
  - vanadium

16

Nitrogen Compound Control

- Method 1 relies on
  - 5 mg/L total N as a four week average, investigation if two consecutive samples exceed 5 mg/l
- Method 2 relies on samples analyzed for
  - Total N, nitrate, nitrite, ammonia, organic nitrogen,
  - DO, and BOD
  - A set of limits determined for the specific GRRP
  - as necessary to prevent reduction of NO_3 to NO_2
  - 10 mg/L total N as a maximum
- Method 3 relies on:
  - MCLs for nitrate and nitrite
  - based on historic recharge

17

Other Chemical Concerns

- Gross organic matter (TOC)
- **TOC max =** $\frac{0.5\ mg/L}{RWC_{proposed}}$
- $RWC_{proposed}$ is the proposed max. RWC
- "Recycled water contribution (RWC)" means the quantity of recycled municipal wastewater applied at the GRRP,
  divided by the sum of the recycled municipal wastewater applied at the GRRP and
  diluent water meeting the requirements of section 60320.035."
- Monitoring recycled water after treatment above (RO or filtration) or below ground (SAT)

18

Running Monthly Average RWC

- calculate running monthly average RWC based on the
  - total volume of the recycled municipal wastewater
  - and diluent water
  - for the preceding 60 calendar months
- The initial maximum RWC will be based on
  - the CDPH's review of the engineering report &
  - information obtained as a result of the public hearing,
  - but shall not exceed 0.20 for surface application
  - or 0.50 for subsurface application projects

19

Unregulated contaminants with Notification Levels (NLs)

- Includes chemicals such as
  - boron,
  - chlorate,
  - 1,4-dioxane,
  - NDMA,
  - 1,2,3-trichloropropane,
  - formaldehyde, and
  - vanadium
- Exceeding a NL requires notification of the governing body of the local agency
- CDPH requires these chemicals because they have either been detected in the recycled water or shown to be possibly present in the sewage.

20

Contemporary concerns

- Indicators of the presence of municipal wastewater as specified by CDPH
- Purpose
  - Such monitoring is not for compliance, but for informational use only.
  - This will be useful in addressing public perception about the safety of recharge projects.

21

Advanced Treatment

- Treatment processes are required for that portion of the recycled wastewater stream needing additional treatment to meet the TOC limit, = $\frac{0.5\ mg/L}{RWC_{permited}}$
  - provide reverse osmosis treatment
  - advanced oxidation treatment to provide treatment equivalent to
    - a 1.2 log NDMA reduction and
    - a 0.5 log 1.4-dioxane reduction
    - UV / H_2O_2 or Ozone / H_2O_2

22

GWR Criteria Operations Control

- During first year of operation, GRRP operation of all treatment processes shall be optimized to reduce contaminant levels, including regulated and unregulated contaminants
- Update operations plan based on above optimization practices

23

Monitoring Wells

- Monitoring wells locations
  - Between one and three months travel time from recharge facility, and
  - At additional points between application facility and the nearest down gradient domestic water supply well
  - Representative of each aquifer layer
    - Compliance with RWC must be achieved in each aquifer

24

Engineering report

- Description of GRRP, proposed RWC, anticipated TOC
- Prepared by registered engineer in conjunction with a registered geologist
- Investigation and evaluation of GRRP, (hydrogeological)
- Impacts on existing and potential uses of impacted GW basin
- Proposed means for compliance with GWR regs and water recycling criteria
- Operations Plan
- Advisory Panel
- Periodic Updates

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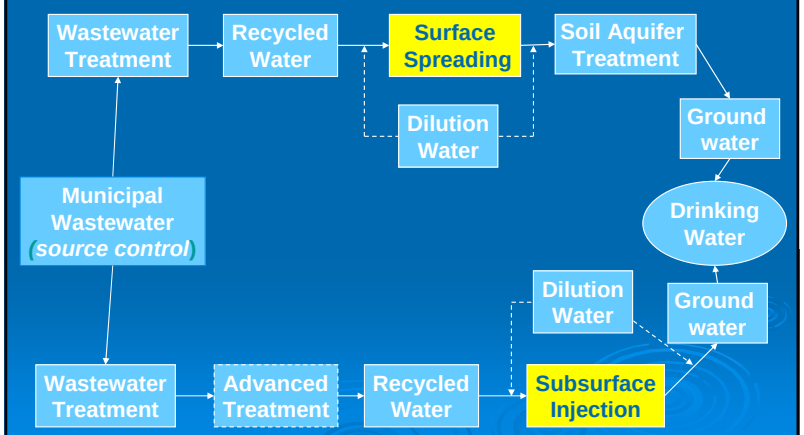
Wastewater to Drinking Water through Groundwater Recharge



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CDPH Recycled Water Current Activities

- Developing regulations for groundwater recharge with recycled water
- Establishing expert panels
  - Are the existing criteria for irrigation with recycled water adequate to protect public health?
  - Is Biodegradable Organic Carbon (BDOC) a potential surrogate to Total Organic Carbon (TOC) in measuring the performance of soil aquifer treatment in groundwater recharge?

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ADDITIONAL INFORMATION

- CDPH Recycled Water website:
  - http://www.cdph.ca.gov/HealthInfo/environhealth/waterB/Pages/Waterrecycling.aspx
- CDPH Recycled Water staff
  - Jeff Stone, RW Specialist
    - Jeffrey.stone@cpdh.ca.gov
  - Brian Bernados, RW and Treatment Technology Specialist
    - Brian.bernados@cdph.ca.gov
  - Betsy Lichti, Treatment Technology Specialist
    - Betsy.lichti@cdph.ca.gov
  - Or your local CDPH district office

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Thank You

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- 909-383-4328

- Kurt.Souza@cdph.ca.gov
- 805-566-1326

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