



**OPEN MEETING**

**REGULAR MEETING OF THE  
THIRD LAGUNA HILLS MUTUAL  
WATER CONSERVATION SUB-COMMITTEE**

**Monday, October 14, 2019 – 1:00 P.M.  
Laguna Woods Village Community Center Sycamore Room  
24351 El Toro Road**

**AGENDA**

1. Call to Order
2. Acknowledgment of Media
3. Approval of the Agenda
4. Approval of the Meeting Report from July 10, 2019
5. Chair's Remarks
6. Member Comments (Items Not on the Agenda)
7. Response to Member Comments

**Consent:**

None

**Reports:**

8. Discuss and Review Report from WaterWise regarding Village Irrigation System

**Items for Discussion and Consideration:**

9. Directors Update on ETWD and rebates
10. Discuss Current Process of Letters to Residents with High Water Usage
11. Update on New Space for Golf Carts
12. Update on Current Resolutions Regarding Water Usage
13. Update on Reclaimed Water Connections

**Items for Future Agendas:**

14. Discuss Items for Future Agendas

**Concluding Business**

15. Committee Member Comments
16. Date of Next Meeting – January 10, 2020
17. Adjournment

Reza Karimi, Chair  
Kurt Wiemann, Staff Officer  
Eve Morton, Landscape Operations Coordinator, 949-268-2565





**OPEN MEETING**

**REGULAR MEETING OF THE THIRD LAGUNA HILLS MUTUAL  
WATER RESOURCES SUBCOMMITTEE**

**Wednesday, July 10, 2019 – 10:00 a.m.  
Laguna Woods Village Community Center Sycamore Room  
24351 El Toro Road**

**REPORT**

**COMMITTEE MEMBERS PRESENT:** Chair- Reza Karimi, Lynn Jarrett, John Frankel

**COMMITTEE MEMBERS ABSENT:** Cush Bhada

**OTHERS PRESENT:** Steve Parsons

**ADVISORS PRESENT:**

**STAFF PRESENT:** Kurt Wiemann, Eve Morton

**1. Call to Order**

Chair Karimi called the meeting to order at 10:00 a.m.

**2. Acknowledgement of Media**

No media was present.

**3. Approval of the Agenda**

The agenda was approved by consensus.

**4. Committee Chair Remarks**

Chair Karimi stated that this subcommittee of the Landscaping Committee will make endorsements to the Landscape Committee for their consideration. The purpose of this sub-committee is to:

- Establish a stronger relationship between the Village and ETWD
- Work on ways to enhance Village water conservation
- Ensure that the Village receives all applicable water rebates
- Understand the reasons behind any future water cost increases

Chair Karimi stated that the subcommittee will meet each quarter.

Director Jarrett stated Building 2375 is a high water use building. 5339 Bahia Blanca has the highest water bill in Third and there are also high water users in Gate 11.

Director Frankel said letters do currently go to residents about their Tier 4 water usage.

Mr. Wiemann recommended having the Marketing and Communications Department create an educational flyer regarding leaks to hand out to residents.

Discussion regarding the leak report.

Mr. Wiemann was asked to write a report for the upcoming 2020 budget meeting to include money for thatching and more landscape modernization projects.

Chair Karimi stated that ETWD must be asked for forecasting so Boards are aware of what is coming down the pike.

Water usage is not considered when cities decide whether to allow additional buildings/residences.

Mr. Wiemann was asked to get the information from Maintenance & Construction regarding areas which will be made into golf cart spaces which will require irrigation changes.

The committee members will be speaking to Director Annie McCary about a future Breeze article regarding water usage.

**5. Member Comments - (Items Not on the Agenda)**

None.

**6. Response to Member Comments**

None.

Consent Calendar:

None.

Reports:

None.

Items for Discussion and Consideration:

**7. Review and Approve Charter**

The proposed charter was reviewed and discussed. The committee requested a draft of the proposed charter be sent to the Board for approval. Also, that the draft be emailed to the Landscape Committee Members to review prior to the Board meeting.

Items for Future Agendas:

**8. Discuss Items for Future Agendas**

For next meeting:

- Discuss and review a report from Waterwise consulting group regarding improvements needed to Village irrigation system.
- Discuss and review current Village resolutions regarding water to decide if additional water resolutions may be needed.
- Discuss and review status of reclaimed water connections.
- Mr. Wiemann will report on whether there is a cap on ETWD rebates.
- Mr. Wiemann will work with the Marketing and Communications Department regarding the current process for Tier 4 usage letters to residents and bring that information back to next meeting.
- Discuss and review a Staff Report on Village water usage.


Concluding Business

**9. Committee Member Comments**

None.

**10. Date of Next Meeting – October 9, 2019**

**11. Adjournment at 11:06 a.m.**



Reza Karimi, Chair





## STAFF REPORT

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**DATE:** October 10, 2019  
**FOR:** Water Resources Sub-Committee  
**SUBJECT:** Irrigation Survey Report

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### **RECOMMENDATION**

- Receive and File Report

### **BACKGROUND**

The Metropolitan Water District, in conjunction with the El Toro Water District, offers free irrigation surveys of commercial properties. Staff applied for this on behalf of Third Laguna Hills Mutual. The survey was conducted by an independent consultant and is intended to review existing irrigation systems and offer suggestions for improvements that could potentially decrease irrigation water use.

### **DISCUSSION**

Staff submitted the application electronically in March of 2019, the survey results were received in August of 2019. The report is 28 pages and mostly general in nature. The survey looked at a small sample of the irrigation system; six out of 231 controllers (2.5%) representing 60 out of 6,000 irrigation zones (1%). The survey inspected 1,572 irrigation parts (spray heads, bubblers, etc.) and found only minor issues with 50 spray heads (3.1%). The biggest issue amongst them (2%) was overspray due to irregularly shaped turf areas.

The survey provided five primary recommendations for potential savings:

1. The greatest potential for water savings comes from replacing unused areas of lawn with drought tolerant plant materials. WaterWise estimates that this recommendation could save the greatest amount of water and provide an overall cost savings towards water usage and maintenance.
2. WaterWise recommends fixing all irrigation system problems in a timely manner
3. WaterWise recommends replacing spray nozzles with rotary nozzles in order to increase watering efficiency
4. WaterWise recommends replacing the conventional irrigation controllers on-site with smart controllers and a central control system.
5. WaterWise recommends upgrading the existing or new irrigation controllers with rain sensors.

Many of these recommendations are already in place; some offer genuine potential for savings in the future with an initial capital outlay. For clarification, staff offers the following responses:

1. Third Mutual is currently renovating 20,000 square feet of turf to drought tolerant planting. There is \$100,000 in the approved 2020 budget to continue replacing turf with low water use plantings.
2. The current Standard Operation Procedure (SOP) is making repairs of malfunctioning equipment within 24 hours of the problem being reported. Full system checks are performed every six weeks.
3. Staff is currently replacing spray nozzles with rotary nozzles to correct low pressure stations. Complete changes of systems to rotary nozzles are expensive; due to the difference in pressure usage, entire systems must be changed out at a time. Actual cost of rotary nozzles averages \$5.40 each, standard nozzles are \$0.88. Rebates from MWD are \$2.00 per nozzle. This program may be adopted in the future, but is not in the 2020 budget. The system averages 400 nozzles per meter.
4. The current irrigation system is managed by a central control system. There is \$100,000 in the approved 2020 GRF Capital budget to update the central irrigation system, with more planned in subsequent years.
5. The current system is already controlled by a weather station which uses an evapotranspiration sensor, in conjunction with a rain sensor, to control the system.

### **FINANCIAL ANALYSIS**

None.

**Prepared By:** Kurt Wiemann, Senior Field Services Manager

**Reviewed By:** Eve Morton, Landscape Coordinator

### **ATTACHMENT(S)**

Attachment 1: Landscape Water Use Survey Report



# LANDSCAPE WATER USE SURVEY REPORT

July 28, 2019

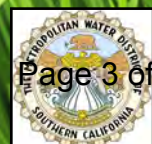
## Laguna Woods Village Association

24351 El Toro Road  
Laguna Woods CA 92637



Landscape Irrigation Survey Provided By:

Agenda Item #8



Page 3 of 30





WaterWise  
Consulting, Inc.

"Conserving our natural resources for future generations"

July 28, 2019

Kurt Wiemann  
Senior Field Service Manager  
Laguna Woods Village

Re: Landscape Water Use Survey Report

Dear Kurt Wiemann:

Metropolitan Water District provides this Landscape Irrigation Survey Report of Laguna Woods Village as part of its on-going efforts to assist local water consumers improve water use efficiency.

The onsite survey and report was completed by an independent consulting firm, WaterWise Consulting, Inc. (WaterWise), under the supervision of a Certified Landscape Irrigation Auditor. The field survey was conducted on May 29, 2019. This report is based on the observations and data collected during the onsite inspection, as well as a review of historical water use at this facility. The attached Landscape Water Use Survey Report includes the following items:

- Site Description
- Evaluation of Landscape Water Use
- Water Use Efficiency Recommendations
- Irrigation System Inspection

**Implementation of the measures recommended in this report would reduce the landscape water use and provide corresponding water cost savings.** Our goal is to provide as accurate data as possible. This is only a survey-level analysis and your actual savings may differ.

Please contact Angel Juarez with WaterWise Consulting via e-mail at [ajuarez@waterwise-consulting.com](mailto:ajuarez@waterwise-consulting.com) if you have questions regarding this survey or if you need additional information. Thank you for participating in this landscape water-use survey.

Respectfully,

Angel Juarez  
Programs Director  
WaterWise Consulting, Inc.

*\*HCF is one Hundred Cubic Feet; one HCF is equivalent to 748 gallons.*

# Laguna Woods Village

## Landscape Irrigation Survey Report Contents

<b>I. Executive Summary</b>	
Summary of Water Use Survey	4
Findings and Primary Recommendations	4
<b>II. Site Description</b>	
Description of Landscape and Irrigation System	5
<b>III. Landscape Water Savings Recommendations</b>	
Landscape Water Budget	6
Potential Landscape Water Savings	7
Redesign with Low Water-Use Plants	8
Fix Irrigation System Problems	9
Retrofit with Rotary Nozzles	10
Redesign with Drip Irrigation	11
Install Smart Controllers	12
Install Rain Sensors	13
<b>IV. General Cultural Practices for Improved Management</b>	14
<b>V. Irrigation System Inspection</b>	
Controller Inspection	15
Backflow Preventers	17
Irrigation System Problems	18
<b>VI. Appendices</b>	
A: Irrigation System Inspection Summary	19
B: Inventory of Irrigation Equipment	25
C: Current Irrigation Schedule	26
D: Certified Landscape Irrigation Auditor	27
E: Disclaimer	28

# I. Executive Summary

WaterWise conducted a Landscape Irrigation Survey throughout on May 29, 2019, To assess the condition of the landscape and irrigation system, the WaterWise team inspected a **representation** of Laguna Woods and surveyed select active stations on six irrigation controllers at the site. The section below summarizes the team's findings and recommendations.

## Survey Findings

- The total site area is approximately 2,105 acres, with a majority of the area landscaped with planter and turfgrass areas.
- The landscape at Laguna Woods Village is in average condition. The irrigated areas consist of turfgrass areas adjacent to homes and small to large planter areas containing moderate water use plants. The irrigation is composed of overhead spray, rotary nozzles, rotors, bubblers, and few drip stations.
- A sample of six conventional irrigation controllers were chosen to be inspected as an overall representation of the entire site (*program's scope is up to 60 zones max*). The surveyed controllers are located at 3212 Via Cariz, 3500 Bahia Blanca, 4013 Calle Sonora, 5279 Pina, 5004 Duverney, and 3420 Calle Azul.
- WaterWise inspected 60 zones between the six representative controllers. Approximately 822 sprayheads, 631 rotary nozzles, 2 bubblers, 113 rotors, and 4 drip stations were inspected at this site. There were numerous issues with the irrigation system, including 33 overspraying, 4 arc-misaligned, 11 clogged, 1 spray blocked, and 1 tipped sprinkler heads.

## Primary Landscape & Irrigation Recommendations

- 1) The greatest potential for water savings comes from replacing unused areas of lawn with drought tolerant plant materials. WaterWise estimates that this recommendation could save the greatest amount of water and provide an overall cost savings towards water usage and maintenance.
- 2) WaterWise recommends fixing all irrigation system problems in a timely manner.
- 3) WaterWise recommends replacing spray nozzles with rotary nozzles in order to increase watering efficiency.
- 4) WaterWise recommends replacing the conventional irrigation controllers on-site with smart controllers and a central control system.
- 5) WaterWise recommends upgrading the existing or new irrigation controllers with rain sensors.

## II. Site Description



*Aerial Photograph of Laguna Woods Village. Source: Google Earth.*

The representative site surveyed is irrigated with six conventional irrigation controllers that do not currently use soil or moisture sensors. The soil type at this facility is predominantly clay-loam with high water retention, and moderate to low water-infiltration characteristics. The Laguna Woods Village landscape is made up of lawn, planter, and tree areas. The landscaped areas vary between high microclimates with full sun to medium microclimates with partial sun and shade throughout the day for areas next to trees. There are gentle, medium, and steep slopes throughout portions of the landscape but most of the site is comprised of flat landscaped areas.

This site is made up of 4 different communities, golf courses, equestrian centers, & clubhouses. There are around 231 irrigation controllers with a total of about 6,000 zones (avg of 26 zones/controller). Each controller has hard copy listing each station location by manor and type of landscape it irrigates, we also have a list of each controller's address, along with water meter and backflow location. This mutual has around 156 acres of turf, 83 acres of shrub beds & 119 acres of irrigated slopes. Maintenance work is done in house with around 147 full time staff. This site is in process of contracting out the maintenance of the slopes with trees. Water supply is monitored through approximately 1,300 water meters, with 198 of them dedicated to irrigation.

### III. Site Landscape Water Budget

Water budgeting is a valuable tool to further water conservation efforts. The Landscape Water Budget is an allocation of how much water a site should use for irrigation. The budget is calculated by evaluating the irrigated landscape area, the types of plant material, the weather and the irrigation efficiency.

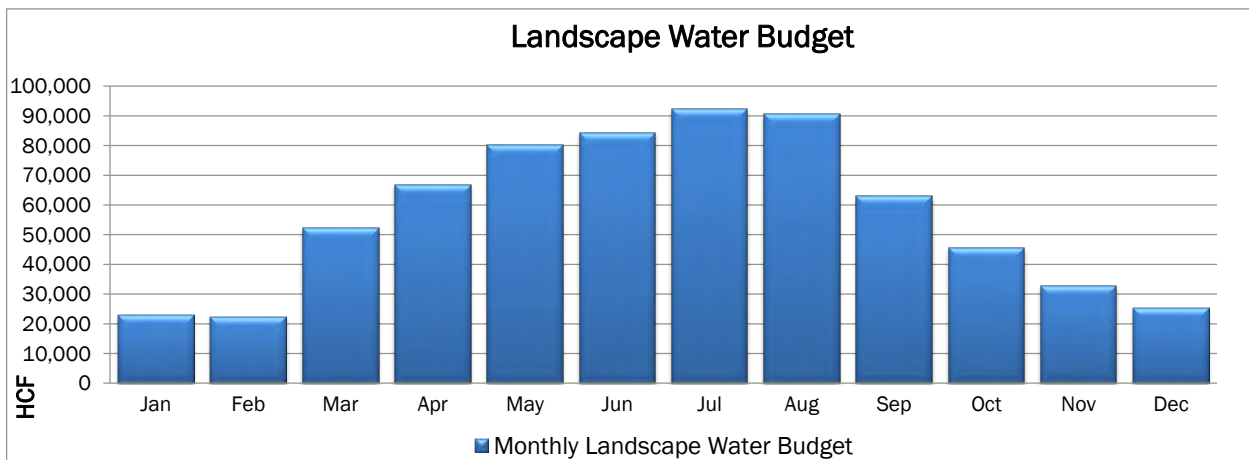
**Plant materials** have different water needs according to their drought tolerance. A plant’s drought tolerance will determine Plant Factor. The higher the plant factor, the higher the water requirement. The plant factor scale ranges from 0.1 to 0.9 for most landscape plants. The plant factor is also affected by the density among landscape planting and the microclimate. The size of landscape and the types of plant materials directly affect the water budget for a site.

**Weather** is a factor that is evaluated as Evapotranspiration (ET). ET is a measurement of water loss from a reference plant material. The rate of water loss is affected by weather factors such as solar radiation, temperature, wind, and humidity. For this site, an annual ET of **49.6 inches** was used; however, since the suggested landscape water budget is based on **average** annual (ET) weather data, current local weather patterns may have played a major role in this site’s actual landscape water need.

**Irrigation efficiency** includes the efficiency of the irrigation system (Distribution Uniformity) and the efficiency of the people managing the system (Management Efficiency). Both efficiency factors are evaluated as percentages.

The next section provides a site specific landscape water budget that incorporates all the factors listed above, including landscape area, plant factors, weather, distribution uniformity, and management efficiency.

Landscape Water Budget											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
22,858	22,383	52,144	66,826	80,111	84,330	92,264	90,504	62,894	45,554	32,586	25,223
Total Site Landscape Water Budget:					677,677	HCF	or	506,902,396	gallons		
*Distribution Uniformity (DU) Spray Systems, 65%, Rotor Systems, 80%, Micro Spray and Bubbler Systems, 80%, Drip Systems, 95%											
*Calculated Based on Local Weather, Landscape Area, Types of Plant Materials, and Irrigation System Variables (Type, Condition, Management).											



### III. Landscape Water Savings Recommendations

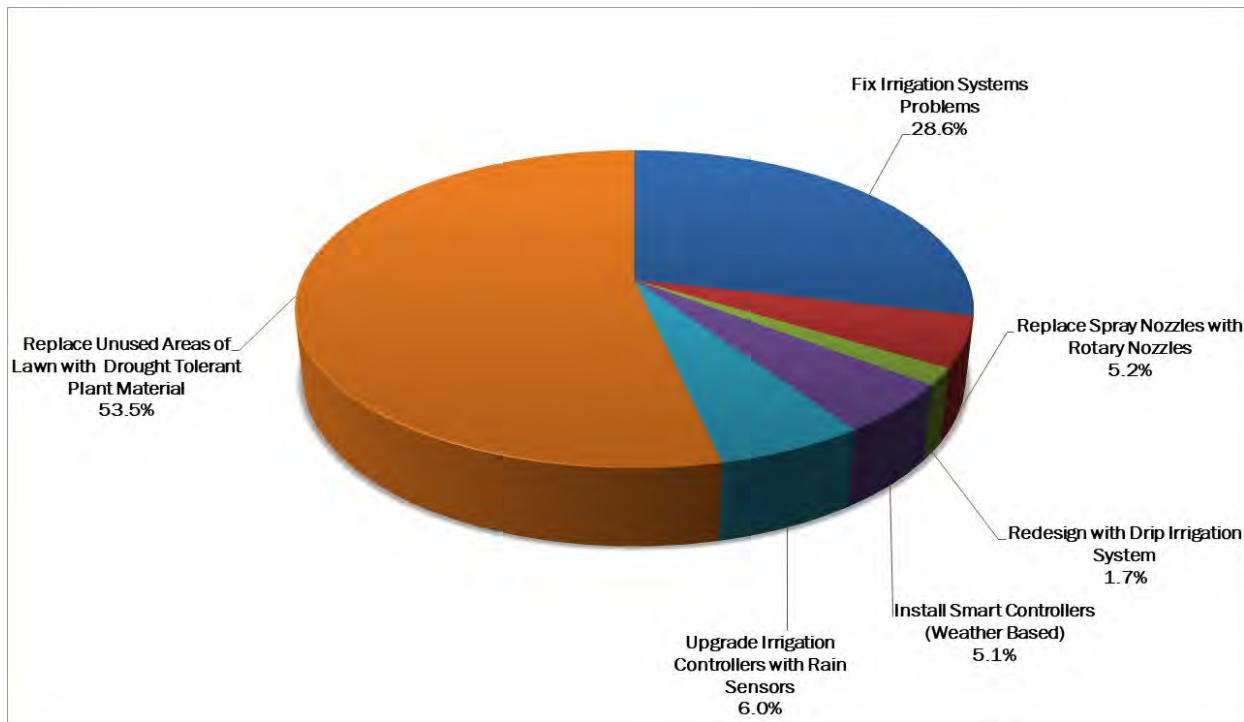
#### Potential Landscape Water Savings

Water savings in the landscape can be achieved by making changes and/or improvements to the landscape itself, the irrigation system, and the management of the irrigation system. The table below provides a list of recommendations for this site, along with the rebate and incentives for each water efficiency measure.

Water Efficiency Measure	Units	Initial Cost	Rebates & Incentives
<b>Recommendations for Landscape Improvements</b>			
Replace Unused Areas of Lawn with Drought Tolerant Plant Material (sq ft)	32,000	\$119,040	\$100,000
<b>Recommendations for Irrigation System Improvements</b>			
Replace Spray Nozzles with Rotary Nozzles	253	\$1,265	\$506
Redesign 10 Stations with Drip Irrigation System (sq ft)	10	\$2,400	\$0
<b>Recommendations for Irrigation Management Efficiency</b>			
Install Smart Controllers (Weather Based)	6	\$9,240	\$10,080
Upgrade Irrigation Controllers with Rain Sensors	6	\$240	\$0
<b>Totals:</b>		<b>\$ 132,185</b>	<b>\$ 110,586</b>

*\*Rebate amounts are subject to change. Max rebate amount for turf removal is 50,000 sq ft = \$100,000*

#### Water Savings per Recommendation



## IV. Landscape Water Savings Recommendations

### Replace Unused Grass Areas with Low Water-Use Plants

The surveyor estimated 32,000 square feet of unused grass areas in the HOA that could be replaced with low water use plants. When installed in conjunction with a rotary nozzle irrigation system, these plants will use less water than the existing turf area.

The estimated cost to remove 32,000 square feet of grass is \$119,040 with a max rebate for 50,000 sq ft of \$100,000.

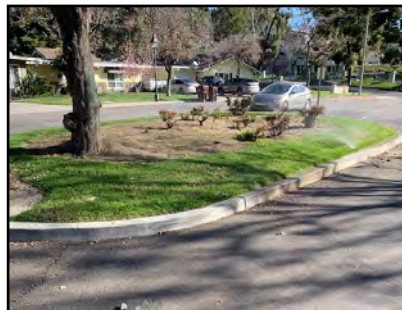
The cost to convert unused lawn area to low water use plants is estimated to be approximately \$3.72 per square foot. Rebates of up to \$2.00 per square foot are available through the SoCal WaterSmart rebate program.

This site may be eligible for turf removal rebates under MWD's SoCalWaterSmart's Landscape Transformation Program. For more information visit:

<http://socalwatersmart.com/commercial>



*Example of low water use plants in a median area.*



*Parkways and small turfgrass patches are prone to overspray from sprayhead nozzles; these are ideal areas to replace with low water-use plants.*



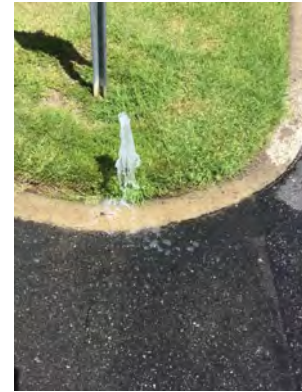
## IV. Landscape Water Savings Recommendations

### Irrigation System Improvements—Fix Irrigation System Problems Identified

During the inspection at Laguna Woods Village, the WaterWise surveyor inspected 60 total stations on six irrigation controllers. These controllers and stations were chosen as a representative survey and help provide recommendations for the entire community.

The WaterWise inspection team was able to locate 50 irrigation problems at this site, including clogged (11), blocked (1), arc-misaligned (4), overspraying (33), & tipped (1) sprinkler heads.

Problems found during the inspection were immediately fixed by crew. We recommend fixing all irrigation issues within a times manner in order to avoid water waste.



Broken sprinkler head



Wet sidewalk areas from overspraying sprayheads

Inventory of Irrigation Problems

Controller Index	Controller Brand & Model	Total Problems	Low	Tipped	Arc Misaligned	Over-Spray	Clogged	Spray Blocked	Leaking Sprinklers	Broken Sprinklers	Broken Lines	None-Operating Valve
1	RainBird ESP 24	24	0	0	3	13	8	0	0	0	0	0
2	RainBird ESP 24	6	0	0	0	6	0	0	0	0	0	0
3	RainBird ESP 32	4	0	1	0	3	0	0	0	0	0	0
4	RainBird ESP 24	4	0	0	1	1	2	0	0	0	0	0
5	RainBird ESP Commercial	12	0	0	0	10	1	1	0	0	0	0
6	RainBird ESP 40	0	0	0	0	0	0	0	0	0	0	0

## IV. Landscape Water Savings Recommendations

### Irrigation System Improvements—Retrofit Spray Nozzles with Rotary Nozzles

During the inspection, WaterWise identified a total of 822 spray-type sprinkler nozzles irrigating turf and planter areas. We recommend replacing 253 spray nozzles in the turf areas (which could also be replaced with low water-use plants) with more efficient rotary spray nozzles.

Rotary nozzles deliver increased efficiency over standard spray head installations by lowering the standard precipitation rate to a half inch per hour, or less. These nozzles are designed to use less water and reduce run off. On slopes and clay-like soils, a lower application rate allows water to soak into the landscape instead of creating runoff and misting. Matched precipitation rates per zone results in better distribution uniformity and properly scheduled runtimes.



*Example of  
Sprayhead Bodies Misting*

**This site may be eligible for rebates under MWD’s SoCal WaterSmart program. The program currently offers \$2 per rotary nozzle. For details, visit: <http://www.socalwatersmart.com/>**

\*Cost of fixtures is estimated at \$5 per rotary spray nozzle, this does not include any associated labor and installation costs.



*Rotary Nozzles for Sprayhead Bodies*



## IV. Landscape Water Savings Recommendations Irrigation System Improvements—Redesign with Drip Irrigation

*Drip irrigation is excellent for low water-use areas*



Drip irrigation is a very efficient system that targets precise areas of landscape in order to avoid runoff, misting, drifting, and other problems related to sprinkler heads and overhead irrigation. Proper installation of a drip system requires careful design and proper devices such as filters, pressure regulators and air relief valves.

The surveyor noted that a number of stations would greatly benefit from drip irrigation. Other irregular-shaped, narrow, or tree-dense areas are excellent areas for drip irrigation. Sprayheads can inefficiently water trees and shrubs; sprayhead throws may water mulch and dirt areas and not effectively reach the root zones.

\*Cost to redesign with Drip Irrigation is estimated at \$0.24 per square foot; labor and installation cost is not included.

*Example of a narrow area within Laguna Woods Village that would benefit from drip irrigation*



## IV. Landscape Water Savings Recommendations Irrigation Management Efficiency—Smart Controllers & Central Control System

Weather Based Irrigation Controllers (Smart Controllers) work by using specific information about the site, including weather patterns, plant types, soil type, slope, and irrigation system application rate to automatically adjust irrigation schedules. Smart Controllers help to improve the management efficiency of the irrigation system. Central Control software systems can connect multiple controllers and offer advanced features such as Flow monitoring, ET settings, master valve controls, remote access, etc.

The irrigation system surveyed (as a representation of the larger site) has six conventional irrigation controllers which could be upgraded with new smart controllers which can be managed through a central control system. We recommend utilizing the weather-based functions & central control software for increased water savings.

This site may be eligible to participate in a rebate program offered by Metropolitan Water District's SoCal Water \$mart program. For more information on available rebates go to: <http://socalwatersmart.com/>



Weather Based Irrigation  
Controller (Smart Controller) and Central Control System Software

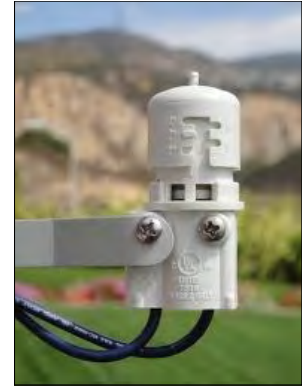
## IV. Landscape Water Savings Recommendations

### Irrigation Management Efficiency—Rain Sensors

A rain sensor is a water conservation device that is set to automatically shut off the irrigation system when there is rainfall. A rain sensor will automatically interrupt the watering schedule of any irrigation controller. It can be manually adjusted to become activated at various rates of rainfall. Some rain sensors will shut off the irrigation after sensing one-eighth of an inch of rainfall or less. After rainfall, the rain sensor will automatically activate the irrigation controller to resume normal operation.

We recommend adding rain sensors to the existing conventional or new controllers irrigation controllers.

Rain Sensors can be purchased at most irrigation supply distributors. Rain sensors are estimated to cost approximately \$40 per unit.



*Rain Sensor*

## IV. General Cultural Practices for Improved Management



### Apply Mulch to Planters

Applying mulch, especially organic mulch, over planters with bare soil has many benefits. A cover of mulch helps retain moisture in the soil by reducing evaporation, helps to keep the temperature of the soil cool in summer, and helps to suppress weed growth. In some cases, mulch may also help to reduce runoff from planters located on sloping terrain.



### Proper Mower Height

Lawn that is mowed too low will need more water. Raising the mowing height, on the other hand, will shade the soil surface and decrease the amount of evaporation. Use the 1/3 rule: mow often enough so that no more than one third of the turfgrass shoot (stem and blade) is removed at any one time. The table below provides the recommended mowing heights of commonly used lawns in California (provided by UC Cooperative Extension).

Lawn Species	Climate Adaptation	Mower Setting (inches)	Mow When Grass Reaches this Height (inches)	Mower Type
Bermuda grass (common)	Warm	1 to 1½	1½ to 2¼	Reel or Rotary
Bermuda grass (hybrid)	Warm	½ to 1	¾ to 1½	Reel
St. Augustine grass	Warm	1 to 2	1½ to 3	Rotary
Tall Fescue	Cool	1½ to 3	2¼ to 4½	Reel or Rotary



### Hydrozones

Hydrozoning is a design process that involves creating zones in the landscape that are irrigated independently. Each of these zones has plant materials with similar water and exposure needs. If hydrozones are not set and a landscape area has a mixture of plants with varying water needs, it will be difficult to water that zone properly because some plants will be under-irrigated, while others may be over-irrigated.

## V. Irrigation System Inspection

### Controller Inspection

#### Controller One



Controller One at this site is a RainBird ESP-24SAT conventional irrigation controller. This controller is a 24 station model. At the time of the survey there were 24 active and 24 programmed irrigation stations. 10 of these stations were energized and inspected, as a representative survey of the areas. The controller is in good condition and is working properly. This controller is located at 3212 Via Carizo.

#### Controller Two



Controller Two at this site is a RainBird ESP-24SAT conventional irrigation controller. This controller is a 24 station model. At the time of the survey there were 18 active and 18 programmed irrigation stations. 10 of these stations were energized and inspected, as a representative survey of the areas. The controller is in good condition and is working properly. This controller is located at 3500 Bahia Blanca.

#### Controller Three



Controller Three at this site is a RainBird ESP-34SAT conventional irrigation controller. This controller is a 32 station model. At the time of the survey there were 28 active and 28 programmed irrigation stations. 10 of these stations were energized and inspected, as a representative survey of the areas. The controller is in good condition and is working properly. This controller is located at 4013 Calle Sonora.

## VI. Irrigation System Inspection

### Controller Inspection

#### Controller Four



Controller Four at this site is a RainBird ESP-32SAT conventional irrigation controller. This controller is a 32 station model. At the time of the survey there were 32 active and 32 programmed irrigation stations. 10 of these stations were energized and inspected, as a representative survey of the areas. The controller is in good condition and is working properly. This controller is located at 5279 Pina.

#### Controller Five



Controller Five at this site is a RainBird ESP-24SAT conventional irrigation controller. This controller is a 24 station model. At the time of the survey there were 24 active and 24 programmed irrigation stations. 10 of these stations were energized and inspected, as a representative survey of the areas. The controller is in good condition and is working properly. This controller is located at 5004 Duverney.

#### Controller Six



Controller Six at this site is a RainBird ESP-404SAT conventional irrigation controller. This controller is a 40 station model. At the time of the survey there were 40 active and 40 programmed irrigation stations. 10 of these stations were energized and inspected, as a representative survey of the areas. The controller is in good condition and is working properly. This controller is located at 3420 Calle Azul.



## VI. Irrigation System Inspection Backflow Preventers

Backflow preventers are essential to maintain a reliable, safe, and efficient irrigation system. These devices are commonly used to protect both domestic potable and reclaimed water from backsiphonage or cross contaminations. Potable and most non-potable sources are required by law to have backflow preventers installed and tested annually to ensure that water sources do not become contaminated by outside sources, whether on purpose or on accident. Check with your local water authority to ensure you have the approved type of backflow preventer on your irrigation system. The four most common backflow preventers are listed: 1) Reduced Pressure Type Backflow Preventer or Reduced Pressure Zone (RPZ), 2) Double Check Type Backflow Preventer (DC), 3) Pressure Vacuum Breaker (PVB), and 4) Anti-Siphon Valve (ASV). The following pictures shows pressure tests from two irrigation backflow devices during the survey.



This is a 2" backflow preventer for a landscape irrigation system located within the Laguna Woods Village community. It is a Zurn Wilkins Reduced Pressure Principle Assembly or Reduced Pressure Zone (RPZ) type. The RPZ is installed 12" above ground level. The RPZ provides anti-siphon and anti-backpressure vacuuming and ideal for multi-zone irrigation systems. A pressure test measured the irrigation line for this system at 57.5 psi.



A pressure test measured the irrigation line for this system at 87.5 psi.

## VI. Irrigation System Inspection

### Irrigation System Problems



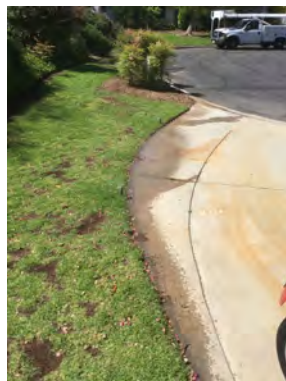
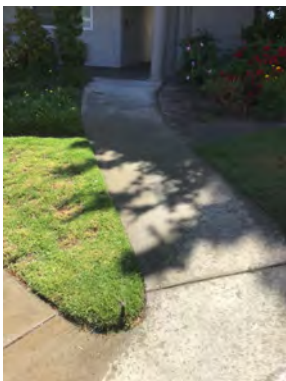
**Problem:** One sprinkler heads was found to have it's watering throw blocked by turfgrass and/or plants which greatly affects distribution uniformity.

**Solution:** We recommend adequate de-thatching and mowing around sprinkler heads to help provide clearance for sprinkler throws.



**Problem:** There were broken and leaking sprinklers throughout the survey. Broken/leaking sprinklers/pipes can be attributed to damage, tree roots, high pressure, and wearing of parts.

**Solution:** Broken and leaking sprinklers/pipes need to be repaired immediately as they are wasting significant amounts of water and causing pressure loss in the system. **These issues were repaired immediately during the inspection and not added to total.**



**Problem:** There were 33 sprinkler heads (4 arc-misaligned) that oversprayed on to impermeable surfaces. Overspray can cause improper water distribution onto hardscaped areas such as walls, sidewalks, patios, and driveways.

**Solution:** We recommend adjusting the **arc/radius** of the sprinkler head in order for water to be distributed onto the proper landscaped areas.

# VII. Appendices

## Appendix A: Irrigation System Inspection Summary

### Controller One

Auditor Name: Jeff Austin		Facility: Laguna Woods Village		Date:		Water Management Proposed																														
Meter Information		Area Description:		Total Stations: 24		Stations Inspected: 24		Smart Controller (Weather Based)																												
Irrigation Controller Make & Model: RainBird ESP 24		Conventional Controller Type: 4 or more		None		Active Stations: 24		Replace Irrigation Controller:																												
Controller Location: 3212 Via Carizo		Existing Sensor: 4 or more		4 or more		HP Electric Motor: 0		Upgrade Smart Controller (Weather Based with a Rain Sensor): Yes																												
Programs: 4 or more		Start Times: 4 or more		Booster Pump: 0		Total Area: 0																														
Station Number	Landscape Area					Sprinkler Problems					System Condition					Landscape and System Upgrades Proposed																				
	Area per Station (sq ft)	Plant Material	Microclimate	Plant Density	Stress Factor	Root Zone Depth (If it is known)	Soil Type	Slope Condition	Irrigation System Primary Type	Total # Sprinklers	Precipitation Rate Over the Area (in/hr)	Sprinkler Factor for Rotors	% Wetted Soil (Drip or Bubbler)	Assign Program (Current System)	Assign Program (System Upgraded)	Controller Programs	Low	Tipped	Air Misaligned	Clogged	Spray Blocked	Leaking	Broken	No Rotation	Pressure Reading	Broken Irrigation Line	Valve Malfunction	Distribution Uniformity	Picture #	Replace Unused Area of Lawn	System Upgrades Proposed					
5		Planter Medium	A	A		CL	SL	S	35				A	A																						
6		Planter Medium	A	A		CL	G	S	31				A	A																						
7		Planter Medium	A	A		CL	G	S	32				A	A																						
8		Warm Season Turfgrass	A	A		CL	SL	RN	42				A	A																						
9		Planter Low	A	A		CL	SL	RN	31				A	A																						
10		Planter Medium	A	A		CL	SL	S	40				A	A																						
11		Planter Medium	A	A		CL	SL	S	25				A	A																						
12		Planter Medium	A	A		CL	G	S	44				A	A																						
14		Planter Medium	A	A		CL	SL	S	49	2			A	A																						
15		Planter Medium	A	A		CL	G	S	35				A	A																						

Plant Material	Microclimate	Soil Type	Slope Condition	Plant Density	Irrigation System	System Condition
Cool Season Turfgrass	Very High	Clay	Slight 0-3%	Very High	Rotor	Excellent
Warm Season Turfgrass	High	Clay Loam	Gentle 4-8%	High	Impact Rotor	Good
Mixed Turfgrass	Average	Loam	Mid 9-12%	Average	Stream Rotor	Acceptable
Annual Flowers	Low	Sandy Loam	Moderate 12-20%	Low	Rotary Nozzle	Poor
Planter High	Very Low	Sandy	Steep >20%	Very Low	Spray	Very Poor
Planter Medium					Precision Nozzle	
Planter Low					Stream Spray	
Ground Cover High					Micro Spray	
Ground Cover Medium					Bubbler	
Ground Cover Low					Drip	
Tree High						
Tree Medium						
Tree Low						
TL						

# VII. Appendices

## Appendix A: Irrigation System Inspection Summary Controller Two

Station Number	Landscape Area											Irrigation System Type											Controller Programs				Sprinkler Problems				System Condition		Water Management Proposed						
	Author Name: Jeff / Justin		Facility: Laguna Woods Village		Area Description:		Conventional Controller		Existing Sensor		Smart Thins: 4 or more		Total Stations: 24		Active Stations: 18		Stations Inspected: 10		Total Area: 0		Broken		Leaking		No-Rotation		Pressure Reading		Broken Irrigation Line		Valve Malfunction		System Condition or Distribution Uniformity		Picture #				
	Meter Information: Dedicated Reclaimed		Irrigation Controller: RainBird ESP 24		Controller Type: Programs: 4 or more		Slope Condition		Soil Type		Root Zone Depth (if it is known)		Stress Factor		Microclimate		Plant Density		Plant Material		Warm Season Turfgrass		Warm Season Turfgrass		Warm Season Turfgrass		Warm Season Turfgrass		Warm Season Turfgrass		Warm Season Turfgrass		Warm Season Turfgrass		Warm Season Turfgrass		Smart Controller (Weather Based)		Replace Irrigation Controller: Upgrade Smart Controller (Weather Based) with a Rain Sensor: Yes
1	Area per Station (sq ft)	Plant Material	Microclimate	Plant Density	Stress Factor	Root Zone Depth (if it is known)	Soil Type	Slope Condition	Irrigation System Primary Type	Irrigation System Secondary Type	Total # Sprinklers	Precipitation Rate Over the Area (in/hr)	Sprinklers Factor for Rotors	% Wetted Soil (Drip or Bubblers)	Assign Program (Current System)	Assign Program (System Upgraded)	Low	Tipped	Arct Misaligned	Over-spray	Clogged	Spray Blocked	Leaking	Broken	No-Rotation	Pressure Reading	Broken Irrigation Line	Valve Malfunction	System Condition or Distribution Uniformity	Picture #		Replace Unused Area of Lawn	System Upgrades Proposed						
2		Warm Season Turfgrass	A	A	A	CL G	RN	20					A	A																									
3		Warm Season Turfgrass	A	A	A	CL G	RN	30					A	A																									
4		Warm Season Turfgrass	A	A	A	CL SL	RN	27					A	A																									
5		Warm Season Turfgrass	A	A	A	CL SL	R	6					A	A																									
6		Warm Season Turfgrass	A	A	A	CL SL	R	6					A	A																									
7		Warm Season Turfgrass	A	A	A	CL G	R	5	2				A	A																									
8		Warm Season Turfgrass	A	A	A	CL G	R	4					A	A																									
9		Warm Season Turfgrass	A	A	A	CL SL	RN	31					A	A																									
10		Warm Season Turfgrass	A	A	A	CL SL	R	6					A	A																									

<b>Plant Material</b>	Cool Season Turfgrass	CS
Warm Season Turfgrass	VS	
Mixed Turfgrass	MT	
Annual Flowers	AF	
Planter High	PH	
Planter Medium	PM	
Planter Low	PL	
Ground Cover High	GH	
Ground Cover Medium	GM	
Ground Cover Low	GL	
Tree High	TH	
Tree Medium	TM	
Tree Low	TL	

<b>Microclimate</b>	Very High	VH
High	H	
Average	A	
Low	L	
Very Low	VL	

<b>Plant Density</b>	Very High	VH
High	H	
Average	A	
Low	L	
Very Low	VL	

<b>Slope Condition</b>	Slight 0-3%	SL
Gentle 4-8%	G	
Mid 9-12%	MD	
Moderate 12-20%	MT	
Steep >20%	ST	

<b>Soil Type</b>	Clay	C
Clay Loam	CL	
Loam	L	
Sandy Loam	SL	
Sandy	S	

<b>Irrigation System</b>	Rotor	R
Impact Rotor	IR	
Stream Rotor	SR	
Rotary Nozzle	RN	
Spray	S	
Precision Nozzle	PN	
Stream Spray	SS	
Micro Spray	MS	
Bubbler	B	
Drip	D	

<b>System Condition</b>	Excellent	F
Good	G	
Acceptable	A	
Poor	P	
Very Poor	VP	

<b>Nozzle Proposed</b>	Rotary Nozzle	RN
Precision Nozzle	PN	
Brass Nozzle	BN	
Redesign w/Drip System	DS	

<b>Replace Unused Area of Lawn</b>	Drought Tolerant Plants	DT
Synthetic Turf	ST	





## VII. Appendices

### Appendix A: Irrigation System Inspection Summary Controller Five

Auditor Name:		Jeff / Austin		Facility:		Laguna Woods Village		Date:		Water Management Proposed																																																							
Meter Information		Dedicated Reclaimed		Area Description:		Conventional Controller		Total Stations: 24		Smart Controller (Weather Based)																																																							
Irrigation Controller Make & Model:		Rainbird ESP Commercial		Controller Type:		Controller		Active Stations: 24		Upgrade Smart Controller (Weather Based) with a Rain Sensor:																																																							
Controller Location:		5004 Diverney		Programs:		4 or more		HP Electric Motor:		Yes																																																							
		Start Times:		4 or more				Total Area:																																																									
Station Number		Area per Season (sq ft)		Plant Material		Microclimate		Stress Factor		Root Zone Depth (ft if known)		Soil Type		Slope Condition		Irrigation System Primary Type		Total # Sprinklers		Precipitation Rate (Over the Area (in/hr))		Sprinklers Factor for Rotors		% Wetted Soil (Drip or Bubble)		Controller Programs		Irrigation System Type		Spiribler Problems		System Condition		Landscape and System Upgrades Proposed																															
4		Warm Season Turfgrass		A		A		A		CL		ST		S		30		Irrigation System Secondary Type		Total # Sprinklers		Total # Sprinklers		Precipitation Rate (Over the Area (in/hr))		Sprinklers Factor for Rotors		% Wetted Soil (Drip or Bubble)		Assign Program (Current System)		Assign Program (System Upgrade)		Low		Tripped		Arc Misaligned		Overspray		Clogged		Spray Blocked		Leaking		Broken		No-Rotation		Pressure Reading		Broken Irrigation Line		Valve Malfunction		System Condition or Distribution Uniformity		Picture #		Replace Unused Area of Lawn with Low Water Use Plants		Rotary Nozzle	
5		Planter Low		A		A		A		CL		G		D																																																			
6		Planter Medium		A		A		A		CL		G		D																																																			
7		Planter Medium		A		A		A		CL		G		D																																																			
8		Warm Season Turfgrass		A		A		A		CL		ST		S		24																																																	
9		Warm Season Turfgrass		A		A		A		CL		ST		RN		20																																																	
10		Warm Season Turfgrass		A		A		A		CL		ST		S		25																																																	
11		Warm Season Turfgrass		A		A		A		CL		ST		S		24																																																	
12		Warm Season Turfgrass		A		A		A		CL		ST		S		18																																																	
13		Planter Medium		A		A		A		CL		SI		D																																																			
14		Planter Medium		A		A		A		CL		ST		S		17																																																	

Plant Material			Microclimate			Soil Type			Irrigation System			System Condition		
Cool Season Turfgrass	CS	Very High	Very High	VH	Clay	Rotor	Excellent							
Warm Season Turfgrass	WS	High	High	Clay Loam	Impact Rotor	Good								
Mixed Turfgrass	MT	Average	Average	Loam	Stream Rotor	Acceptable								
Annual Flowers	AF	Low	Low	Sandy Loam	Rotary Nozzle	Poor								
Planter High	PH	Very Low	Very Low	Sandy	Spray	Very Poor								
Planter Medium	PM	Very Low	Very Low		Precision Nozzle	VP								
Planter Low	PL	Very High	Very High		Stream Spray	PN								
Ground Cover High	GH	High	High		Micro Spray	SS								
Ground Cover Medium	GM	Average	Average		Bubbler	MS								
Ground Cover Low	GL	Low	Low		Drip	B								
Tree High	TH	Very Low	Very Low			D								
Tree Medium	TM	Very Low	Very Low											
Tree Low	TL													
<b>Replace Unused Area of Lawn</b>														
Drought Tolerant Plants	DT													
Synthetic Turf	ST													

## VII. Appendices

### Appendix A: Irrigation System Inspection Summary

#### Controller Six

Auditor Name: Jeff / Austin		Facility: Laguna Woods Village		Date:																		
Meter Information		Area		Water Management Proposed																		
Dedicated Reclaimed		Description:		Smart Controller (Weather Based)																		
Irrigation Controller Make & Model: RainBird ESP 40		Conventional Controller Type:		Replace Irrigation Controller: Upgrade Smart Controller (Weather Based) with Rain Sensor:																		
Controller Location: 3420 Calle Azul		Existing Sensor: None		Stations Inspected: 10																		
		Start Times: 4 or more		Total Area: 0																		
		Control Programs																				
		Sprenter Problems																				
Station Number	Area per Station (sq/ft)	Plant Material	Microclimate	Plant Density	Stress Factor	Root Zone Depth (if it is known)	Soil Type	Slope Condition	Irrigation System Primary Type	Total # Sprinklers	Precipitation Rate (Over the Area in/hr)	Sprinkler Factor for Rotors	% Wetted Soil (Drip or Bubbler)	Controller Programs	Total Stations Inspected: 40	Active Stations: 40	HP Electric Motor:	Total Area: 0	System Condition	System Condition	Picture #	
5	Warm Season Turfgrass	A	A	A	CL	SL	S	36	Irrigation System Secondary Type	Total # Sprinklers	Irrigation System Primary Type	Assigned Program (Current System)	Assigned Program (System Upgrade)	Broken	Leaking	No-Rotation	Pressure Reading	Broken Irrigation Line	Valve Malfunction	System Condition or Distribution Uniformity	Replace Unused Area of Lawn	
6	Warm Season Turfgrass	A	A	A	CL	SL	S	50														
7	Warm Season Turfgrass	A	A	A	CL	SL	RN	44														
8	Warm Season Turfgrass	A	A	A	CL	SL	S	45														
9	Warm Season Turfgrass	A	A	A	CL	SL	RN	42														
10	Warm Season Turfgrass	A	A	A	CL	SL	RN	24														
11	Warm Season Turfgrass	A	A	A	CL	SL	R	11														
12	Warm Season Turfgrass	A	A	A	CL	G	RN	9														
13	Warm Season Turfgrass	A	A	A	CL	G	RN	28														
14	Warm Season Turfgrass	A	A	A	CL	G	S	38														
15	Warm Season Turfgrass	A	A	A	CL	G	RN	31														

Plant Material	Microclimate	Soil Type	Slope Condition	Irrigation System	System Condition
Cool Season Turfgrass	Very High	Clay	Slight 0-3%	Rotor	Excellent
Warm Season Turfgrass	High	Clay Loam	4-8%	Impact Rotor	Good
Mixed Turfgrass	Average	Loam	8-12%	Stream Rotor	Acceptable
Annual Flowers	Low	Sandy Loam	12-20%	Rotary Nozzle	Poor
Planter High	Very Low	Sandy	>20%	Spray	Very Poor
Planter Medium	Very Low			Precision Nozzle	VP
Planter Low	Very High			Stream Spray	SS
Ground Cover High	High	Clay 0-3%		Micro Spray	RN
Ground Cover Medium	Average	Gentle 4-8%		Bubbler	PN
Ground Cover Low	Low	Mid 9-12%		Drip	BN
Tree High	Very Low	Moderate 12-20%			DS
Tree Medium	Very Low	Steep >20%			DS
Tree Low	TL				

Replace Unused Area of Lawn
Drought Tolerant Plants
Synthetic Turf



## Appendix B: Inventory of Irrigation Equipment

### Inventory of Controllers

Controller Index	Controller Brand & Model	Total Stations	Active Stations	Stations Inspected	Irrigation Controller Type	Existing Sensor	Booster Pump	Electric Motor (HP)
1	RainBird ESP 24	24	24	10	Conventional Controller	None	0	0
2	RainBird ESP 24	24	18	10	Conventional Controller	None	0	0
3	RainBird ESP 32	32	28	10	Conventional Controller	None	0	0
4	RainBird ESP 32	32	32	10	Conventional Controller	None	0	0
5	RainBird ESP Commercial	24	24	10	Conventional Controller	None	0	0
6	RainBird ESP 40	40	40	10	Conventional Controller	None	0	0

### Inventory of Sprinklers

Controller Index	Controller Brand & Model	Rotors	Impact Rotors	Stream Rotors	Rotary Nozzles	Precision Nozzles	Sprays	Stream Sprays	Bubblers	Micro Sprays	Drip Stations
1	RainBird ESP 24	0	0	0	73	0	291	0	2	0	0
2	RainBird ESP 24	33	0	0	108	0	2	0	0	0	0
3	RainBird ESP 32	62	0	0	67	0	125	0	0	0	0
4	RainBird ESP 32	7	0	0	185	0	87	0	0	0	0
5	RainBird ESP Commercial	0	0	0	20	0	148	0	0	0	4
6	RainBird ESP 40	11	0	0	178	0	169	0	0	0	0

### Inventory of Irrigation Problems

Controller Index	Controller Brand & Model	Low	Tipped	Arc Misaligned	Over-Spray	Clogged	Spray Blocked	Leaking Sprinklers	Broken Sprinklers	Broken Lines	None-Operating Valve
1	RainBird ESP 24	0	0	3	13	8	0	0	0	0	0
2	RainBird ESP 24	0	0	0	6	0	0	0	0	0	0
3	RainBird ESP 32	0	1	0	3	0	0	0	0	0	0
4	RainBird ESP 32	0	0	1	1	2	0	0	0	0	0
5	RainBird ESP Commercial	0	0	0	10	1	1	0	0	0	0
6	RainBird ESP 40	0	0	0	0	0	0	0	0	0	0

# Appendix C: Current Irrigation Schedule

CURRENT IRRIGATION SCHEDULE																							
Controller	Days/Week	Cycles/Day	Controller 1			Controller 2			Controller 3			Controller 4			Controller 5			Controller 6					
			Station	Program	Run Time per Cycle	Station	Program	Run Time per Cycle	Station	Program	Run Time per Cycle	Station	Program	Run Time per Cycle	Station	Program	Run Time per Cycle	Station	Program	Run Time per Cycle			
1	3	..	1	A	25	1	A	10	1	A	15	1	A	10	3	A	5	1	A	20	33	A	15
2	3	..	2	A	10	2	A	10	2	A	15	2	A	5	4	A	5	2	A	20	34	A	15
3	3	..	3	A	10	3	A	10	3	A	15	3	A	16	8	A	5	3	A	20	35	A	15
4	3	..	4	A	25	4	A	10	4	A	15	4	A	14	9	A	12	4	A	20	36	A	15
5	3	..	5	A	10	5	A	15	5	A	15	5	A	10	10	A	5	5	A	8	37	A	15
6	3	..	6	A	10	6	A	10	6	A	15	6	A	14	11	A	5	6	A	8	38	A	15
			7	A	10	7	A	15	7	A	20	7	A	10	12	A	5	7	A	15	39	A	15
			8	A	20	8	A	10	8	A	25	8	A	10	2	B	15	8	A	7	40	A	15
			9	A	5	9	A	10	9	A	25	9	A	9	5	B	15	9	A	7			
			10	A	5	10	A	10	10	A	15	10	A	10	6	B	15	10	A	10			
			11	A	5	11	A	15	11	A	15	11	A	10	7	B	15	11	A	15			
			12	A	5	12	A	15	12	A	15	12	A	10	13	B	15	12	A	15			
			13	A	5	13	A	12	13	A	15	13	A	10	18	B	0	13	A	15			
			14	A	5	14	A	6	14	A	6	14	A	5	19	B	0	14	A	6			
			15	A	5	15	A	6	15	A	6	15	A	14	20	B	0	15	A	6			
			16	A	20	16	A	6	16	A	6	16	A	10	21	B	0	16	A	6			
			17	A	20	17	A	10	17	A	6	17	A	10	22	B	0	17	A	13			
			18	A	20	18	A	10	18	A	6	18	A	10	23	B	0	18	A	13			
			19	A	9	19	A	0	19	A	6	19	A	13	24	B	0	19	A	6			
			20	A	0	20	A	0	20	A	6	20	A	10	1	C	6	20	A	13			
			21	A	0	21	A	0	21	A	20	21	A	14	14	C	6	21	A	13			
			22	A	0	22	A	0	22	A	0	22	A	0	15	C	12	22	A	6			
			23	A	0	23	A	0	23	A	0	23	A	14	16	C	12	23	A	13			
			24	A	0	24	A	0	24	A	20	24	A	14	17	C	12	24	A	8			
									25	A	20	25	A	14	25	A	5	25	A	5			
									26	A	20	26	A	12	26	A	5	26	A	5			
									27	A	20	27	A	0	27	A	5	27	A	5			
									28	A	20	28	A	0	28	A	5	28	A	5			
									29	A	0	29	A	0	29	A	5	29	A	5			
									30	A	0	30	A	0	30	A	5	30	A	5			
									31	A	0	31	A	0	31	A	5	31	A	5			
									32	A	0	32	A	0	32	A	5	32	A	5			

## Appendix D: Certified Landscape Irrigation Auditor



**IRRIGATION ASSOCIATION**

Certifies that on

8/30/2013

**Angel Juarez**

Has earned the designation of

**Certified Landscape Irrigation Auditor**

Certification ID # 99232

*Michael Temple*

Michael Temple, CGIA, CIC, CLIA, CLWM  
Chair, Certification Board

After December 31, 2013 this certificate is valid only when accompanied by a current renewal card.

## **Disclaimer**

The intent of this report is to estimate water savings associated with recommended upgrades to water-using fixtures at the surveyed site. Appropriate details are included in this report to make decisions about implementing water-use efficiency measures at the facility. However, this report is not intended to serve as a detailed engineering design document, for the description of the improvements are diagrammatic in nature only. The report documents the basis of cost estimates and savings and demonstrates the feasibility of constructing the improvements.

It should be noted that detailed design efforts may be required in order to implement several of the improvements evaluated as part of this water-use analysis. While the recommendations in this report have been reviewed for technical accuracy and are believed to be reasonable and accurate, the findings are estimates and actual results may vary. As a result, WaterWise Consulting, Inc. is not liable if projected estimated savings or economics are not actually achieved.

All savings and cost estimates in the report are for informational purposes, and are not to be construed as a design document or as guarantees. In no event will WaterWise Consulting, Inc. be liable for the failure of the customer to achieve a specified amount of water savings, the operation of customer's facilities, or any incidental or consequential damages of any kind in connection with this report or the installation of recommended measures.



# Outdoor Rebates

## Large Rotary Nozzles

**Rebate: \$13 per set**

**\*Minimum 8 sets**

**Water Savings: Up to 6.5% less water used**

Commonly used to irrigate golf courses and other open landscapes, large rotary nozzles provide high distribution uniformity.



## Drip Irrigation

**Rebate: \$.20 per square foot of conversion area**

**\*Maximum 45,000 square feet**

**Water Savings: 50 gallons per day**

Water your landscape more efficiently and save water by converting areas irrigated by spray heads to drip irrigation. Rather than spraying wide areas, drip systems utilize emitters to deliver water to specific locations at or near plant root zones.



## Rotating Sprinkler Nozzles

**Rebate: \$2 per nozzle**  
**\*Minimum 30 nozzles**

**Water Savings: Up to 20% less water used**

Upgrade to rotating sprinkler nozzles that water more evenly and efficiently than traditional pop-up spray heads.



## Turf Removal

**Rebates available**

The Turf Removal Program offers incentives to replace existing irrigated turf with California-native, drought-tolerant plants and landscape. This simple step can significantly reduce water use, lower your water bills, and help eliminate water runoff from your property.



# Smart Sprinkler Timers and Central Computer Irrigation Controller Systems

**Rebate: \$35 per station**

**Water Savings: 500 gallons per day**

Choose a weather-based irrigation controller that adjusts the watering schedule based on current weather conditions.



# Soil Moisture Sensor Controller

**Rebate: \$35 per station**

**Water Savings: Reduce outdoor water use by up to 70%**

Soil moisture sensor controllers are placed below ground in the root zones of lawns and landscapes to determine if and how long to water. They are available as stand-alone controllers or add-on devices to existing controllers.



## In-stem Flow Regulators

**Rebate: \$1 per regulator**  
**\*Minimum 25 units**

**Water Savings: Up to 1,000 gallons each**

Control water flow in irrigation systems at the sprinkler head. Great for parks, office complexes, and other commercial applications.



### Third Mutual Resolutions Regarding Water Usage

M3-91-58	Authorization to send letters to buildings overusing water	09/17/91
03-09-65	Approval to commit to working with ETWD to encourage all Laguna Woods Village residents to strive to change consumption habits to endeavor to conserve water	06/16/09
03-10-187	Authorize supplemental appropriation of \$35,000 from the Unappropriated Expenditures Fund to conduct a pilot program to investigate leaks at previously identified high water usage units	12/21/10
03-12-59	Approve \$100 rebate program to the first 100 Members for the replacement of a non-standard toilet with a low flow toilet funded through monies appropriated from the Water Usage Pilot Program in the amount of \$10,000, and \$3,000 as an unbudgeted operating expense	04/17/12
03-15-22	Authorize 15 Water Conservation Plumbing Inspections with an Appropriation of \$3,750 from the Unappropriated Expenditures Fund	2/17/15
03-15-23	Approve the 2015 Water Conservation Pilot Project with an Appropriation of an Unbudgeted Operating Expenditure of \$30,000 in General Maintenance	2/17/15
03-15-70	Approve requiring that prior to the date any record fee title to a Manor is transferred, and when a Manor is leased/rented, the Manor Owner must replace all non-compliant toilets within their Manor with toilets which meet or exceed the applicable California Civil and Building Code requirements for toilets and have a greater than or equal to 1,000 grams per flush MaP rating, 3 inch minimum flush valve, are ADA and WaterSense-qualified and are eligible for rebates from <a href="http://SoCalWaterSmart.com">SoCalWaterSmart.com</a> , as the Mutual standard replacement toilet (Resolution 03-12-22, adopted February 21, 2012, is superseded and cancelled)	5/19/15
03-15-136	Authorize video inspections and test installation of up to six high efficiency toilets, at an estimated cost of \$3,000, funded from the Unappropriated Expenditures Fund (resolution 03-15-22 approved February 17, 2015 for the purpose of water conservation plumbing inspections is hereby superseded and cancelled)	9/15/15