THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

# **COMMERCIAL REBATE PROGRAM**



#### WHY

California is facing prolonged dry conditions. Gov. Jerry Brown has declared a statewide drought and asked Californians to lower their water use by 20 percent. Your help is needed. Metropolitan has expanded its SoCal Water\$mart rebate and incentive programs to make saving water more affordable for commercial customers.

#### WHO

Commercial, industrial and institutional customers within Metropolitan's 5,200-square-mile, six-county service area are eligible for rebates on indoor and outdoor water-saving devices. Both the water service and installation address must be located within Metropolitan's service area.

Contractors who meet specific business requirements can apply to participate in Metropolitan's Contractor Direct Rebate Program. The SoCal Water\$mart Program provides screened and approved contractors with the ability to receive rebate payments directly for installations of eligible products. Contractor requirements and online enrollment information is at socalwatersmart.com under the Commercial Rebate Program option.





#### bewaterwise.com®

#### **More Eligibility Information**

- You must be a commercial, industrial or institutional water customer with a service and installation address located within Metropolitan's service area. Common areas in townhome, condominium, mobile home and apartment complexes are considered commercial customers, as well as landscape managed by a homeowners association.
- Refer to Metropolitan's list of qualified products for rebate eligibility.
- Facilities using recycled water may not qualify. Call 888.376.3314 to check eligibility.
- A reservation must be submitted online at socalwatersmart.com and approved prior to the purchase and installation of the device(s).
- Rebate amounts vary by participating water agency and are subject to change without notice.
- Metropolitan reserves the right to verify and inspect installation of rebated devices.
- Refer to Program Terms & Conditions at socalwatersmart.com for detailed eligibility terms and guidelines.

#### WHAT Products Eligible For Rebates

Measure	Base Rebate
Plumbing Fixtures	
High-Efficiency Toilets (Multi-Family)	\$145/Toilet - 1.06 gallons per flush or less \$100/Toilet - 1.28 gallons per flush or less
High-Efficiency Toilets (Flushometer/Tank)	\$100
Ultra-Low and Zero-Water Urinals	\$200
Plumbing Flow Control Valves	\$5/Valve (minimum of 10)
Landscaping Equipment	
Smart Irrigation Controllers/ Central Computer Irrigation Controllers	\$35/Station
Soil Moisture Sensor Systems	\$35/Irrigation controller station
Rotating Nozzles for Pop-up Spray Heads	\$4/Nozzle (minimum of 15)
Large Rotary Nozzles	\$13/Set (minimum of 8 sets)
In-Stem Flow Regulators	\$1/Regulator (minimum of 25)
Turf Removal	
Removal of Irrigated Turf	\$2/square foot of irrigated turf removed and replaced with drought - tolerant plants or other approved landscape options
Food Equipment	
Connectionless Food Steamers	\$485/Compartment
Air-Cooled Ice Machines	\$1,000
HVAC Equipment	
Cooling Tower Conductivity Controllers	\$625
Cooling Tower pH Controllers	\$1,750
Medical and Dental Equipment	
Laminar Flow Restrictors	\$10/Restrictor (minimum of 10)
Dry Vacuum Pumps	\$125/0.5HP (up to 2HP max)

SoCal Water\$mart is a region-wide program brought to you by the Metropolitan Water District of Southern California. Local water agencies may offer other incentive program opportunities. Rebates will be issued on a first-come, first-served basis until funding is exhausted.





THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA P.O. Box 54153 Los Angeles, CA 90054-0153 mwdh2o.com



#### HOW

1. Create an online account at socalwatersmart.com.

2. Submit an online rebate reservation. Funding is limited and submitting a rebate reservation does not guarantee you will receive a rebate. Rebates will be issued on a first-come, first-served basis until funding is exhausted.

3. Receive a reservation number.

**4.** Purchase and install the qualified device within 60 days of making the reservation.

5. Submit the final rebate application online. Be sure to submit a copy of the water bill for the property where the device is installed as well as the invoice for the device(s) that lists manufacturer name, model numbers, and price.

#### WHERE

Looking for more information? Go to socalwatersmart.com or call 888.376.3314.



bewaterwise.com<sup>®</sup>

#### Sprinkler precipitation rates - the key to controlling irrigation runoff

Spray nozzles have a high precipitation rate that frequently results in irrigation runoff. The precipitation rate will vary with pressure and spacing. At 30 psi and spaced in a square pattern the precipitation rate is 1.58" per hour. The triangular pattern has slightly higher precipitation rates due to the tighter row spacing of 13 ft. at 1.83"

30° Traje	ctory			•	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h	Precip In/h
15F	15	11	2.60	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.62	1.87
	30	15	3.70	1.58	1.83
15H	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.62	1.87
	30	15	1.85	1.58	1.83



Verify the working water pressure at the spray nozzle to be a minimum of 30 psi. In the case of the 15 Series nozzle, any pressure less than 30 psi requires a closer spacing than 15 ft. If the sprinklers are operating at 20 - 25 psi and spaced at 15 ft there will be serious coverage (uniformity) problems. Measure water pressure as the circuit operates at the first and last sprinkler on the circuit. Verify spacing to be no greater than the radius. Sprinklers should be spaced in a square or triangular pattern with consistent spacing between heads.



Test working water pressure at the first and last sprinkler with a pressure tee and gauge.



Verify spacing between heads with a tape measure. At 30 psi spray heads should be spaced at no greater than their series, i.e 15 series at 15 ft, 12 series at 12 ft, etc.

Rotor sprinklers rotate a single or multiple streams to achieve coverage. In general, the end of the stream from one sprinkler should hit right at the base of the adjacent sprinkler. The pressure requirement at the nozzle is dependent on the spacing and the nozzle installed in the sprinkler. Performance charts indicate a radius(spacing interval) that can be achieved with a particular nozzle at varying pressures. Generally, these sprinklers have a higher pressure requirement than spray nozzles. As a consequence low nozzle pressure is a common problem. Pressure, along with spacing must be verified in the field. Precipitation rate data may only be relied upon when pressure, nozzle, and spacing agree with nozzle performance data. These sprinklers have lower precipitation rates than sprays and therefore can be run for longer periods before runoff occurs.

PGP Perfo	Red Stand ormance D	dard Nozz Data	le		
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip	o in/hr ▲
1	30	28'	0.5	0.12	0.14
	40	29'	0.6	0.14	0.16
	<b>50</b>	<b>29'</b>	<b>0.7</b>	<b>0.16</b>	<b>0.19</b>
	60	30'	0.8	0.17	0.20
2	30	29'	0.7	0.16	0.19
	40	30'	0.8	0.17	0.20
	<b>50</b>	<b>30'</b>	<b>0.9</b>	<b>0.19</b>	<b>0.22</b>
	60	31'	1.0	0.20	0.23
3	30	30'	0.9	0.19	0.22
	40	31'	1.0	0.20	0.23
	<b>50</b>	<b>31'</b>	<b>1.2</b>	<b>0.24</b>	<b>0.28</b>
	60	32'	1.3	0.24	0.28
4	30	32'	1.2	0.23	0.26
	40	33'	1.4	0.25	0.29
	<b>50</b>	<b>34'</b>	<b>1.6</b>	<b>0.27</b>	<b>0.31</b>
	60	34'	1.8	0.30	0.35
5	30	34'	1.6	0.27	0.31
	40	36'	1.8	0.27	0.31
	50	<b>38'</b>	<b>2.0</b>	<b>0.27</b>	<b>0.31</b>
	60	38'	2.2	0.29	0.34
6	30	34	2.0	0.33	0.38
	40	36'	2.4	0.36	0.41
	<b>50</b>	<b>38'</b>	<b>2.7</b>	<b>0.36</b>	<b>0.42</b>
	60	38'	2.9	0.39	0.45

These charts represent precipitation rates at half circle or 180 degree setting. For full circle operation divide the chart values by 2!





#5 noz. - 2.0 gpm @ 50 psi at 360 deg precipitation rate = 0.135" / hr



#5 noz - 2.0 gpm @50 psi at 180 deg (half circle) precipitation rate = 0.27" / hr.



The pitot tube and pressure gauge are used to measure nozzle pressure which is evaluated against nozzle performance charts

Suggested maximum run times on clay soil before runoff occurs (on flat surfaces) infiltration rate - 0.10" / hr											
spray	spray	spray	rotors	rotors	rotors	rotors	rotor				
1.6" / hr	1.8" / hr	2" / hr	0.25"/hr	0.35" / hr	0.45"/hr	0.55"/hr	0.65"/hr				
4 min	4 min	4 min	24 min	17 min	13 min	11 min	9 min				
Suggested	Suggested maximum run times on clay loam soil before runoff occurs										
(on flat su	(on flat surfaces)										
infiltratio	infiltration rate - 0.16" / hr										
spray	spray	spray	rotors	rotors	rotors	rotors	rotor				
1.6" / hr	1.8" / hr	2" / hr	0.25"/hr	0.35" / hr	0.45"/hr	0.55"/hr	0.65"/hr				
6 min	5 min	4 min	38 min	27 min	21 min	17 min	14 min				

Low head drainage occurs in lateral sprinkler piping after the irrigation valve has shut down. When heavy clay soils are being irrigated, multiple cycles (usually 6-8) must occur every day that irrigation takes place. This necessary cycling process introduces the problem of low head drainage. This problem may be resolved with addition of check valves which may be retrofitted into the base of spray head bodies.



It is not unusual to find irrigation valves with spray and rotor type sprinklers plumbed together. This is never acceptable and should be corrected because of the different precipitation rates of the two types!





While low pressure at spray nozzles is frequently encountered, it is not unusual to find spray systems with excessive pressure. When pressure exceeds 45 psi, the sprinkler body should have a pressure regulating feature. This feature, like the anti-drain check valve, may be retrofitted into an existing spray body without digging up the sprinkler When sprinkler inlet pressures exceed 75 psi a regulator must be installed at the valve or backflow prevention device location.







Spray heads operating at 90 psi. This problem was corrected with the addition of a regulator feature on the valve.





Internal pressure regulating device is designed for inlet pressures between 45 and 75 psi

Same circuit operating at 30 psi!

#### Managing the Irrigation Controller in a Drought

The amount of irrigation water applied to the landscape varies with the type of plant material and the precipitation rate of the sprinklers. The environmental factors that drive plant water use are temperature, wind, solar radiation, humidity, and ground temperature and collectively they generate a number known as Evapotranspiration (ET). These factors are nearly impossible for the landscape manager to evaluate in the field. The State of California manages a network of computerized weather stations linked to a free website in a program known as CIMIS (California Irrigation Management Information System). There are nearly 200 of these stations throughout the state. They provide the landscape manager with a number that represents the inches of water plants generally need in a month, week, or day. The number available from the local weather station. In these instances tables are available providing monthly averages in the Water Efficient Landscape Ordinance (WELO) which is also available on line.

#### Average ETo Values by Station

Stn Id	Stn Name	CIMIS Region	Jan (in)	Feb (in)	Mar (in)	Apr (in)	May (in)	Jun (in)	Jul (in)	Aug (in)	Sep (in)	Oct (in)	Nov (in)	Dec (in)	Total (in)
184	San Diego II	SCV	2.22	2.71	3.82	4.45	4.99	5.00	5.45	5.20	4.48	3.11	2.34	1.96	45.73



#### http://wwwcimis.water.ca.gov/



#### http://ucanr.edu/sites/WUCOLS/



Every plant has a different water requirement relative to  $ET_0$  based upon the landscape coefficient or  $K_L$ . The primary factor that drives that landscape coefficient is the species factor. Our biggest concern in the drought is the water requirement for turfgrass as it consumes the bulk of the landscape water. The plant water requirement  $ET_L$  is obtained for any period by multiplying the  $ET_0 \times K_L$ . In a traditional year cool season turfgrass such as fescue, Kentucky Bluegrass, or rye have a species factor of 70 percent or 0.70. In a drought we reduce this species factor and in turn the landscape coefficient ( $K_L$ ) to 60 percent or 0.60. This follows guidelines developed by turfgrass experts at the University of California at Davis and Riverside.

July  $ET_L$  in a traditional year –  $ET_0$  (5.45") x K<sub>L</sub> (0.70 for cs turf) = 3.82" / month

July  $ET_L$  in a drought year –  $ET_O$  (5.45") x K<sub>L</sub> (0.60 for cs turf) = 3.27" / month

#### The water savings associated with this recommendation will save 0.55" in the peak month of July which is a 14% reduction in water use!

The development of an irrigation schedule is based on the average daily  $ET_L$ . In the month of July we have a  $ET_L$  of 3.27". The objective is to establish an average daily  $ET_L$  which in this case is 0.105" per day (3.27" / 31 = 0.105"). The replacement for every 3rd day watering for turf in a typical July is 0.315 inches (3 x 0.105). If we were watering on a flat clay surface the infiltration rate or maximum intake rate of the soil is 0.08 inches per hour. It would be necessary to have 4 cycles or start times (4 x 0.08 = 0.32) to avoid illegal irrigation runoff. Since most programs have only 4 start times, it will be necessary to utilize two programs to have an adequate number of start times on clay soils.

Daily	Sun	Mon	Tue	Wed	Thur	Fri	Sat
ETL	0.105"	0.105"	0.105"	0.105"	0.105"	0.105"	0.105"
			Water		Water		Water
			Tue		Thur		Sat
			a.m.		a.m.		a.m.
			replace		replace		replace
			0.315"		0.21"		0.21"

On Tuesday the turf water requirement is 0.315''. Regardless of the type of sprinkler, the soil infiltration or intake rate of 0.08'' for clay (in this case) dictates the maximum amount of water applied to be 0.08'' before runoff. Some sprinklers such as rotors and drip apply water more slowly and can have longer run times. Spray type sprinklers have a much higher precipitation rate so their run times to reach runoff are shorter. The sprinkler does not dictate the number of repeats rather it is the soil type! So the number of cycles required is 4 (0.315 / 0.08 = 4) We may have to use 2 programs here because of the limitations of start times available per program on many controllers.

			PROGRAM A	PROGRAM B	PROGRAM C
DAY 0	)F THE WEEK		M T W T F S S	M T W T F S S	MTWTFSS
ODD/	EVEN or INTERV	/AL	0		
		1	Start 1 - 12:30 am		
I	PROGRAM	2	Start 2 - 2:00 am		
S	START TIMES 3		Start 3 - 3:30 am		
			Start 4 - 5:00 am		
STATION	LOCATIO	N	STATION RUN TIME	STATION RUN TIME	STATION RUN TIME
1					
2					
3	3				
4					
-			1		

#### WATERING SCHEDULE FORM EXAMPLE

The next step in scheduling is to determine the run time in minutes required for Tuesday. We use a simple run time formula RT =  $ET_L$  (turf water requirement) / PR (precipitation rate) x 60 (constant). In this example the sprinkler is a 15 ft spray spaced square at 30 psi with a precipitation rate of 1.58" / hr. Recall the Tuesday  $ET_L$  so the run time is as follows  $ET_L$  (0.315) / PR (1.58) x 60 = 12 minutes. On Program A we'll water 3 minutes per cycle x 4 starts = 12 minutes.





(plant water requirement)





				PROGRAM A		PROGRAM B	PROGRAM C
DAY 0	)F THE WEI	Κ		M T W T F S S	N	T W T F S S	M T W T F S S
ODD/	ODD/ EVEN or IN ERVAL		/AL				
	PROGRAM      1        2      3        3      4		1	Start 1 - 12:30 am			
1			2	Start 2 - 2:00 am			
s			3	Start 3 - 3:30 am			
			4	Start 4 - 5:00 am			
STATION	LOC	ATIO	N	STATION RUN TIME		STATION RUN TIME	STATION RUN TIME
1	sprays f	ont	: lawn	3 min			
2							
3							
4	4						
_	(4 cycles x 3 minutes = 12 minutes)						

#### WATERING SCHEDULE FORM EXAMPLE

We've completed the schedule for station 1 for the spray heads on the turf for Tuesday. The irrigation water that we had to apply (0.315") requires 4 repeats and utilized the capabilities of the A program only. The water requirement for Tuesday morning replaces 3 days of turf water use or 0.315 inches of water). The amount of water required on Thursday and Saturday replaces two days of turf water use or 0.21". The run time for program C (Thursday and Saturday) is  $RT = ET_L / PR \times 60 (0.21 / 1.58 \times 60) = 8 \text{ min.}$ 

#### WATERING SCHEDULE FORM EXAMPLE

			PROGRAM A	PROGRAM B	PROGRAM C
DAY 0	F THE WEEK		M T W T F S S	M T W T X S 6	ИТWТFSS
ODD/ EVEN or INTERVAL		/AL	0		
		1	Start 1 - 12:30 am	Start 1 - 11:00 a.m.	
	PROGRAM 2		Start 2 - 2:00 am	Start 2 - 12:30 am	
S	START TIMES 3		Start 3 - 3:30 am	Start 3 - 2:00 am	
			Start 4 - 5:00 am	Start 4 - 3:30 am	
STATION	LOCATIO	Ν	STATION RUN TIME	STATION RUN TIME	STATION RUN TIME
1	sprays front	t lawn	3 min	2 min	
2					
3					
4	-				
		4 cy	cles x 3 min = 12 min.)	(4 cycles x 2 min = 8 min.	

One important feature of more modern controllers is the percentage or seasonal adjust key or +/- key. It allows adjustment of an entire program by percentages. Heavy clay soils and spray heads render this a meaningless feature. Imagine that there is a 3 minute run time that needs a 10% reduction. The controller times in 1 minute increments so the % key only works for 33% changes (3 minutes reduces to 2 minutes is a 33% change). The only options we have with these short run times is to eliminate a start time or decrease a run time. This is exactly why rotors, with their lower precipitation rates, and longer run times are a better option than sprays. If the rotor station was set for four 10 minute cycles a 90% adjust would reduce the run time to 9 minutes!



Ultimately we need to be very creative in dealing with drought conditions where reduced watering days may be imposed by cities or water agencies. There are many limitations to controller programming when this occurs and they are acutely felt during a drought. Another serious limitation in the more arid regions of the state is the limitation of the water meter to apply water in two days that would normally be applied in 3 to 7 days per week!





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Irrigation Schedule

#### San Diego, CA

#### Pop Up Spray Heads / Cool Season Turf

Cool Season Turf with a K<sub>T</sub> species factor (maximum stress) 0.60

	DULQ	0.56			Every oth	er day	Every 3rd	l day
	PR Rate	1.58	inches / hr.		watering		watering	
	RTM	1.36						
		San Diego	San Diego	San Diego	Lower	Upper	Lower	Upper
		ET <sub>0</sub>	ET <sub>0</sub>	CS Turf	Bndry.	Bndry.	Bndry.	Bndry.
		Avg	Avg.	Req't	Run Time	Run Time	Run Time	Run Time
		Monthly	daily	daily	min.	min.	min.	min.
1	Mar	3.82	0.1232	0.0739	6	8	8	11
0	Apr	4.45	0.1483	0.0890	7	9	10	14
1	May	4.99	0.1610	0.0966	7	10	11	15
0	Jun	5	0.1667	0.1000	8	10	11	15
81	Jul	5.45	0.1758	0.1055	8	11	12	16
1	Aug	5.2	0.1677	0.1006	8	10	11	16
0	Sep	4.48	0.1493	0.0896	7	9	10	14
1	Oct	3.11	0.1003	0.0602	5	6	7	9
		36.5						





#### MP Rotators / Cool Season Turf

	Cool Se	ason Turf 🛛	with a K <sub>T</sub> spe	cies factor	(maximur	n stress)	0.60			
	DULQ	0.72			Every oth	ner day	Every 3rd	d day		
	PR Rate	0.43	inches / hr.		watering		watering			
	RTM	1.2								
		San Diego	San Diego	San Diego	Lower	Upper	Lower	Upper		
		ET <sub>0</sub>	ET <sub>0</sub>	CS Turf	Bndry.	Bndry.	Bndry.	Bndry.		
		Avg	Avg.	Req't	Run Time	Run Time	Run Time	Run Time		
		Monthly	daily	daily	min.	min.	min.	min.		
31	Mar	3.82	0.1232	0.0739	21	25	31	37	-	200
30	Apr	4.45	0.1483	0.0890	25	30	37	45		A P
31	May	4.99	0.1610	0.0966	27	32	40	49		1 61
30	Jun	5	0.1667	0.1000	28	33	42	50	autority S	
31	Jul	5.45	0.1758	0.1055	29	35	44	53	La la la con	
31	Aug	5.2	0.1677	0.1006	28	34	42	51		
30	Sep	4.48	0.1493	0.0896	25	30	38	45		
31	Oct	3.11	0.1003	0.0602	17	20	25	30		
		MAXIMU	M CYCLE LEN	GTH (IN M	INUTES) TO	O AVOID R	UNOFF ON CLA	Y SOILS		
			SPRAYS		4 MINUT	ES	(15 FT SQUARE	SPACING)		
			ROTORS		<b>14 MINU</b>	TES	(0.43" / HR PR			
			LINE SOURC	E DRIP	4 MINUT	ES	(0.9 GPH - 12"	X 12" SPA	CING)	1

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#### Drip / Line Source - 0.9 GPH - 12" x 12" spacing

Ornamental Shrubs with a species factor K<sub>P</sub> (max stress)

	DU <sub>LQ</sub> PR Rate	0.9 1.42	inches / hr.		Every otl watering	ner day	Every 3rd watering	day
	RIM	1.06		1				
		San Diego	San Diego	) San Diego	Lower	Upper	Lower	Up
		ET <sub>0</sub>	ET <sub>0</sub>	Orn. Shrub	Bndry.	Bndry.	Bndry.	Bn
		Avg	Avg.	Req't	Run Time	Run Time	Run Time	Run
		Monthly	daily	daily	min.	min.	min.	m
31	Mar	3.82	0.1232	0.0493	NA	NA	6	
30	Apr	4.45	0.1483	0.0593	NA	NA	8	
31	May	4.99	0.1610	0.0644	NA	NA	8	
30	Jun	5	0.1667	0.0667	NA	NA	8	
31	Jul	5.45	0.1758	0.0703	NA	NA	9	
31	Aug	5.2	0.1677	0.0671	NA	NA	9	
30	Sep	4.48	0.1493	0.0597	NA	NA	8	
31	Oct	3.11	0.1003	0.0401	NA	NA	5	

Lower Upper Bndry. Bndry. un Time Run Time min. min. 7 8 9 9 9

9

8 5

0.40



#### Drip / Point Source - random spacing - 0.25" / hr. PR

	Orname	ental Shru	bs with a sp	ecies factor	K <sub>P</sub> (max s	tress)	0.40			_
	DU <sub>LQ</sub> PR Rate RTM	0.9 0.25 1.06	inches / hr.		Every oth watering	ier day		Every 3rd watering	day	-
		San Diego	San Diego	San Diego	Lower	Upper		Lower	Upper	
		ET <sub>0</sub>	ET <sub>0</sub>	Orn. Shrub	Bndry.	Bndry.		Bndry.	Bndry.	
		Avg	Avg.	Req't	Run Time	Run Time		Run Time	Run Time	
		Monthly	daily	daily	min.	min.		min.	min.	
31	Mar	3.82	0.1232	0.0493	NA	NA		35	38	
30	Apr	4.45	0.1483	0.0593	NA	NA		43	45	
31	May	4.99	0.1610	0.0644	NA	NA		46	49	
30	Jun	5	0.1667	0.0667	NA	NA		48	51	
31	Jul	5.45	0.1758	0.0703	NA	NA		51	54	-
31	Aug	5.2	0.1677	0.0671	NA	NA		48	51	
30	Sep	4.48	0.1493	0.0597	NA	NA		43	46	
31	Oct	3.11	0.1003	0.0401	NA	NA		29	31	
			6104 Av	enida Enci	nas - Ste	E		Carlsbad		(760) 438-1911
E	LII)	ÎПС	591 C St	reet - Ste I	В			Chula Vi	sta	(619) 426-5200
E			1923 Joi	nn Towers	Ave			El Cajon		(619) 562-3300
			7151 A F	Ronson Rd				San Dieg	0	(858) 576-9530
			849 F Ra	ncheros D	r			San Mare	:05	(760) 489-1247

\* lower boundary represents a water time that assumes a high uniformity of application DULQ

\* upper boundary increases run time to account for normal sprinkler uniformity deficiencies

(SEE APPENDIX FOR ESCONDIDO)

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Precipitation Rate Tables - Low Volume/Drip-Micro Irrigation Point Source Emiiters or Micro Spray

(METER FLOW)

CFM GPM

# AREA IN SQUARE FEET(CANOPY AREA)

# 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600 625 650 675 700 8

0.03	0.25	0.48	0.32	0.24	0.19	0.16	0.14	0.12	0.11	0.10	60.00	0.08																
0.07	0.50	0.96	0.64	0.48	65.0	0.32	0.28	0.24	0.21	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.10	60.0	0 60'0	80.					
0.10	0.75	1.44	0.96	0.72	0.58	0.48	0.41	0.36	0.32	0.29	0.26	0.24	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14 0	.14	0.13 0	13	12 0	12 0	H	Ξ	
0.13	1.00	1.93	1.28	0.96	0.77	0.64	0.55	0.48	0.43	0.39	0.35	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.19 0	0.18	0.18 0	117 0	.16 0	15 0	15	-	
0.17	1.25	2.41	1.61	1.20	0.96	0.80	0.69	0.60	0.5	0.48	4.0	0.40	0.37	0.34	0.32	0:30	0.28	0.27	0.25	0.24 0	12	0.22	21 0	20 0	19 0	61.	8	
0.20	1.50	2.89	1.93	1.44	1.16	0.96	0.83	0.72	0.64	0.58	6.53	0.48	44.0	0.41	620	0.36	0.34	0.32	020	0.29	.28	0.26 0	22	.24 0	3	2	21	
0.23	1.75	3.37	2.25	1.69	1.35	1.12	0.96	0.84	0.75	0.67	0.61	0.56	0.52	0.48	0.45	0.42	0.40	0.37	0.35	0.34 0	32	0.31 0	29	.28 0	27 0	.26	5	
0.27	2.00	3.85	2.57	1.93	1.54	1.28	1.10	0.96	0.86	0.77	0.70	0.64	0.59	0.55	0.51	0.48	0.45	0.43	0.41	0.39 0	37	0.35 0	33 0	32 0	310	30	2	
0.30	2.25	4.33	2.89	2.17	1.73	1.44	1.24	1.08	0.96	0.87	0.79	0.72	0.67	0.62	0.58	0.54	0.51	0.48	0.46	0.43 0	.41 0	0 950	38 0	36 0	35 0	8	8	
0.33	2.50	4.82	3.21	2.41	1.93	1.61	1.38	1.20	1.07	0.96	0.88	0.80	0.74	0.69	0.64	0.60	0.57	0.54	0.51	0.48 0	.46	0.44 0	.42 0	40 0	65	37	8	
0.37	2.75	5.30	3.53	2.65	2.12	1.77	1.51	1.32	1.18	1.06	0.96	0.88	0.81	0.76	0.71	0.66	0.62	0.59	0.56	0.53	50	0.48 0	.46 0	4	42 0	41	ñ	
0.40	3.00	5.78	3.85	2.89	231	1.93	1.65	1.44	1.28	1.16	1.05	0.96	0.89	0.83	0.77	0.72	0.68	0.64	0.61	0.58 0	55	0.53	50	.48	46 0	4	<del>2</del>	
0.43	3.25	6.26	4.17	3.13	2.50	2.09	1.79	1.56	1.39	1.25	1.14	1.04	0.96	0.89	0.83	0.78	0.74	0.70	0.66	0.63	09.0	0.57	5	52 0	50	.48	46	
0.47	3.50	6.74	4.49	3.37	2.70	2.25	1.93	1.69	1.50	1.35	13	1.12	5	0.96	0:90	0.84	0.79	0.75	12.0	0.67 0	25	0.61 0	59 0	.56 0	5	3	ŝ	
0.50	3.75	7.22	4.82	3.61	2.89	2.41	2.06	1.81	1.61	1.44	1.31	1.20	111	1.03	96.0	0.00	0.85	0.80	0.76	0.72 0	69.0	0.66 0	.63	60 09	58 0	28	5	
0.53	4.00	7.70	5.14	3.85	3.08	2.57	2.20	1.93	171	1.54	1.40	1.28	1.19	1.10	1.03	0.96	0.91	0.86	0.81	0.77 0	13	0.70	. 67	64 0	62 0	65	5	
0.57	4.25	8.19	5.46	4.09	3.27	2.73	2.34	2.05	1.82	1.64	1.49	1.36	1.26	1.17	1.09	1.02	0.96	0.91	0.86	0.82 0	.78	0.74 0	121	.68	.65 0	8	19	
0.60	4.50	8.67	5.78	4.33	3.47	2.89	2.48	2.17	1.93	1.73	1.58	1.44	1.33	1.24	1.16	1.08	1.02	0.96	0.91	0.87 0	.83	0.79	.75 0	72 0	0 69	19	Q.	
0.64	4.75	9.15	6.10	4.57	3.66	3.05	2.61	2.29	203	1.83	1.66	1.52	1.41	1.31	1.22	1.14	1.08	1.02	96.0	0.91 0	.87	0.83	087	76 0	33 0	8	89	
0.67	5.00	9.63	6.42	4.82	3.85	3.21	2.75	2.41	2.14	1.93	1.75	1.61	1.48	1.38	1.28	1.20	113	1.07	1.01	0.96	.92	0.88 0	.84	80 0	77 0	74	5	

\* Obtain flow to the area by reading water meter. Calculate canopy area using Ewing's "16 point" measuring system for irregularly shaped areas.



# In-Line Drip Tubing Flow Precipitation Rates (Netafim)

						Ē	#					-			ŝ	RUB	& GR	NNO	DCO	VER			
<b>GENERAL GUIDELINES</b>	5	AVS	OIL	LOA	M SI	J	SAN	DV SC	DIL C	OARS	ESO	1	CLAY	SOIL	3	MM	SOIL	SAI	VDV	SOIL	COAS	SES	SOIL
EMITTER FLOW	0	26 GF	H	0	4 GPI	-	0.6	GPH		0.9 (	HdS		0.26 (	HdS	1	0.4 G	H	0	6 GP	H	0	GPI	+
EMITTERSPACING		18~			12"		_	.2.		1	h	-	18		_	18-			12-			12-	
LATERAL (ROW) SPACING	18	20-	22	18"	-20-	22"	12-	14" 1		2 1	1 -1	2- 18	5 21	- 24	- 18	- 21	24"	16	18"	20-	19	18"	20-
BURIAL DEPTH		1.071	Bury	werd,	throu	ghout	the z	one fre	t-t-uc	-90				-	Dn-su	ríace se zon	or bur	y eve	My the	augho	ti		
APPLICATION RATE (INCHES/HOUR)	0.15	3 0.17	0.15	0.45	0.41	0.37	960	0.83 0	12 1	44 1.	24 1.	08 0.	19 0.1	6 0.1	4 0.2	9 0.2	1 0.21	0.72	0.64	0.58	1.08	0.96	0.87
TIME TO APPLY 34" OF WATER (MINUTES)	81	8	8	8	3	41	16	18	21	1	2 1	4 8	9	100	8	61	20	21	8	36	2	16	17
Following thes 0.9 GPH	e max	mum :	spacit	ng gui	deline	s, emi	ther fi	ow sel	ection	o can t	be inc	rease ach at	d if de	sired t	by the	r desig	ner.						

Note: 0.4, 0.6 and 0.9 GPH are nominal flow rates. Actual flow rates used in the calculations are 0.42, 0.61 and 0.92 GPH.

#### Measuring irregularly shaped drip zone canopy

When the geometry of an area is complex, the area can be measured by treating it as a circle. The formula for the area of a circle is Pi (3.14) x radius (squared) = A. We can determine the average radius of any shape by measuring the distance from near the center to the perimeter 16 times using a 100 foot tape. We then total these measurements and divide by 16 to obtain the average.

In the field use a fabricated  $2 \times 2$  plywood sheet with a hole in the center for a screwdriver and place this sheet near the approximate center of the area to be measured. Create 16 permanent radii from the center at 22.5 degree increments on the plywood sheet. Use these as a guide and measure to the perimeter.





For simplicity of calculation inches are converted to a decimal equivalent. A conversion chart for inches to decimal equivalent may be found on the right side of the table on the reverse side of this page.

This shape has a total of 524.55 feet. The average radius is therefore 32.78 (524.5/16). Find the average radius on the reverse table. We have to interpolate to determine that the area is 3,346 sq. ft

Conversio	on Chart	- Average Ra	adius to S	quare Feet	(16 radii	minimum)	
Avergage	Area	Avergage	Area	Avergage	Area	Avergage	Area
Radius	(square	Radius	(square	Radius	(square	Radius	(square
(feet)	feet)	(feet)	feet)	(feet)	feet)	(feet)	feet)
(1000)	,	(1000)		(1000)	5.000	(1000)	12.000
10.00	314	22.00	1,521	43.00	5,809	66.50	13,893
10.25	330	22.50	1,590	43.50	5,945	66.00	13,685
10.50	340	22.75	1,020	44.00	6,082	66.50	13,893
10.75	303	23.00	1,002	44.50	0,221	67.00	14,103
11.00	380	23.25	1,098	45.00	0,302	67.50	14,314
11.25	398	23.50	1,735	45.50	6,504	68.00	14,527
11.50	415	25.75	1,772	46.00	6 702	69.00	14,741
12.00	454	24.00	1,010	40.50	6 940	69.00	15 175
12.00	432	24.25	1,047	47.00	7 099	70.00	15 20/
12.25	471	24.30	1 02/	47.30	7,000	70.00	15 615
12.50	511	25.00	1 963	48.50	7 300	70.50	15,015
13.00	531	25.50	2 043	49.00	7 5/3	71.00	16.061
12.00	552	25.50	2,045	49.00	7,545	72.00	16 296
12.20	572	26.00	2,124	49.00	7,050	72.00	16 512
13.50	59/	20.30	2,200	50.50	8 012	72.50	16 7/2
14.00	616	27.00	2,250	51.00	8 171	73.50	16 972
14.00	638	27.50	2,370	51.50	8 332	73.50	17 203
14.20	661	28.50	2,405	52.00	8 495	74.50	17 437
14.50	683	29.00	2,552	52.50	8 659	75.00	17 671
15.00	707	29.50	2,042	53.00	8 825	75.50	17 908
15.00	731	30.00	2,731	53.50	8 992	76.00	18 146
15.50	755	30.50	2,027	54.00	9 161	76.50	18 385
15.55	779	31.00	3 019	54 50	9 331	77.00	18 627
16.00	804	31.50	3,117	55.00	9,503	77.50	18,869
16.25	830	32.00	3.217	55.50	9.677	78.00	19.113
16.50	855	32.50	3.318	56.00	9.852	78.50	19.359
16.75	881	33.00	3,421	56.50	10,029	79.00	19,607
17.00	908	33.50	3,526	57.00	10,207	79.50	19,856
17.25	935	34.00	3,632	57.50	10,387	80.00	20,106
17.50	962	34.50	3,739	58.00	10,568		
18.00	1,018	35.00	3,848	58.50	10,751	Decimal E	quival.
18.25	1,046	35.50	3,959	59.00	10,936	inches	decimal
18.50	1,075	36.00	4,072	59.50	11, 122		
18.75	1,104	36.50	4,185	60.00	11,310	1	0.08
19.00	1,134	37.00	4,301	60.50	11,499	2	0.17
19.25	1,164	37.50	4,418	61.00	11,690	3	0.25
19.50	1,195	38.00	4,536	61.50	11,882	4	0.33
19.75	1,225	38.50	4,657	62.00	12,076	5	0.42
20.00	1,257	39.00	4,778	62.50	12,272	6	0.50
20.25	1,288	39.50	4,902	63.00	12,469	7	0.58
20.50	1,320	40.00	5,027	63.50	12,668	8	0.67
20.75	1,353	40.50	5,153	64.00	12,868	9	0.75
21.00	1,385	41.00	5,281	64.50	13,070	10	0.83
21.25	1,419	41.50	5,411	65.00	13,273	11	0.92
21.50	1,452	42.00	5,542	65.50	13,478	_	
21.75	1.486	42.50	5.675	66.00	13.685	c. 2009 Ewing Irr	igation Produ

Once the canopy area of a specific drip irrigation zone has been measured, the flow to the zone must be obtained by operating the zone from the irrigation controller. Proceed to the water meter and observe the flow to the zone as the station is running. Allow a couple of minutes for the tubing to fill and come to full pressure before reading flow at the meter. Proceed to the precipitation rate chart and derive the precipitation rate by matching area in square feet to meter flow in cubic feet per minute (CFM)

Also insure that there is adequate pressure to the last (and or highest) elevation emitter in the zone. Minimum psi for pressure compensating emitters is 10 psi and for drip line 15 psi.



Estimating Irregula	rly shaped Areas			
/leasurement				
А				
В				
С				
D			Dec 2 B	
E		Sales with	and the	A Marche
F		A STATEMENT		Contraction of the second
G			E.	
Н				
I		2- 7- 65		
J		K	and and the second s	
К		1		
L			02.20.0	
м		1.	17 200	
N				
0				
Р				
		EMITTER FLOW (	TIME TO FI	LL 2" CAP)
TOTAL				
AVG/16		EMITTER TYPE	GPH	FILL TIME
SQ. FT				
		POINT SOURCE	2.00	56 SECONDS
METER		POINT SOURCE	1.00	1 MIN 52 SECONDS
FLOW		LINE SOURCE	0.92	2 MIN 2 SECONDS
CFM		LINE SOURCE	0.61	3 MIN 4 SECONDS
		POINT SOURCE	0.50	3 MIN 45 SECONDS
PR Rate		LINE SOURCE	0.42	4 MIN 26 SECONDS
				17

The water meter is an important management tool during the drought. As a landscape professional you can provide a very important service for your customers by monitoring their water use. If you are performing landscape maintenance at a site, then you are visiting it on a weekly basis and it will take just a few minutes to provide this service. Your primary objective in this regard is to look for leaks. Open the valve meter box when you arrive for maintenance and watch the meter for a few moments. There is a low flow indicator on the meter. If the meter is not dedicated to the landscape there may be a flow of potable to the residence or building. Try to check for leaks when no one is present in the building. If the irrigation system is off and no one is home the low flow indicator should not be moving. Observe it for a few seconds to see if it is turning. It may not be turning, but there still may be a leak. Note the position of the needle and the reading on the total flow which looks like a car's odometer. Check this before you leave the site to see if there has been any flow during your maintenance period. <u>Calculate the flow of the leak per hour and multiply by 8,760 (hours per year to determine the amount of water loss per year.</u>



At each maintenance visit check the low flow indicator and the position of the needle and total flow to determine if there is a slow leak. Take a digital image with your phone camera to document any leaks as well as the meter number. This is a great low cost service that you can provide to your customers during the drought!

The water meter is usually located between the curb and the backflow prevention device. Most commercial sites have dedicated landscape meters but this is not always the case. Meters record water volume in gallons or cubic feet, but most water agencies provide meters that record in cubic feet. A cubic foot of water is 7.48 gallons and is a 12"x12"x12" cube. Customers are billed in what is known as ccf's or hundred cubic foot units of 748 gallons.



Each full revolution of the dial on commercial meters (1  $\frac{1}{2}$ " and larger) represents a flow of ten cubic feet or 74.8 gallons



Each full revolution of the dial on a residential meter (5/8", 3,4" and 1") represents a flow of one cubic foot or 7.48 gallons

The water meter limits the amount of water that can be delivered to the site. Most irrigation systems were designed with the expectation that they would apply water anywhere from three to seven days per week. Take the system that in non-drought years was able to water six days per week and nine hours per day in the month of July. This is a total watering time of 3,240 minutes ( $6 \times 9 \times 60$ ). Let's assume this is a 2" meter providing 50 gallons per minute. Under these conditions the meter could provide up to 162,000 gallons per week. (This 50 gpm flow is an average as some stations such as drip have far less flow and others such as large turf rotors have more)

Now, transition to a drought where watering is allowed two days per week for a maximum of thirty hours per week. The amount of water that could be delivered to the site would be 90,000 gallons (1,800 minutes x 50 = 90,000. Given this shortfall it is likely the site manager will have to set priorities on landscape watering and it is possible that some areas of the landscape may not survive. Invest the landscape water in large trees and shrubs which have the greatest value in the landscape!

#### APPENDIX

#### Irrigation Schedule Esc

#### Escondido, CA

#### Pop Up Spray Heads / Cool Season Turf

Cool Season Turf with a KT species factor (maximum stress) 0.60

	DULQ	0.56			Every oth	ner day	Every 3rd	day
	PR Rate	1.58	inches / hr.		watering		watering	
	RTM	1.36						
		Escondido	Escondido	Escondido	Lower	Upper	Lower	Upper
		ET <sub>0</sub>	ET <sub>0</sub>	CS Turf	Bndry.	Bndry.	Bndry.	Bndry.
		Avg	Avg.	Req't	Run Time	Run Time	Run Time	Run Time
		Monthly	daily	daily	min.	min.	min.	min.
31	Mar	3.96	0.1277	0.0766	6	8	9	12
30	Apr	4.9	0.1633	0.0980	7	10	11	15
31	May	5.97	0.1926	0.1155	9	12	13	18
30	Jun	6.62	0.2207	0.1324	10	14	15	21
31	Jul	7.05	0.2274	0.1365	10	14	16	21
31	Aug	6.64	0.2142	0.1285	10	13	15	20
30	Sep	5.25	0.1750	0.1050	8	11	12	16
31	Oct	3.89	0.1255	0.0753	6	8	9	12
		44.28						





#### MP Rotators / Cool Season Turf

Cool Season Turf with a K<sub>T</sub> species factor (maximum stress) 0.60

	DU <sub>LQ</sub> PR Rate RTM	0.72 0.43 1.2	inches / hr.		Every oth watering	er day	Every 3rd watering	day	
		Escondido	Escondido	Escondido	Lower	Upper	Lower	Upper	
		ETo	ET <sub>0</sub>	CS Turf	Bndry.	Bndry.	Bndry.	Bndry.	
		Avg	Avg.	Req't	Run Time	Run Time	Run Time	Run Time	
		Monthly	daily	daily	min.	min.	min.	min.	
31	Mar	3.96	0.1277	0.0766	21	26	32	39	AN
30	Apr	4.9	0.1633	0.0980	27	33	41	49	
31	May	5.97	0.1926	0.1155	32	39	48	58	CAR I AND
30	Jun	6.62	0.2207	0.1324	37	44	55	67	a solo will a
31	Jul	7.05	0.2274	0.1365	38	46	57	69	Section Darks
31	Aug	6.64	0.2142	0.1285	36	43	54	65	
30	Sep	5.25	0.1750	0.1050	29	35	44	53	
31	Oct	3.89	0.1255	0.0753	21	25	32	38	
		MAXIMU	VI CYCLE LEN	GTH (IN M	NUTES) TO	AVOID R	UNOFF ON CLAY	SOILS	
			SPRAYS		4 MINUTE	S	(15 FT SQUARE	SPACING)	
			ROTORS		14 MINU	TES	(0.43" / HR PRE	CIP RATE)	
			LINE SOUR			2	(0.9 GPH - 12")	(12" SPAC	ING)



0.40

#### Drip / Line Source - 0.9 GPH - 12" x 12" spacing

Ornamental Shrubs with a species factor K<sub>P</sub> (max stress)

	DULQ	0.9			Every ot	her day	Every 3rd	day
	PR Rate	1.42	inches / hr.		watering	1	watering	
	RTM	1.06						
		Escondido	Escondido	Escondido	Lower	Upper	Lower	Upper
		ETo	ET <sub>0</sub>	Orn. Shrub	Bndry.	Bndry.	Bndry.	Bndry.
		Avg	Avg.	Req't	Run Time	e Run Time	Run Time	Run Time
		Monthly	daily	daily	min.	min.	min.	min.
31	Mar	3.96	0.1277	0.0511	NA	NA	6	7
30	Apr	4.9	0.1633	0.0653	NA	NA	8	9
31	May	5.97	0.1926	0.0770	NA	NA	10	10
30	Jun	6.62	0.2207	0.0883	NA	NA	11	12
31	Jul	7.05	0.2274	0.0910	NA	NA	12	12
31	Aug	6.64	0.2142	0.0857	NA	NA	11	12
30	Sep	5.25	0.1750	0.0700	NA	NA	9	9
31	Oct	3.89	0.1255	0.0502	NA	NA	6	7



#### Drip / Point Source - random spacing - 0.25" / hr. PR

Ornamental Shrubs with a species factor K<sub>P</sub> (max stress) 0.40

	Official		os with a sp		rep (max 3	creasy.	0.40			_	
	DU <sub>LQ</sub> PR Rate	0.9	inches / hr.		Every oth watering	ner day		Every 3rd watering	day	-	
	KTIVI	Escondido	Escondido	Escondido	Lower	Upper		Lower	Upper		
		Avg	Elo Avg.	Req't	Bndry. Run Time	Bnary. Run Time		Bndry. Run Time	Bndry. Run Time		
		Monthly	daily	daily	min.	min.		min.	min.		
31	Mar	3.96	0.1277	0.0511	NA	NA		37	39		
30	Apr	4.9	0.1633	0.0653	NA	NA		47	50		
31	May	5.97	0.1926	0.0770	NA	NA		55	59		
30	Jun	6.62	0.2207	0.0883	NA	NA		64	67		
31	Jul	7.05	0.2274	0.0910	NA	NA		65	69	-	
31	Aug	6.64	0.2142	0.0857	NA	NA		62	65		
30	Sep	5.25	0.1750	0.0700	NA	NA		50	53		
31	Oct	3.89	0.1255	0.0502	NA	NA		36	38		
			6104 Av	enida Enci	nas - Ste	E		Carlsbad		(760) 438-1911	
F	1888	ÎNP	591 C St	reet - Ste E	3			Chula Vi	sta	(619) 426-5200	
Ľ	īШ	1110	1923 Joh	nn Towers	Ave			El Cajon		(619) 562-3300	
			7151 A F	Ronson Rd				San Dieg	o	(858) 576-9530	
			849 E Ra	ncheros D	r			San Mare	COS	(760) 489-1247	

\* lower boundary represents a water time that assumes a high uniformity of application DULQ

\* upper boundary increases run time to account for normal sprinkler uniformity deficiencies

#### THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA



# Landscape Irrigation Survey

For Commercial, Industrial, Institutional and Common Area Landscapes



A certified landscape irrigation auditor will survey and provide written recommendations for qualifying non-residential properties within Metropolitan's 5,200 square-mile service area at no cost. To participate, properties must have a minimum of one acre of irrigated land. Eligible landscapes include commercial and industrial sites, homeowner association common areas, and institutional sites like schools, parks and government facilities.

Surveys are scheduled on a first-come, first-served basis. To request a survey, please complete the online application at bewaterwise.com<sup>®</sup>. Funding is limited and submitting an application does not guarantee a survey will be provided.

#### CONTACT

**Deneice** Cotton Metropolitan Water District of Southern California (213) 217-6616 dcotton@mwdh2o.com

#### WHAT TO EXPECT

The property owner, manager or authorized representative with access to the irrigation controllers must be present during the survey. The certified landscape irrigation auditor will conduct a comprehensive review of the irrigation system including:

- System pressure
- Controllers
- Site conditions and irrigation scheduling
- Issues that cause higher water use, such as valve malfunctions, high or low pressure, sprinkler misalignment, poor drainage, breaks and leaks, runoff, etc.

Participants will receive a written report that includes:

- Data collected during the survey
- Recommendations for improving the site's irrigation efficiency including system repairs, equipment updates, and irrigation scheduling
- Information about available financial incentives to help with the cost of recommended improvements

#### bewaterwise.com<sup>®</sup>

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA



## PUBLIC AGENCY LANDSCAPE PROGRAM



#### WHY

California is facing prolonged dry conditions. Gov. Jerry Brown has declared a statewide drought and asked Californians to lower their water use by 20 percent. Your help is needed. Public agencies can make a significant water-saving contribution and set an example by installing water-efficient landscape devices on their grounds and at their facilities.

#### WHO

Public agencies located within Metropolitan's 5,200-square-mile, six-county service area are eligible for rebates on water-saving landscape devices. Both the water service and installation address must be located within Metropolitan's service area.





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#### **More Eligibility Information**

- Refer to Metropolitan's list of qualified products for rebate eligibility.
- Applications must be submitted online to socalwatersmart.com and approved prior to the purchase and installation of the device(s).
- Partnering public agencies are responsible for the purchase and maintenance of devices, and installation with the associated costs.
- Facilities using recycled water may not qualify.
  Call 888.376.3314 to check eligibility.
- The public agency cannot receive rebates from the SoCal Water\$mart program for the same device funded through the Public Agency Landscape program.
- Refer to Program Terms & Conditions at socalwatersmart.com for detailed eligibility terms and guidelines.

#### WHAT Products Eligible For Rebates

Measure	Base Rebate
Landscaping Equipment	
Smart Irrigation Controllers/ Central Computer Irrigation Controllers	\$55/Station
Soil Moisture Sensor Systems	\$55/Station
Large Rotary Nozzles	\$13/Set (minimum of 8 sets)
Rotating Nozzles for Pop-up Spray Heads	\$6 each (minimum of 15)

#### HOW

1. Create an online account at socalwatersmart.com.

2. Choose the "Public Agency Landscape" option for facility type in the drop-down box. This will ensure you receive the correct rebate funding information.

**3**. Submit a quote for your project including a list of all devices, their quantities, make and model numbers.

4. When the application is approved, the public agency will receive up-front funding to purchase the eligible device(s).

5. Installations must be completed within 90 days of the application approval.

6. After the installation, public agencies must provide sales receipts as proof of purchase that include the quantity, manufacturer, model and price of the device(s) installed.

7. Metropolitan reserves the right to verify and inspect installation of rebated devices.

8. Funding is limited and submitting a rebate application does not guarantee you will receive a rebate. Rebates will be issued on a first-come, first-served basis until funding is exhausted.









#### WHERE

Looking for more information? Go to socalwatersmart.com or call 888.376.3314.

SoCal Water\$mart is a region-wide program brought to you by the Metropolitan Water District of Southern California.



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#### THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

### INCENTIVES FOR ON-SITE RECYCLED WATER CONVERSIONS



#### WHY

California is facing unprecedented dry conditions. Gov. Jerry Brown has declared a statewide drought and asked Californians to lower their water use by 20 percent. Your help is needed. Metropolitan has expanded its local resource incentive programs to make saving water more affordable.

#### WHAT

Metropolitan's On-site Retrofit Pilot Program provides financial incentives directly to public or private property owners to convert potable irrigation or industrial water systems to recycled water. Incentives of up to \$195 per acre-foot for five years of estimated water use are available, with a cap at the actual retrofit costs. Items eligible for incentives include:

- Project design
- Permitting
- Construction costs associated with the retrofit of potable to recycled water systems
- Connection fees
- Required recycled water signage



#### HOW

- The Program works on a first-come, first-served basis. Applications are available online at bewaterwise.com<sup>®</sup> beginning July 1, 2014.
- Applications will be accepted from July 1, 2014 to June 30, 2016 or until funding for this program is exhausted, whichever is earlier.
- Projects with multiple sites require separate applications.
- Once an application is reviewed and approved, applicants will receive a confirmation e-mail along with a list of deadlines that must be met to qualify for funding.
- Incentive payments are made when all invoices and eligible costs are verified, and the connection and use of recycled water becomes operational.



#### WHEN

Once the application is approved, construction must begin within three months, recycled water service must be operational within six months and invoices must be submitted within nine months from the date of approval. Reserved funds may be withdrawn for projects that do not meet all deadlines. If a project is disqualified, applicants may re-apply as long as the project is not under construction.

#### WHERE

If you have questions, contact:

Kira Z. Alonzo 213.217.6489 kalonzo@mwdh2o.com

Ray Mokhtari 213.217.6142 rmokhtari@mwdh2o.com











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bewaterwise.com®

# water smart

# Want to maximize your irrigation efficiency?



#### Get a WaterSmart Checkup and find out how.

A WaterSmart Checkup is your free opportunity to receive site-specific water-saving recommendations. You will benefit from the perspective of our certified irrigation professionals. And you decide if and when to put the suggestions to work.

We offer several different Checkup services and will match your property to the best available option. Participation is limited, so don't miss out. If you own or manage a commercial, multifamily, industrial, public or single-family property, apply today.

Single-family home checkups also include recommendations to increase indoor water-use efficiency.

- 1. Complete an *easy application* at www.watersmartcheckup.org.
- 2. We schedule an irrigation survey (site walk-through) for approved applicants.
- 3. We provide **observations**, recommendations, and if applicable, test results.
- 4. You choose what you will implement and when. There's no obligation.
- 5. **Start saving!** Although water-savings varies by property, you may save up to 20 percent or more.

- 🖌 Free.
- No obligation.
- Site-specific recommendations.
- Increase efficiency. Control expense.

Apply today. Participation is limited.

Participating Agencies: Carlsbad Municipal Water District, City of Del Mar, City of Escondido, Fallbrook Public Utilities District, City of Oceanside, Otay Water District, Padre Dam WWD, City of Poway, Rainbow MWD, Ramona MWD, San Dieguito Water District, Santa Fe Irrigation District, Vallecitos Water District, Valley Center MWD and Vista Irrigation District.

Services provided by Mission Resource Conservation District

Program made possible by



A grant from the California Department of Water Resources



San Diego County Water Authority and its participating member agencies THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

## **REBATES FOR WATER EFFICIENCY UPGRADES**





\$2/square foot of irrigated turf removed and replaced with drought-tolerant plants or other approved landscape options

#### SoCal Water\$mart COMMERCIAL PROGRAM

Plumbing Fixtures	Base Rebate
High-Efficiency Toilets (Multi-Family)	\$145/Toilet - 1.06 gallons per flush or less \$100/Toilet - 1.28 gallons per flush or less
High-Efficiency Toilets (Flushometer/Tank)	\$100
Ultra-Low and Zero-Water Urinals	\$200
Plumbing Flow Control Valves	\$5/Valve (minimum of 10)
Landscaping Equipment	
Smart Irrigation Controllers/ Central Computer Irrigation Controllers	\$35/Station
Soil Moisture Sensor Systems	\$35/Irrigation controller station
Rotating Nozzles for Pop-up Spray Heads	\$4/Nozzle (minimum of 15)
Large Rotary Nozzles	\$13/Set (minimum of 8 sets)
In-Stem Flow Regulators	\$1/Regulator (minimum of 25)

#### Turf Removal

Removal of Irrigated Turf

Food Equipment	
Connectionless Food Steamers	\$485/Compartment
Air-Cooled Ice Machines	\$1,000

#### **HVAC Equipment**

Cooling Tower Conductivity Controllers	\$625
Cooling Tower pH Controllers	\$1,750

#### **Medical and Dental Equipment**

Laminar Flow Restrictors	\$10/Restrictor (minimum of 10)
Dry Vacuum Pumps	\$125/0.5HP (up to 2HP max)

#### SoCal Water\$mart RESIDENTIAL PROGRAM

Indoor Fixtures	Base Rebate
High-Efficiency Toilets (Tank-Type)	\$100
High-Efficiency Clothes Washers	\$85
Landscaping Equipment	
Smart Irrigation Controllers	\$80/Controller for less than one acre \$35/Station for areas larger than one acre
Soil Moisture Sensor Systems	\$80/Controller for less than one acre \$35/Station for areas larger than one acre
Rain Barrels	\$75
Rotating Nozzles for Pop-up Spray Heads	\$4/Nozzle (minimum of 15)
Turf Removal	
Removal of Irrigated Turf	\$2/square foot of irrigated turf removed and replaced with drought-tolerant plants or other approved landscape options

#### SoCal Water\$mart PUBLIC AGENCY PROGRAM

Landscaping Equipment	Base Rebate
Smart Irrigation Controllers/ Central Computer Irrigation Controllers	\$55/Station
Soil Moisture Sensor Systems	\$55/Station
Large Rotary Nozzles	\$13/Set (minimum of 8 sets)
Rotating Nozzles for Pop-up Spray Heads	\$6 each (minimum of 15)

#### SoCal Water\$mart FITNESS CENTER PROGRAM

Equipment	Base Rebate
High-Efficiency Toilets (Tank or Flushometer)	\$300
Ultra-Low or Zero-Water Urinals	\$500

SoCal Water\$mart is a region-wide program brought to you by the Metropolitan Water District of Southern California. Local water agencies may offer other incentive program opportunities. Rebates will be issued on a first-come, first-served basis until funding is exhausted.

#### **More Information**

Log on to socalwatersmart.com for eligibility terms and application guidelines or call 888.376.3314.



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THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

# TURF REMOVAL PROGRAM



#### WHY

California is facing prolonged dry conditions. Gov. Jerry Brown has declared a statewide drought and asked Californians to lower their water use by 20 percent. Your help is needed. Outdoor water use accounts for the highest percentage of regional water use. One of the most water-thirsty plants is turf grass. Replacing it with California Friendly<sup>®</sup>, low-water use plants is a beautiful alternative now made more practical with rebates for \$2 or more per square foot of existing turf removed.

#### WHO

Water customers located within Metropolitan's 5,200-square-mile, six-county service area are eligible for rebates on water-saving landscape devices. Both the water service and installation address must be located within Metropolitan's service area. Customers must have existing grass in the proposed project area.





#### bewaterwise.com®

#### **More Eligibility Information**

- Rebates will be issued on a first-come, first-served basis until funding is exhausted.
- Only one turf removal rebate is allowed per property.
- Synthetic turf is eligible for rebates unless prohibited by your water agency's rebate terms and conditions or local ordinances.
- Facilities using recycled water may not qualify. Call 888.376.3314 to check eligibility.
- Projects cannot include replacements with live turf or turf-looking plants.
- Metropolitan reserves the right to verify and inspect removal of turf grass.
- Customers must adhere to their local and city landscape ordinances.

#### WHAT

Rebates require a two-step approval and application process. Notice to move forward with a project will be e-mailed within two weeks of receipt of required project pre-approval materials. Rebates will be mailed four to six weeks after final materials and documentation have been submitted and approved.

#### HOW

#### **Project Start Approval**

- Follow the instructions on socalwatersmart.com to set up an account.
- Apply for and receive project start approval online before removing turf. Carefully estimate and measure your project area because the final rebate award cannot be adjusted, even if you remove additional square footage of turf.
- Upload five "before" photos of your project area as well as a copy of your water bill.
- When you receive project approval, the square footage and the reserved rebate amount will be specified.
- Remove turf and plant low water-use plants.
- Go to Step 2 which begins the application process.

#### **Rebate Application Process**

- Log in as "Returning Turf Applicant."
- Submit the required documentation and upload at least five color photos of your completed project area including at least one photo of each area where turf was removed. Refer to the photo guidelines section online. If the project includes synthetic turf, provide a photo or scanned copy of your synthetic turf receipt.





#### WHERE

Looking for more information? Go to socalwatersmart.com or call 888.376.3314.

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