

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





SNWA Watering Group Assistant Study

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Day-of-Week Watering Restrictions



SOUTHERN NEVADA
WATER AUTHORITY

MANDATORY WATERING RESTRICTIONS

Mandatory restrictions mean you may run sprinklers only on the assigned day(s) for your watering group. Check your bill for your watering days, visit snwa.com or call your water provider. Post this schedule by your watering clock.

My assigned group:

Watering Group	Winter	Spring / Fall	Summer
	November - February	March - April / September - October	May - August
A	Monday	Monday, Wednesday, Friday	Any Day
B	Tuesday	Tuesday, Thursday, Saturday	Any Day
C	Wednesday	Monday, Wednesday, Friday	Any Day
D	Thursday	Tuesday, Thursday, Saturday	Any Day
E	Friday	Monday, Wednesday, Friday	Any Day
F	Saturday	Tuesday, Thursday, Saturday	Any Day

Run sprinklers **3 times, 4 minutes per cycle** on your assigned day(s). For drip systems, see inside.

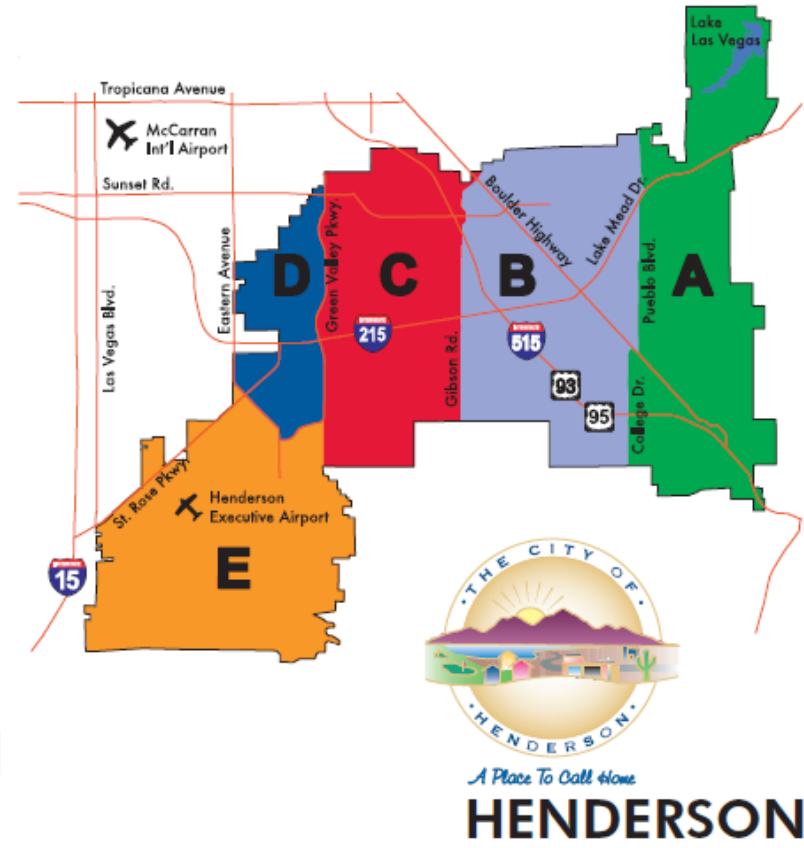
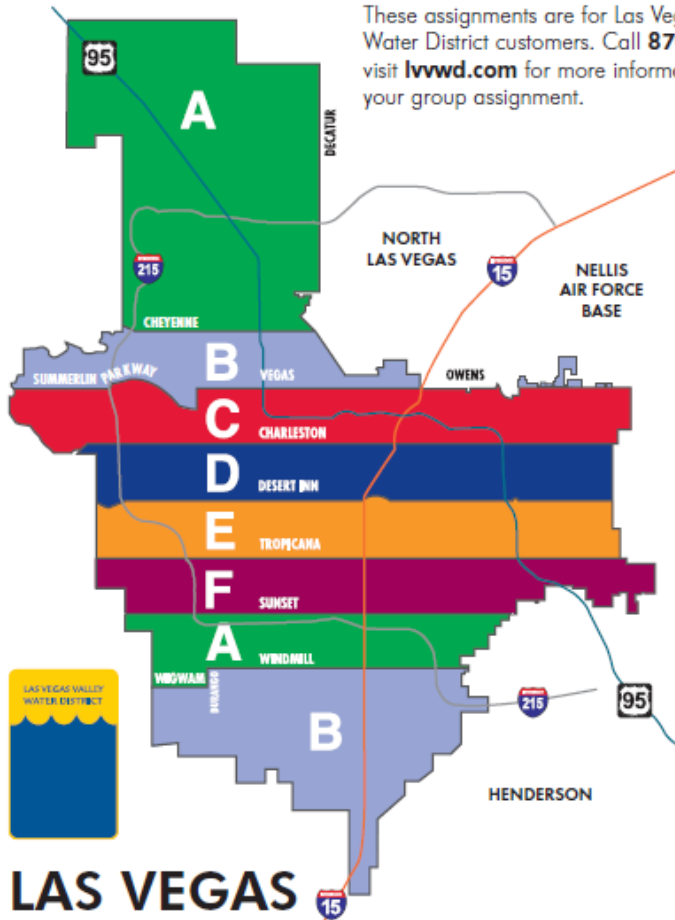
Watering Restrictions*

Watering Group Assignments

for Las Vegas, Henderson, North Las Vegas and Boulder City

These assignments are for Las Vegas Valley Water District customers. Call **870-4194** or visit lvvwd.com for more information about your group assignment.

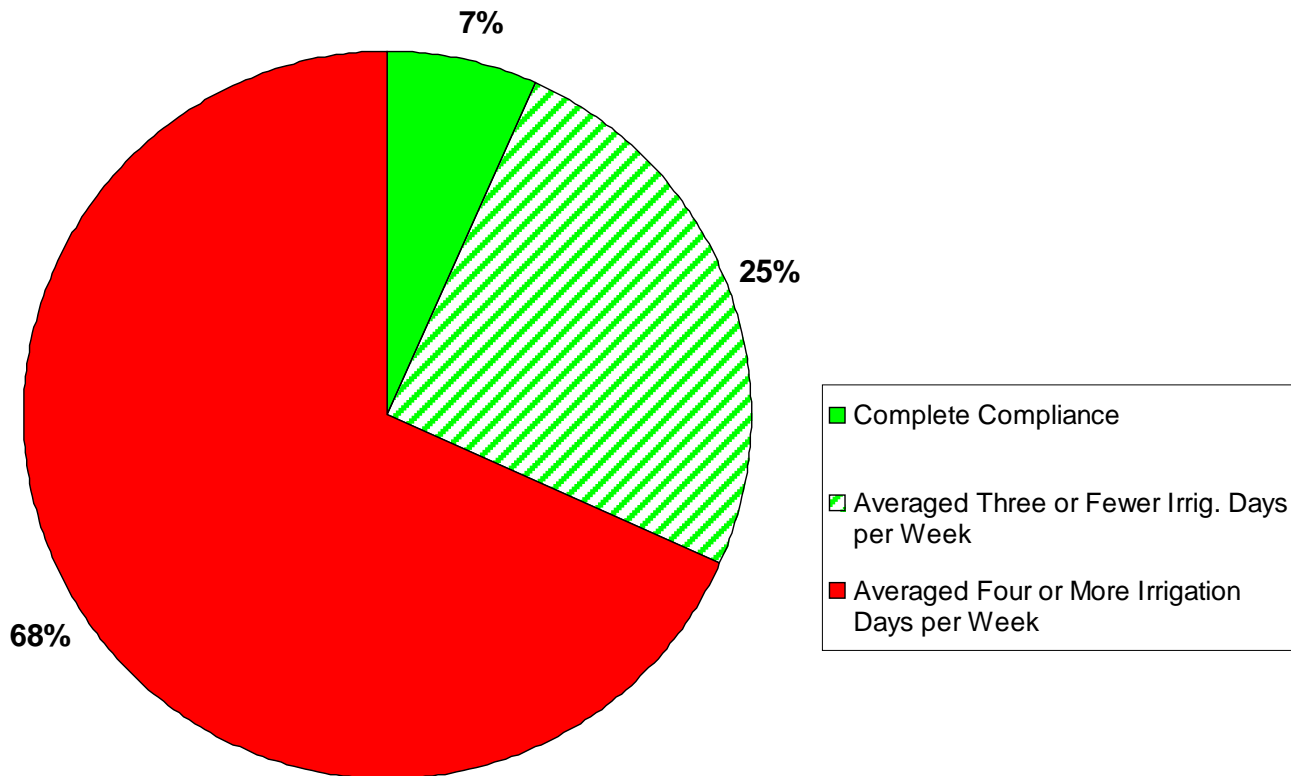
For watering group assignments in Henderson, call **267-5900** or visit cityofhenderson.com.



* Mandatory Southern Nevada watering restrictions are now in effect for customers in Las Vegas, Henderson, North Las Vegas and Boulder City. All water users may only run sprinklers on their group's assigned watering day(s).

Water budgeted properties and designated Community Use Recreational Turf Areas may use modified schedules in all jurisdictions. Community Use Recreational Turf schedules must be posted for public viewing. Call **258-SAVE** or visit snwa.com for more information.

Compliance Model for Fall 2007



Background

- Seasonal research on mandatory watering restrictions reveals low rates of compliance and that the most water on a relative basis is wasted during the Fall.
- Messaging appears to have a positive influence on compliance, but difficult to sustain.
- SNWA Board in 2007 authorized \$250,000 for RFP for development of a device that would assist residents in complying with watering restrictions – *The Watering Group Assistant*.

What is a Watering Group Assistant?



- A novel device that compels almost any common irrigation controller to compliance when used properly.
- Interrupts the common wire. Capabilities for both spray and drip stations.
- In theory, people can always be in compliance after installation. No more having to remember to change your clock.
- Compliance with both day-of-week and time of day restrictions throughout the year.

Water Waste Fees

Water Waste Fee Schedule					
Meter Size	1st Violation	2nd Violation	3rd Violation	4th Violation	5th Violation and More
1" and Less	\$ 80.00	\$ 160.00	\$ 320.00	\$ 640.00	\$ 1,280.00
Over 1" but less than 3"	160.00	320.00	640.00	1,280.00	2,560.00
3" and over	320.00	640.00	1,280.00	2,560.00	5,120.00



Why is SNWA pioneering this technology?

- If more people complied with the restrictions, SNWA estimates in the SFR sector alone we could save another 30,000 acre-feet per year.

RFP - Required Features

- **Watering Restrictions**
 - Comply with group (A-F) watering scheme
- **Controller Connectivity**
 - Compatible with all controller brands
- **Station Exemption**
 - Exclude drip stations
- **Device Bypass**
 - System testing or seed establishment
- **Installation**
 - Simple and intuitive
- **Environmental Demands**
 - Las Vegas climate

RFP - Desired Features

■ Upgradeability

- Reprogram if watering restrictions change
 - Return to manufacturer
 - Programmable by SNWA staff
 - Programmable by owner
- Ability to change firmware by plugging in

■ Reliable power source

- Lithium battery – appx. 10 year life
- AC adapter
- Power tapped from controller

Device Review

Manufacturer	Complies with Restrictions	Compatible with all systems	Station Exemption Capable	Bypass Feature	Easy to Install	Outdoor Capable	Upgrade capable	Cost* per Unit 100ct.	Cost* per Unit 1,000ct.
Alex-Tronix								\$ 49.95	\$ 39.00
Dig - Indoor								\$ 561.00	\$ 24.99
Dig - Outdoor								\$ 693.60	\$ 25.99
Irrrometer								\$ 69.00	\$ 54.00
Toro								\$ 850.00	\$ 267.00
Hunter								\$ 87.13	\$ 80.36
Dynamax								\$ 226.90	\$ 61.00
Dynamax + sensor								\$ 265.95	\$ 61.00

*Caution: Costs may not be indicative of production level costs.
There are high initial costs associated with product development.



The Research Study

- Ultimately 5 manufacturers and 6 devices were selected for the pilot study.
- Ordered 100 units of each. 600 total. Installed numbers are slightly lower (we kept extras in case something goes awry)
- Examining both self-install and SNWA install options.
- Collecting a variety of other data as well.



So, Let's See them!

Alex-Tronex Model



Special Features:

- Digital display and mode, select, adjust and enter buttons that are used for programming.
- Durable, weather-resistant casing for indoor or outdoor use.
- Preprogrammed with the current calendar and date.
- Accommodates up to six drip zones that may be independently scheduled.
- Input port for reprogramming if restrictions change.
- Battery operated.

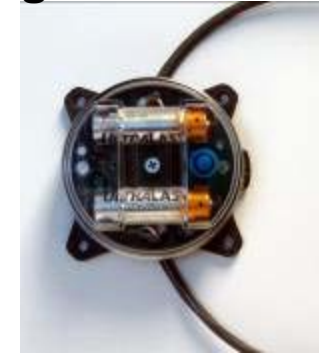
Dig Indoor Model



Special Features:

- Protected by a removable clear cover.
- Lighted indicator shows whether the device will restrict or allow watering at the time of observation.
- Accommodates up to six drip zones that may be independently scheduled.
- Uses AC power from your existing irrigation clock, no plug or batteries required.
- Atomic clock automatically detects date and time after installation or power outages.
- Watering group is programmed by selecting the appropriate switch.

Dig Outdoor Model



Special Features:

- Weather-resistant plastic housing.
- Lighted indicator shows whether the device will restrict or allow watering at the time of observation.
- Accommodates up to six drip zones that may be independently scheduled.
- May be powered from your existing irrigation controller or replaceable lithium AA batteries.
- Atomic clock automatically detects date and time after installation or power outages.
- Watering group is programmed by selecting the appropriate switch.

Irrrometer Model



Hunter Model



Toro Model



Special Features:

- Weather-proof housing for indoor or outdoor applications.
- Powered from your existing irrigation controller.
- Watering group is selected with the rotary switch.
- Accommodates up to three drip zones that may be independently scheduled.
- Two-wire installation.

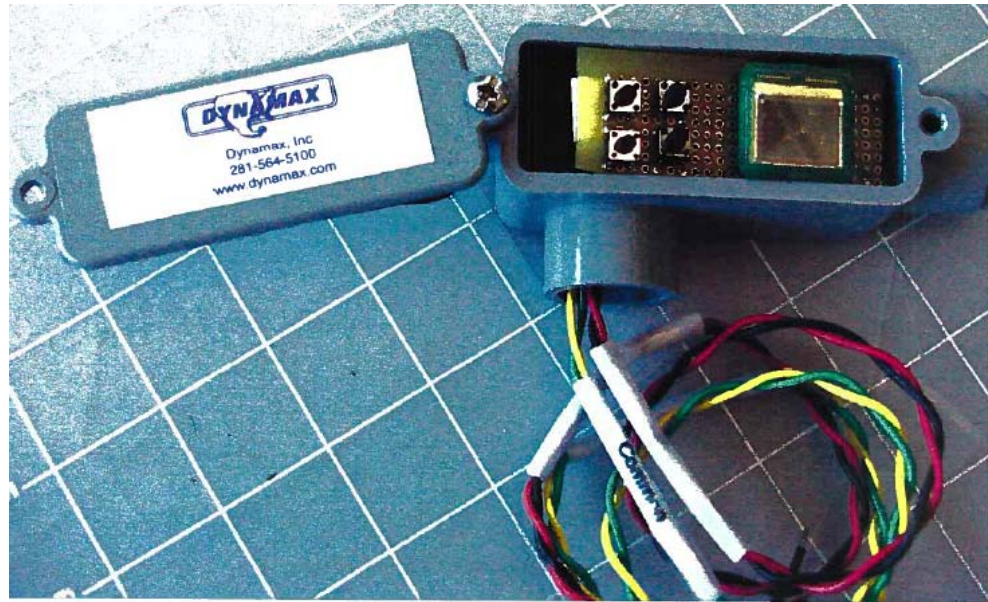
Special Features:

- Full-featured controller includes integrated Watering Group Assistant feature.
- Durable, plastic case.
- Digital display, control buttons and a control dial for programming.
- Accommodates six valves, expandable to 15 valves with purchase of additional modules.
- Non-volatile memory retains program data without power, even if the battery is removed.
- Inputs for rain sensors or soil moisture sensors with the ability for the user to bypass the sensor for selected valves.
- Seasonal adjustment, or “water budget” feature allows you to adjust watering duration from 10 to 150 percent of the programmed time in response to weather conditions.

Special Features:

- Durable locking housing.
 - Powered from your existing irrigation controller.
 - 0-30 day bypass for landscape establishment phase.
 - Unique card update capability.

RFP – Not Selected: Dynamax



Although the “stealth” design was an interesting concept, especially for installations served by landscape contractors who are not the property owner, the wiring was judged too difficult and poorly interfacing for residential installations.

SNWA Installations



- First had to developed detailed planning and programming.
- Faux wall with clock assisted in training.
- In many cases did not really need the drip bypass.
- Staff usually had clear favorites and non-favorites.



Status

- Recruitment done – entering monitoring phase.
- We will spend at least a year collecting data (surveys, consumption data, AMR data, etc.) and then proceed to analysis and report writing.



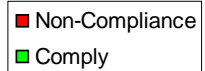
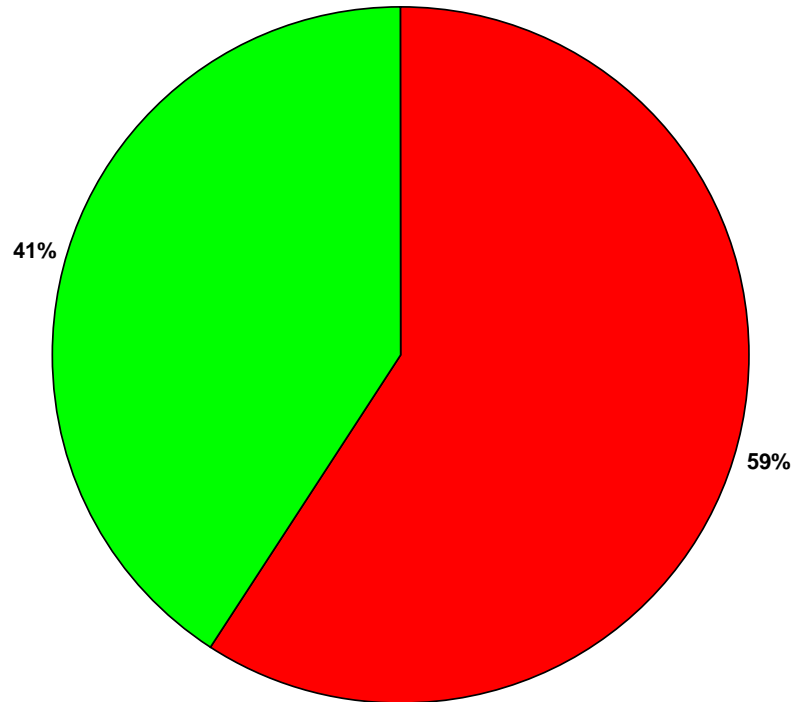
Early Observations

- The majority of installations have been relatively straightforward. That said none of the units have been flawless either.
- There are challenges with single-family homes sector - residents have a difficult time understanding why the device doesn't seemly save them water (well, money) during peak times (it is not a peak reduction device). Probably an issue unique to our restrictions.
- Self-installation may be an unrealistic option for many homeowners.

Early Observations

Fall-Winter Average Day-Of Week Compliance - Examination of 30 Days *before* installation

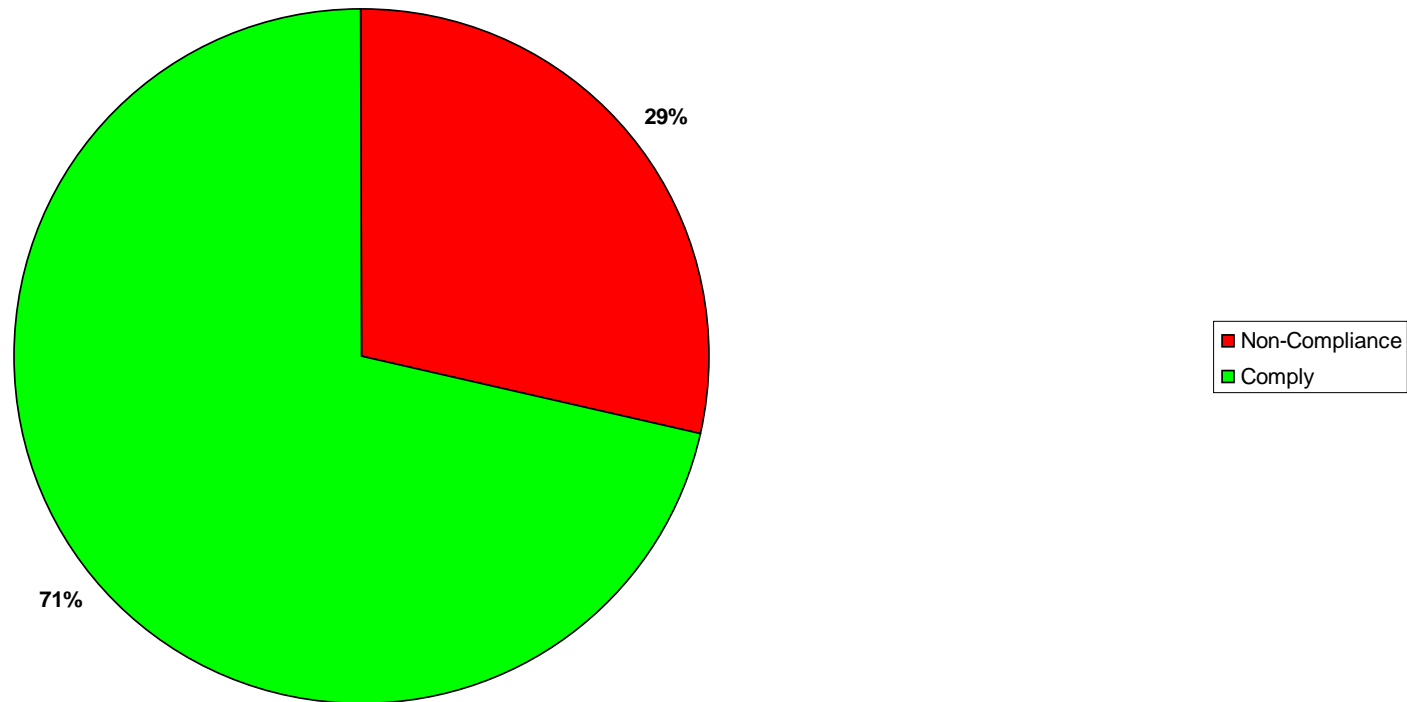
Sample Size = 105



Early Observations

Fall-Winter Average Day-Of Week Compliance - Examination of 30 Days *after* installation

Sample Size = 105



Questions?



Excessive Redundancy – too much of a good thing is never a good thing.