





# Tempering the Thirst Of North America's Driest City

# Welcome to North America's Driest City



- Average rainfall of 11cm
  - Peak temps of 47C
  - 13 measurable rain events annually
  - 40 million visitors annually

# Las Vegas is Nothing Like the Okanagan Basin... or is it?

- Close proximity to an extraordinary lake, but only a small portion is accessible.
- Peak water demand 3x higher than winter months indicating substantial irrigation demand.
- Aggressive population growth. Strong tourist economy.
- Second homes that are only occupied periodically.
- Luxury hotels with casinos, fountains and dolphin statues.

# **Vital Statistics**

- No true regulatory authority
- Joint Powers agreement with conferred authority
  - Operating agreement with LVVWD
  - 7 agencies, 7 Directors, 7 Equal Votes
- Board members are elected officials appointed by their jurisdiction
- SNWA "owned" and steered by the member agencies



# **Role of the Authority**

- Develop and manage water supplies
- Construct and operate regional facilities
- Manage water quality, watersheds
- Unified regional and national voice
- Operate regional water efficiency programs

## Why the Authority Works

- SNWA's scope respects the role of the agencies.
- Leverage collective strength to achieve member goals
- Forum for interagency coordination
- Equal agency power, regardless of size
- Equitable revenue structure pay only for services & infrastructure the members use



# **Benefits of Regional Approach**

- Respected by regulators and policy makers
- Shared compliance reporting (USBR, State)
- Wholesale energy purchases
- Bonding versatility (lower interest rates)
- Collaboration in wastewater reclamation
- Regional environmental assessment and mitigation



# **Direct Conservation Benefits**

- Synergy
- Unified Regional Messaging
- Broader staff expertise, collaboration
- Strengthened Community Ethic
- Collaborative Research
- Equity for citizens in different jurisdictions
- Economic equity for all jurisdictions
- Simplicity for affected businesses









#### **Southern Nevada Water Authority**

### Water Conservation Overview





# **Colorado River**

- Serves about 30 million people in 7 states and Mexico
- Irrigates 3 million acres of farmland (over 70% of water use)
- Allocations exceed average flow by 15-20%
- Climate change may reduce flows by 5-15%
- Current storage about 50% of capacity
- Provides 90% of Southern Nevada's Water





# **Dividing the Waters:** Who shares the Colorado?

**Colorado River Appropriations** 



# **The Colorado River: Imperiled?**



Southern Nevada uses just 1.8 percent of the water allocated from the Colorado River, but it constitutes 90 percent of our supply.

# Indoor vs. Outdoor Water Use



All water used indoors is recovered for direct or indirect reuse.

#### 2010 Municipal Metered Water Consumption Use By Customer Type



Notes:

(a) Municipal metered water consumption billed to customers from all sources (potable and non-potable).

(b) Potable includes ground water and Colorado River water

(c) Non-Potable includes raw Colorado River water, reclaimed and reused water

(d) Reflects the service areas of all SNWA agencies providing potable and/or reclaimed water.

# **Seasonal Demand & Infrastructure**



# **Demand Management Tools**



The SNWA and its member agencies utilize a variety of tools to promote conservation and reduce overall water use.

#### Regulation: Why Tackle Turfgrass? Lawns vs. Water Smart Landscape



Lawns use 4 times as much water

17 gallons per square foot annually

Lawns

Water Smart Landscape

# **Regulation: Landscape Development Codes**

Lawns are prohibited in new residential front yards and limited to 50 percent of the landscape area in new backyards.



# **Regulation: Landscape Development Codes**

#### Lawn is prohibited in new non-residential developments.



# **Regulation: Landscape Development Codes**

#### Maximum of 50 acres of turf allowed on a new golf course – Essentially a barrier to course development



# **Regulation – Golf Courses**

Existing golf courses are subject to water budgets based on irrigated acreage.

Aggressive surcharges apply to overuse.





AF/Acre- 9/02-8/03







# Caesar's Palace Street View



# Caesar's Palace Aerial

Because 75% of their water is reused in the community, Southern Nevada's resorts consume less than 3 percent of our water resources.



# **Regulation: Watering Restrictions**

# SNWA member agencies implement day-of-week and time-of-day watering restrictions.

Bustern Novais	DROUGHT WATERING RESTRICTIONS All water users have been assigned a watering group. Mandatory restrictions mean you may only run sprinklers on your group's allowed watering day(s). To locate your group, check your bill, visit		
Watering	Winter	Spring / Fall	Summer
Group	November - February	March - April / September - October	May - August
A	Monday	Monday, Wednesday, Friday	Any day
В	Tuesday	Tuesday, Thursday, Saturday	Any day
С	Wednesday	Monday, Wednesday, Friday	<b>Any</b> day
D	Thursday	Tuesday, Thursday, Saturday	Any day
E	Friday	Monday, Wednesday, Friday	Any day
F	Saturday	Tuesday, Thursday, Saturday	Any day
For watering instructions, see inside panel.			

# **Regulation – Water Waste Investigations**

Water Waste Investigators perform about 30,000 inspections and issue nearly 10,000 notices per year.

Fees double with each successive violation and may exceed \$5,000 per event.

#### **Violations:**

- Allowing water to spray or flow off property.
- Watering at a prohibited time or on a prohibited day.



# **4- Tier Water Rate Structure**



LVVWD rates Jan 2011 for 5/8 inch residential meter. Includes \$0.30 per kgal SNWA regional commodity charge.



The SNWA has a number of "water smart" incentive programs that encourage residents to participate in the conservation effort, including:

- Water Smart Landscapes (WSL) program
- Instant rebate coupons
  - Pool covers, Smart Irrigation Controller, Rain Sensors
- Water Efficient Technologies (W.E.T.)
- Indoor Retrofit program

# Incentives – WSL Rebate program

Provides up to \$1.50 rebate for each square foot of lawn converted to water-efficient plants and irrigation.

To date:

- 160 million square feet
- \$180 million rebated
- 59 billion gallons saved





#### Annual Water Use SNHBA





**Other incentives include:** 

- Smart Irrigation Controllers and Rain Sensors
- Instant rebate coupons (Car wash, pool cover, etc.)
- Water Efficient Technologies (W.E.T.)
- Indoor Retrofit program (Showerheads, faucets, etc)

# **Partnerships**

# Partnerships help increase product and program adoption and build community ethic:

- Water Smart Home
- Water Smart Contractor Program (Landscape)
- Water Smart Car Wash
- Water Upon Request Program (Restaurants)
- Linen Exchange (Lodging)
- Water Conservation Coalition (Business)









# Water Smart Home Partnership Program

Voluntary program labels new homes and neighborhoods as *Water Smart*.

Requires high efficiency plumbing fixtures, appliances, landscape and irrigation.

Nearly 9,000 Water Smart homes have been constructed

Largest program of its kind in the United States.



### **EPA New Homes Water Efficiency Study**

Pre/post January 1, 2001 construction dates



Average Annual Water Use (kgal)

# Monthly Consumption Standing Homes Built 1990-1995

Average Monthly Consumption Two calendar years of 2007-2008



Month

# Monthly Consumption 1990-1995 v. 1995-2003



# Monthly Consumption Post 2003 Homes Comparison



Month

## Monthly Consumption Water Smart Homes Comparison



Consumption

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Month

### Aerial Assessment of Vegetation Types With Multi-Spectral Imagery





- Public relations campaigns that include billboards, TV & radio ads and direct mail
- Community outreach events
- "How-to" collateral and brochures
- Demonstration gardens
- H2O University (lesson plans for teachers)
- Youth Advisory Council



The SNWA emphasizes "studies in the wild" that show results under real world conditions.

- •Watering Assistant Device
- Condensate collection
- Smart Irrigation Controllers
- Swimming pool evaporation
- High efficiency spray irrigation
- •High efficiency homes

### Watering Group Assistant

A device that allows controllers to irrigate on assigned days and within allowable times

# Six products commissioned for manufacture and testing. 600 units total



### **Smart Sprinkler Study**





45% relative improvement

# Energy, Water & Carbon



- Las Vegas pumps a ton of water per person per day.
- 1,000 gallons requires 6.5 kWh to treat and deliver.
- One kWh requires 0.5 gallons of water.
- One kWh discharges almost one pound of CO2.
- Without water efficiency, an additional 500 million pounds of CO2 would be discharged annually.



Weather adjusted. Includes all sources and quality of water for all SNWA agencies

GPCD





# **Thank You!**

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