# AGENDA
## LAS VEGAS VALLEY WATER DISTRICT
## BOARD OF DIRECTORS

## REGULAR MEETING
## 9:00 A.M. – DECEMBER 6, 2022

## COMMISSION CHAMBERS
## CLARK COUNTY GOVERNMENT CENTER
## 500 S. GRAND CENTRAL PARKWAY, LAS VEGAS, NEVADA

**Board of Directors**
Marilyn Kirkpatrick, President
Jim Gibson, Vice President
Justin Jones
William McCurdy II
Ross Miller
Michael Naft
Tick Segerblom

*John J. Entsminger,*
*General Manager*

Date Posted: November 29, 2022

The Las Vegas Valley Water District makes reasonable efforts to assist and accommodate persons with physical disabilities who desire to attend the meeting. For assistance, call the Agenda Coordinator (702) 258-3277 at least 24 hours prior to the meeting.

**THIS MEETING HAS BEEN PROPERLY NOTICED AND POSTED IN THE FOLLOWING LOCATIONS:**

**LAS VEGAS VALLEY WATER DISTRICT**
**1001 SOUTH VALLEY VIEW BOULEVARD**
**LAS VEGAS, NEVADA**

**CLARK COUNTY GOVERNMENT CENTER**
**500 SOUTH GRAND CENTRAL PARKWAY**
**LAS VEGAS, NEVADA**

**SOUTHERN NEVADA WATER AUTHORITY**
**100 CITY PARKWAY, SUITE 700**
**LAS VEGAS, NEVADA**

**REGIONAL JUSTICE CENTER**
**200 LEWIS AVENUE**
**LAS VEGAS, NEVADA**

All items listed on this agenda are for action by the Board of Directors, unless otherwise indicated. Items may be taken out of order. The Board of Directors may combine two or more agenda items for consideration, and/or may remove an item from the agenda or delay discussions relating to an item on the agenda at any time.

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## CALL TO ORDER, INVOCATION AND PLEDGE OF ALLEGIANCE

## COMMENTS BY THE GENERAL PUBLIC
NO ACTION MAY BE TAKEN: At this time, the Board of Directors will hear general comments from the public on items listed on the agenda. If you wish to speak to the Board about items within its jurisdiction, but not appearing on this agenda, you must wait until the "Comments by the General Public" period listed at the end of this agenda. Please limit your comments to three minutes or less. Public comment can also be provided in advance of the meeting and submitted to publiccomment@lvvwd.com. Public comment received through December 5, 2022, will be included in the meeting's minutes.

## ITEM NO.
1. *For Possible Action*: Approve agenda with the inclusion of tabled and/or reconsidered items, emergency items and/or deletion of items, and approve the minutes from the regular meeting of November 15, 2022.

## BUSINESS AGENDA

2. *For Possible Action:* Conduct a performance evaluation of the District's General Manager and, if appropriate, make a salary adjustment in accordance with the employment agreement.

## COMMENTS BY THE GENERAL PUBLIC
NO ACTION MAY BE TAKEN: At this time, the Board of Directors will hear general comments from the public on matters under the jurisdiction of the Las Vegas Valley Water District. Please limit your comments to three minutes or less.

**LAS VEGAS VALLEY WATER DISTRICT**
**BOARD OF DIRECTORS MEETING**
**NOVEMBER 15, 2022**
**MINUTES**

| | |
|---|---|
| CALL TO ORDER | 9:00 a.m., Commission Chambers, Clark County Government Center, 500 South Grand Central Parkway, Las Vegas, Nevada |
| DIRECTORS PRESENT: | Marilyn Kirkpatrick, President<br>Jim Gibson, Vice President<br>Justin Jones<br>William McCurdy II<br>Ross Miller<br>Michael Naft<br>Tick Segerblom |
| STAFF PRESENT: | John Entsminger, Colby Pellegrino, Dave Johnson, Doa Ross, Greg Walch, Kevin Bethel |

*Unless otherwise indicated, all members present voted in the affirmative.*

## COMMENTS BY THE GENERAL PUBLIC

*For full public comment, visit www.lvvwd.com/apps/agenda/lvvwd/index.cfml*

Kris Sanchez, Deputy Director, Governor's Office of Economic Development (GOED), read a statement on behalf of GOED, and spoke in support of item #18 and enacting new water-related policies to help with the impact and long-term effects of the drought. He added that successfully managing natural resources provides the community with certainty and stability, while enhancing relevancy and fortifying the economy.

Ken Evans, Southern Nevada Water Authority (SNWA) IRPAC member, business community member and Las Vegas resident, spoke in support of a moratorium for the use of evaporative cooling in new development and the implementation of a reduced golf course water budget to no more than 4.0 acre-feet per irrigated acre. He stated that these measures and policies have been the result of empirical data, research analysis and direct business community engagement.

Jon Leleu, NAIOP, spoke in support of item #18. He spoke about a committee that NAIOP assembled at the end of 2021 to help provide information, data, research, support, and insight about evaporative cooling to the SNWA. He also mentioned that NAIOP helped provide the language to the SNWA for the evaporative cooling moratorium.

Virginia Valentine, Nevada Resort Association, expressed the need for the moratorium on evaporative cooling systems in new development to conserve water for the good of Southern Nevada. She stated that the resort community will continue to do what it can to help support water conservation measures and initiatives.

Doug Cannon, President and CEO of NV Energy, spoke in support of item #18 and addressed a couple of questions related to an evaporative cooling moratorium. He stated that NV Energy will be able to provide the energy supply needed as the community makes the shift from evaporative cooling to mechanically cooled systems. He also stated that NV Energy will be able to supply service and make energy available to support Southern Nevada within the timelines provided in the proposed ordinance.

Jeremy Aguero, Principal Analyst, Applied Analysis, stated that he worked with the Las Vegas Global Economic Alliance and the Las Vegas Valley Water District (District) relative to the evaporative cooling issue. Speaking in support of item #18, he stated that the District brought forth a process that was thoughtful and comprehensive, coming up with a solution that will provide an opportunity for the community to continue to grow in a responsible way.

Glen Leavitt, Nevada Contractors Association, represents more than 450 contractors and stakeholders in Southern Nevada. He stated that the construction industry understands the needs for water conservation and requests that further discussion be considered regarding the proposed timeline for implementation of the evaporative cooling policy, so the industry doesn't suffer an extreme burden.

Jordan Krahenbuhl, Executive Director of Plumbing, Heating and Cooling Contractors of Nevada, spoke in support of water conservation, but addressed some unintended consequences related to the proposed implementation timeframes for item #18.

Carlos Fernandez, Executive Director of American Institute of Architects, Nevada Chapter, spoke in support of the evaporative cooling ban stating that this change needs to happen to help the community continue to grow and thrive.

Tony Cornell, general contractor, spoke in support of water conservation, but expressed concern about the proposed timeline for the evaporative cooling prohibition and requested moving the implantation date further out. He also expressed concern about the amount of energy that will be required to run all the new mechanically cooled systems.

Bob Gronauer, representing the Southern Highlands Golf Course, spoke on item #19. He stated that the methodology behind the proposed 4.0 acre-feet per irrigated acre is not fully complete. He stated that not all golf courses were used to calculate the formula and recommends the methodology be a reduction by percentage of water use for each golf course. He also stated that the economic impact, property value loss and hardship on the golf courses and surrounding communities will be significant.

Jaina Moan, External Affairs Director with the Nature Conservancy, spoke in support of items #18 and #19 and encouraged the board to approve these policies. She stated that water conservation and sustainability is crucial for nature and ecosystems and their benefit to the Southern Nevada community.

Angelyn Tabalba, Communications Director, Nevada Conservation League, expressed support for items #18 and #19, a moratorium for the use of evaporative cooling in new development and the implementation of a reduced golf course water budget to no more than 4.0 acre-feet per irrigated acre.

Jason Cheney, General Manager, Southern Highlands Golf Club and Nevada Golf Alliance Industry Board Member, gave comment on item #19. He stated that the golf industry has done a great job to reduce its water use footprint by removing a lot of turf over the years. He feels that the methodology used to calculate the proposed 4.0-acre feet per irrigated acre is incorrect and uses old information. He asked that the board and District staff continue to work with the golf industry to find a water budget number that will be appropriate for a reduction.

Ed Uehling, Las Vegas, commented on the District's annual financial reports and stated that they are more thorough than in previous years. He stated that the proposed water conservation initiatives create hardships on local residents and local businesses, and that the District needs to look for alternative ways to reduce water use. He talked about three possible solutions: creating more multi-family housing, building nuclear plants in Nevada to assist with desalination plants in California, and bringing ocean water inland for irrigation.

**ITEM NO.**

**1. Approval of Agenda & Minutes**

FINAL ACTION: A motion was made by Vice President Gibson to approve the agenda and the minutes from the regular meeting of October 4, 2022. The motion was approved.

**CONSENT AGENDA Items 2 – 16 are routine and can be taken in one motion unless a Director requests that an item be taken separately.**

**2. Approve and authorize the General Manager to sign an agreement, in substantially the same form as attached hereto, to extend the term of the interlocal agreement between the City of Henderson and the District to supply temporary water service to Basic Water Company for redelivery to an area of unincorporated Clark County.**

**3. Approve and authorize the General Manager to sign, in substantially the same form as attached hereto, a cooperative agreement between the City of Las Vegas and the District regarding the processing of wastewater at Durango Hills Water Resource Center in an amount not to exceed $11,056,701.**

**4. Approve and authorize the President to sign an interlocal agreement between the Clark County Water Reclamation District and the District for installation of water facilities for the Whitney Lift Station Rehabilitation Project.**

**5. Approve and authorize the General Manager to sign an amendment to the existing agreement between SC East Landco, LLC, and the District for a change to the provision of water services within the Skye Canyon Park 2860 Zone Pipeline for an increased amount of $111,650, resulting in a total amount not to exceed $1,744,650.**

**6. Approve and authorize the General Manager to sign an amendment to the existing agreement between Black & Veatch Corporation and the District to provide professional design engineering and construction support services for the Centennial 2635 Zone Reservoir and 2745 Zone Pumping Station in the amount of $126,951, resulting in a total amount not to exceed $3,440,135.**

7. **Approve and authorize the General Manager to sign an amendment to the existing interlocal agreement between the Nevada Department of Transportation and the District for modification of water facilities as part of the NDOT I-15 Tropicana Design Build Project for an increase of $1,444,053, resulting in a total amount not to exceed $4,200,373.**

8. **Approve and authorize the General Manager to sign an interlocal agreement between the Nevada Department of Transportation and the District for modification of water facilities as part of the NDOT I-15 Tropicana Design-Build Project and authorize the General Manager to sign any ministerial documents necessary to effectuate the transaction.**

9. **Approve and authorize the General Manager to sign an agreement between Kiewit Infrastructure West Co. and the District for modification of water facilities as part of the NDOT I-15 Tropicana Design-Build Project and authorize the General Manager, or his designee, to sign future agreements pertaining to the construction of water facilities within the NDOT I-15 Tropicana Design-Build Project that do not fiscally impact the District.**

10. **Approve and authorize the General Manager to sign an agreement between Broyles International, LLC dba IZ design studio and the District to provide professional engineering services for the Valley View Campus Building Assessment in an amount not to exceed $425,610.**

11. **Award a contract for pipeline installation to Byrd Underground, LLC, in the amount of $2,488,952, authorize a change order contingency amount not to exceed $240,000, and authorize the General Manager to sign the construction agreement.**

12. **Approve and authorize the General Manager to sign Amendment No. 3 to the Master Agreement between Workday, Inc., and the District to add the Workday Help module and implementation services in the amount of $105,214, authorize a contingency amount not to exceed $24,640, and authorize the General Manager or designee to sign change orders within the contingency amount.**

13. **Approve and authorize the President's signature on amendments to the Self-Funded Group Medical and Dental Benefits Exclusive Provider Organization (EPO) Plan among Clark County, the Clark County Water Reclamation District, the University Medical Center of Southern Nevada, the Las Vegas Convention and Visitors Authority, the Las Vegas Valley Water District, the Clark County Regional Flood Control district, the Regional Transportation Commission of Southern Nevada, the Southern Nevada Health District, the Henderson District Public Libraries, the Mount Charleston Fire Protection District, the Las Vegas Metropolitan Police Department, the Moapa Valley Fire Protection District and the Eighth Judicial District Court, and adopt an amended Self-Funded Group Medical and Dental Benefits EPO Plan, effective January 1, 2023.**

14. **Approve and authorize the President's signature on amendments to the Self-Funded Group Medical and Dental Benefits Preferred Provider Organization (PPO) Plan among Clark County, the Clark County Water Reclamation District, the University Medical Center of Southern Nevada, the Las Vegas Convention and Visitors Authority, the Las Vegas Valley Water District, the Clark County Regional Flood Control district, the Regional Transportation Commission of Southern Nevada, the Southern Nevada Health District, the Henderson District Public Libraries, the Mount Charleston Fire Protection District, the Las Vegas Metropolitan Police Department, the Moapa Valley Fire Protection District and the Eighth Judicial District Court, and adopt an amended Self-Funded Group Medical and Dental Benefits PPO Plan, effective January 1, 2023.**

15. **Approve and authorize the President to sign an amendment to the Interlocal Agreement among Clark County, the Clark County Water Reclamation District, the University Medical Center of Southern Nevada, the Las Vegas Convention and Visitors Authority, the Las Vegas Valley Water District, the Clark County Regional Flood Control District, the Regional Transportation Commission of Southern Nevada, the Southern Nevada Health District, the Henderson District Public Libraries, the Mount Charleston Fire Protection District, the Las Vegas Metropolitan Police Department, the Moapa Valley Fire Protection District and the Eighth Judicial District Court, establishing the rates for the Self-Funded Group Medical and Dental Benefits Plans, effective January 1, 2023.**

16. **Approve Sun Life Assurance Company of Canada as the provider for long-term disability and group life insurance for District employees.**

FINAL ACTION: A motion was made by Vice President Gibson to approve staff's recommendations. The motion was approved.

**BUSINESS AGENDA**

**17. Accept the Las Vegas Valley Water District's Annual Comprehensive Financial Report, including the corresponding Independent Auditors' Report on Financial Statements and Other Supplementary Information for the Fiscal Year ended June 30, 2022, and authorize its submission to the Nevada Department of Taxation.**

Kevin Bethel, Chief Financial Officer, presented the Las Vegas Valley Water District's Annual Financial Report. This year, the District engaged a new audit firm, Baker Tilly. Mr. Bethel reported that the first-time audit went smoothly and within the auditor's required communications, there were no findings, and it was an unmodified opinion, with no internal control weaknesses or significant deficiencies that need to be reported to the board.

FINAL ACTION: A motion was made by Director Jones to approve staff's recommendations. The motion was approved.

**18. Adopt changes to the Service Rules that prohibit service to new development equipped with systems that rely on evaporative cooling, and direct staff to work with Clark County and Southern Nevada's municipalities to update their existing building codes to implement a regionally-supported policy into their respective codes.**

Dave Johnson, Deputy General Manager of Operations, gave a presentation on the proposed evaporative cooling moratorium. A copy of his presentation is attached to these minutes.

He began by reviewing the Southern Nevada Water Authority's (SNWA) new conservation goal of 86 gallons per capita per day (GPCD) and stated that evaporative cooling represents 1.7 GPCD overall and that it is the second largest consumptive use of water in Southern Nevada, resulting in billions of gallons of water. He separated cooling into two primary systems, swamp coolers and cooling towers, and explained the process of each of those. He expressed that Southern Nevada cannot continue adding avoidable consumptive uses. He reminded the board that last December, the SNWA Board approved a resolution supporting a moratorium on evaporative cooling and since that time, staff has been providing briefings and working with more than 1,000 individuals representing community stakeholders and industries on a policy to restrict evaporative cooling.

Mr. Johnson showed several different mechanically cooled systems and technologies and stated that mitigating energy use increases, and peak electricity costs is easier in new construction than in retrofit scenarios. He reviewed the policy's framework and key deadlines and, due to the considerable amount of input received, recommends extending the Certificate of Occupancy or Completion deadline from February 1, 2025, to February 1, 2026, one year later, to accommodate new builds.

Mr. Johnson gave an overview of the policy exceptions stating that it would not apply to retrofits or replacements that may otherwise require a building permit. He concluded by stating that for regional implementation, each jurisdiction will need to update their respective codes and expect uniform adoption, and that for approval today, the District's Service Rules would incorporate the policy within its Water Commitment Process and Conditions of Service sections.

Vice Chair Gibson commented that the door is not closing on continued discussions with stakeholders surrounding this policy. He also clarified that there is nothing in this policy that would prevent the board from waiving the applicability of a code, for instance. Mr. Johnson affirmed.

Director Naft clarified that the only recommended change is to the date, extending it to February 1, 2026. Mr. Johnson affirmed and recommended that the word *temporary* also be added to Certificate of Occupancy or Completion.

FINAL ACTION: A motion was made by Vice President Gibson to adopt changes to the Service Rules that prohibit service to new development equipped with systems that rely on evaporative cooling, extending the Certificate of Occupancy or Completion deadline to February 1, 2026, and adding *temporary* Certificate of Occupancy or Completion by the deadline. The motion was approved.

**19. Determine that proposed changes to the District's Service Rules on golf course water budgets are not likely to impose a direct and significant economic burden upon a business or directly restrict the formation, operation or expansion of a business; consider and approve the attached Business Impact Statement; and direct staff to set a public hearing for possible adoption of the proposed changes on January 3, 2023.**

Colby Pellegrino, Deputy General Manager of Resources, gave a presentation on the proposed changes to golf course water budgets. A copy of her presentation is attached to these minutes.

She reported on declining water levels in Lake Mead and presented the SNWA's goal of 86 GPCD, and the actions needed to meet that goal. She explained that one of those actions is to reduce the valley's golf course water budgets from 6.3 acre-feet per irrigated acre to 4.0 acre-feet per irrigated acre. She mentioned that golf courses are the most water intensive industry in the valley from a consumptive use perspective. Ms. Pellegrino stated that the current water budget has been in place since 2005, and the methodology accounts for everything on a golf course that is irrigated, calculates the water use, and divides it by the total number of irrigated acres. Since courses significantly range in terms of design and size, tracking water use per irrigated acre represents a way to equitable benchmark water use.

Ms. Pellegrino stated that the golf course industry has been a great participant in the Water Smart Landscape program, removing unused turfgrass, but stated that there are still courses that have not done any turf conversions to-date. During the BIS comment period, four letters were received from golf courses. She summarized the course's primary concerns and gave a list of adjustments to operations or facilities that could reduce water use. She also highlighted those areas where SNWA can provide incentives or assistance to the golf courses. She concluded her presentation by noting the implementation date, which is proposed as January 1, 2024.

Ms. Pellegrino also mentioned that the SNWA entered a memorandum of understanding (MOU) with other Colorado River municipalities to mutually agree to hold each other responsible for implementing water conservation. She stated that one of the most significant items within the MOU is a commitment to remove 30 percent of non-functional turf.

Director Jones recognized those golf courses that have taken steps to conserve water. He asked if the comparison of courses is equitable to what they used to be when the water budget methodology was created. Ms. Pellegrino stated that the methodology takes every acre a course is irrigating and divides it by their total water use, so throughout time, as golf course efficiency improves, the amount of water per acre they are using decreases. If some of the area becomes developed, it is no longer included in their irrigated acreage calculation.

Director Segerblom asked if the SNWA has calculated how much money may be used to assist and incentivize golf courses to remove turf, to which Ms. Pellegrino stated that the agency has not.

FINAL ACTION: A motion was made by Vice President Gibson to approve the Business Impact Statement and set a public hearing for January 3, 2023. The motion was approved.

## COMMENTS BY THE GENERAL PUBLIC

Daniel Braistead stated that a spring under the Las Vegas Academy overflows three months of the year. He also asked what the value of the SNWA's downtown property is worth and if the SNWA pays property tax. Vice President Gibson stated that the SNWA does not pay property tax.

Ed Uehling expressed frustration about the new policies and stated that they put too much hardship and burden on the community and will create future problems.

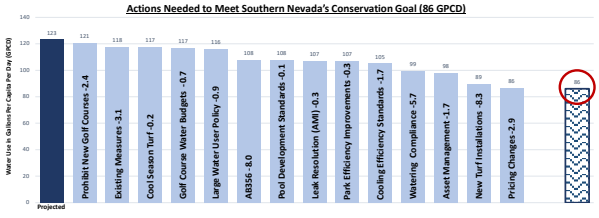
Lindsay Denton expressed support of water conservation and the recent rate increases but expressed concern that the increase did not account for different fees for the different size water meters. She said until now, the increased fees have been offset by the larger tier allowances, but now that the tiers have been equalized, she is asking to also equalize the total fees. She also stated that the excessive use fees do not take lot sizes into account, specifically in residential RE zoning.

### Adjournment

There being no further business to come before the board, the meeting adjourned at 10:20 a.m.

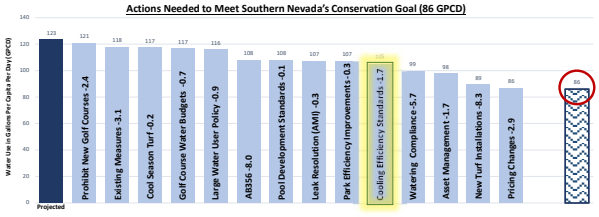
1

**Approved by the SNWA Board last December, a new conservation goal will mitigate shortage conditions and meet future demands.**




2

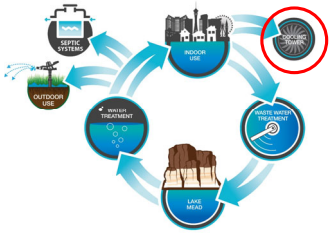
**One of those measures was addressing cooling efficiency within Southern Nevada.**




**The estimated water savings assumes a 20 percent reduction in evaporative use by existing cooling systems and no additional evaporative cooling water consumption in new development.**

3

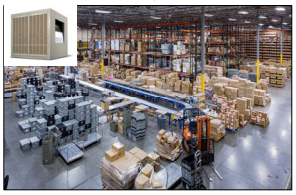
**Behind landscape irrigation, evaporative cooling is one of Southern Nevada's largest consumptive uses.**




4

**Commercial/industrial cooling uses *billions* of gallons of water every year, despite systems being available that require *no* water.**

"Swamp Coolers"



Cooling Towers

5

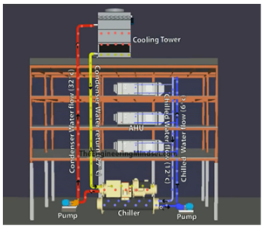
**There are two primary categories of evaporative cooling systems.**

**Direct Evaporative Coolers (aka "Swamp Coolers)**

- Swamp coolers blow air across a water-saturated pad and into the building
- As the water evaporates, the air is cooled 20-30°F
- They are inexpensive to buy and operate
- Because buildings with swamp coolers are not considered "conditioned" spaces, this allows developers to avoid typical insulation requirements
- One evaporatively cooled 250,000-square-foot warehouse can consume as much water as ~1,500 dry-cooled professional buildings

6

## Cooling Towers




- Machines called chillers produce cold water, which is moved in pipes around the building to absorb heat
- Cooling towers do not actually cool the building, but rather are used to reduce the temperature of water returning from the chilled water "loop"
- Before this water is returned to the chiller, cooling towers reduce its temperature by spraying it down into air being blown upward
- As the air passes through this shower, it absorbs some of the heat from the water, with the evaporate pushed out of the tower and into the atmosphere

7

- **By reducing the water's temperature before it returns to the chillers, cooling towers allow the chillers to operate more efficiently, reducing energy use.**
- **This energy efficiency is paid for in water – a single 5,000-ton cooling tower can evaporate ~7,500 gallons per hour of operation; this water cannot be recovered.**
- **One large evaporatively-cooled facility can consume as much water annually as thousands of homes built to current efficiency standards.**

8

SNWA estimates there are more than **1 million tons of cooling tower capacity** and an estimated **30,000 commercial-scale swamp coolers** in Southern Nevada.

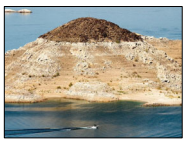
- No regulations on water use
- Evaporative cooling is generally not submetered
- Based upon duty factors, it is estimated the annual water use could be nearly 30,000 acre-feet (equivalent to the maximum defined Colorado River shortage requirement)

9

**Southern Nevada cannot continue adding avoidable consumptive uses.**

No one would question developing to earthquake safety standards in San Francisco or hurricane standards in Florida.

In Southern Nevada, <u>water scarcity</u> is our natural disaster



10

**Last December, the SNWA Board approved a resolution supporting a moratorium on evaporative cooling.**

**Since that time, the SNWA has been providing briefings and working with community stakeholders and industry representatives on a policy to restrict evaporative cooling.**

**SNWA has presented to dozens of stakeholder groups encompassing more than 1,000 individuals within affected industries about the initiative.**

<u>Stakeholder groups include:</u>
Vegas Chamber
NAIOP
Nevada Resort Association
Ashrae
Southern Nevada Building Officials
Las Vegas Global Economic Alliance
NV Governor's Office of Economic Development
Nevada Cooler Pad
CCIM
NV Energy
BOMA
NV Energy
NV Professional Facility Managers Association
Nevada Contractors Association
Switch

11

## Stakeholder Feedback
(Swamp Coolers)

**Key issues of concern:**

**Construction Costs**
- IECC Regulatory Compliance (insulation requirements)
- Structural Reinforcement of Roofs
- Cooling System Purchase Cost
- Power Infrastructure Upsizing
- Direct Business Impacts (Evaporative cooler distributors)

**Operational Costs/Factors**
- Energy Use Increases
- Positive Pressure Ventilation (air quality management)

12

**While it is entirely feasible to meet the cooling needs of large structures without evaporative cooling systems, some issues must be addressed in design.**

- For buildings that typically use swamp coolers, non-evaporative alternatives are more expensive, although they require less maintenance and typically have a longer service life
- Non-evaporative cooling systems also use more energy than swamp coolers, although at the same temperature setting (~85°F) the difference is less significant in context to total building energy use.
- Cooling system energy use can be mitigated through technologies such as air rotation systems, high-volume low-speed (HVLS) fans, and targeted ducting
- Insulation costs associated with IECC regulatory compliance were found to not significantly increase construction costs

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## Stakeholder Feedback
(Cooling Towers)

**Key Issues of Concern:**

**Construction Costs**
- Cooling System Configuration/Design
- Physical Footprint Requirements
- Cooling System Purchase Cost (derating)
- Power Infrastructure Upsizing

**Operational Costs/Factors**
- Energy Use Increases
- Operational Feasibility (cooling capacity)
- ESG Ratings
- Maintenance Issues (favored waterless cooling)

14

**While it is entirely feasible to meet the cooling needs of large structures without cooling towers, some issues must be addressed in design.**

- Compared to cooling towers, non-evaporative systems can require significantly more energy -- without mitigation, the compressor's energy use may be double in some cases.
- Non-evaporative systems also require significantly more space than cooling towers, in part because ~20% greater system capacity is required to meet peak usage needs.
- However, energy use can be mitigated using available technologies.

15

## REDUCING/ELIMINATING THE "ENERGY PENALTY"

**Mitigating energy use increases and peak electricity costs is easier in new construction than in retrofit scenarios.**

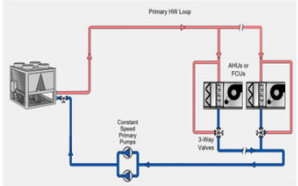
- Understanding that cooling towers are solely used to remove heat from water, there are a multitude of technologies and strategies that can do the same thing
- By combining these measures, it is possible to reduce energy use/cost to levels typically associated with cooling-tower supported systems

16

## OPTIMIZING AIR-COOLED ENERGY USE

**Air Cooled Inverter Scrolled Heat Pump Chiller**

- These systems are not mitigation measures but rather a different way of cooling and heating buildings
- While requiring designing over-capacity to cope with high temperatures, they serve both cooling and heating needs
- The capital costs are higher, due in part to the large capacity requirement, but maintenance costs are lower than wet-cooled systems
- These units are ideal for small to mid-size buildings or portions of large facilities

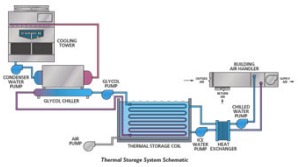



17

## OPTIMIZING AIR-COOLED ENERGY USE

**Mitigation Measures: Thermal Storage Facilities**

- These systems are not designed to reduce energy use but rather help facilities lower or eliminate "peak" energy costs
- The chillers generate cold water or ice (depending on the system) during "off-peak" periods, storing it for use during more expensive daytime "peak" hours
- Storage tanks are often underground to minimize the available surface footprint



Thermal Storage System Schematic

18

## OPTIMIZING AIR-COOLED ENERGY USE

**Mitigation Measures: Heat Recovery Systems**

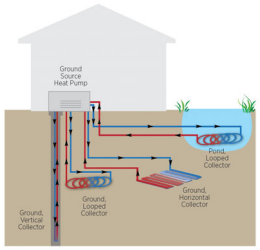
- These systems transfer the excess heat from the HVAC water to serve other purposes in the facility, such as hot water production.
- In repurposing heat that would otherwise need to be expelled through evaporation, they reduce energy use of both the HVAC and boiler systems.

19

## OPTIMIZING AIR-COOLED ENERGY USE

**Mitigation Measures: Geothermal Heat Pumps**

- Instead of shedding heat into the atmosphere, these systems send it into the ground
- Because they are largely underground, geothermal systems are well-suited to properties where surface land is at a premium
- They perform particularly well in areas with shallow groundwater, as occurs in the central Las Vegas Valley




20

## OPTIMIZING AIR-COOLED ENERGY USE

**Mitigation Measures: Effluent Heat Exchangers**

- In facilities with high wastewater volumes, these systems indirectly transfer heat from the cooling system water into the effluent stream before it leaves the property
- During winter, this system can be reversed to reduce energy use for building heating

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## OPTIMIZING AIR-COOLED ENERGY USE

**Mitigation Measures: Radiative Heat Exchange Array**

- This system absorbs heat from the process water, converts it to infrared wavelength energy, and radiates it into space
- An emerging technology, it is best utilized in dry climates with clear skies
- Because it requires a significant rooftop footprint, this represents only a partial solution to replace larger cooling towers
- It is promising for small heat loads such as refrigeration, but its scalability is still being evaluated

22

**While these and other measures have proven effective, they require engineering flexibility and increase up-front construction costs**

- Developers typically use design "templates" for new facilities; incorporating these systems would require them to reconfigure standard engineering plans
- All of these measures require capital investment; however, considering the construction budgets for large cooling-tower supported structures, the percentage increase is typically relatively small
- In severely space-constrained settings where the systems cannot be installed underground, on rooftops, or in parking garages, utilization may be limited

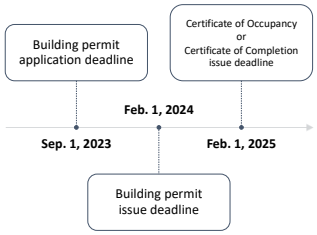
23

## Policy Framework

- Eliminate evaporative cooling in new construction
- Reasonably accommodate new developments that are largely through the purchase, design and entitlement process
- Provide sufficient notice to the industry
- Avoid burden on building departments
- Establish a regional framework, applicable to all member agency codes

24

## Key Deadlines




25

## Policy Exceptions

**The policy would not apply to retrofits or replacements that may otherwise require a building permit.**

- Evaporative cooler must be previously permitted and in operation as of **February 1, 2025.**
- Replacement or upgrade cannot increase the water use of the existing unit.

26

**For regional implementation, each jurisdiction will need to update their respective codes.**

**For approval today, LVVWD's Service Rules will incorporate the policy within its Water Commitment Process and Conditions of Service sections.**

- The LVVWD will not issue water commitments and/or refuse service to properties with evaporative cooling if their building permits did not adhere to the regional policy

27

**Path Forward**

| | |
|---|---|
| **Winter 2022/23:** | Work with member agency building departments to draft language |
| **Early 2023:** | Regulatory processes (stakeholder outreach, business impact statements, etc.) |
| **Spring 2023:** | Municipal ordinance approval processes |

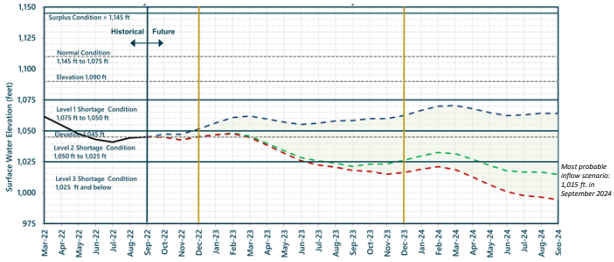
28

In concert with other conservation initiatives, this policy can help make Southern Nevada one of the most water efficient and resilient communities in the world.

29

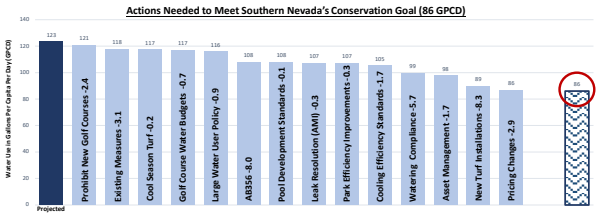
1

**The Bureau of Reclamation projects Lake Mead will fall another 20 feet in less than two years.**




2

**Approved last December, a new conservation goal will mitigate shortage conditions and meet future demands.**

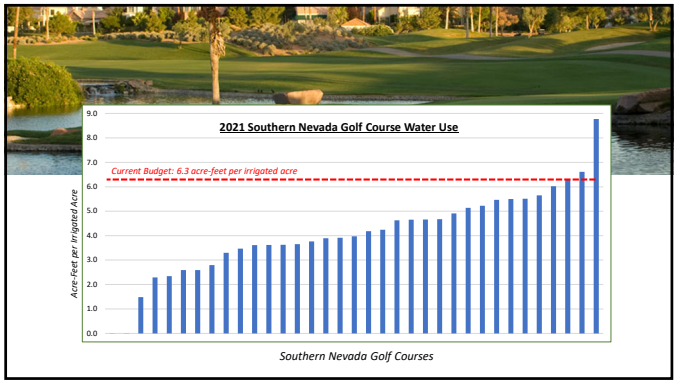



3

**One of the proposed conservation initiatives was reducing golf course water budgets.**

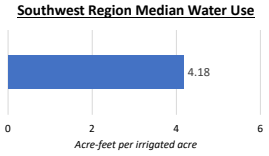
The current water budget has been in place since 2005; however, most courses today are much more efficient.

4




5

**The Golf Course Superintendents Association of America published their 2022 Golf Course Environmental Profile report.**

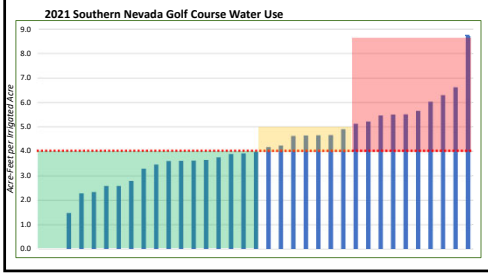



**Findings:**

The median water use among all Southwest golf courses was 4.18 acre-feet per irrigated acre.

6

**Reducing the water budget to 4.0 acre-feet per irrigated acre is estimated to save 2,591 acre-feet in 2035 (0.81 GPCD).**




**In 2021:**

- **18 courses under budget**
- **7 courses <5.0 AF/A**
- **10 courses >5.0 AF/A**

7

**Courses significantly range in terms of design and size.**

**Tracking water use per irrigated acre represents a way to equitably benchmark water use.**

| Golf Course | Agency | AF / Irrigated Acre |
|---|---|---|
| Silverstone | LVVWD | 0.00 |
| Badlands | LVVWD | 0.01 |
| Los Prados | LVVWD | 1.46 |
| Callaway | LVVWD | 2.28 |
| Spanish Trail | LVVWD | 2.34 |
| Shadow Creek | CNLV | 2.59 |
| Desert Pines | LVVWD | 2.59 |
| WILDHORSE | COH | 2.79 |
| Bear's Best | LVVWD | 3.29 |
| Revere | COH | 3.46 |
| Red Rock | LVVWD | 3.61 |
| Legacy | COH | 3.62 |
| Summit Ridge | LVVWD | 3.63 |
| Sierra Golf Club | LVVWD | 3.65 |
| Aliante | CNLV | 3.76 |
| Bali Hai | LVVWD | 3.89 |
| Rhodes Ranch | LVVWD | 3.91 |
| Del Webb - Highland Falls | LVVWD | 3.97 |
| Del Webb - Palm Valley | LVVWD | 4.18 |
| Durango Hills | LVVWD | 4.24 |
| Angel Park | LVVWD | 4.63 |
| TPC - Summerlin | LVVWD | 4.65 |
| Del Webb - Eagle Crest | LVVWD | 4.65 |
| Rio Secco | COH | 4.67 |
| TPC - Canyons | LVVWD | 4.94 |
| Southern Highlands | LVVWD | 5.13 |
| Canyon Gate | LVVWD | 5.22 |
| Anthem | COH | 5.47 |
| Boulder Creek | BC | 5.51 |
| Chimera | COH | 5.51 |
| Dragon Ridge | COH | 5.64 |
| North Las Vegas Municipal | CNLV | 6.09 |
| Desert Willow | COH | 6.36 |
| Boulder City Municipal | BC | 6.62 |
| Cascata | BC | 8.77 |

8

**In May, the SNWA Board approved a resolution in support of reducing the golf course water budget in 2023.**

| | |
|---|---|
| May 24: | SNWA staff presents at Southern Nevada Golf Course Superintendent Association annual meeting |
| July 28: | SNWA staff issues invitation for golf course briefing and pending BIS-related information |
| Aug 3: | LVVWD opens the Business Impact Statement public comment period |
| Aug. 10: | SNWA hosts golf course briefing (62 individuals attend) |
| Aug. 24: | BIS public comment period closes |
| Sept 6: | LVVWD Board considers Business Impact Statement, but voted to extend public comment period |
| Oct. 10: | Additional public comment period closed |

9

**The LVVWD received four letters from golf courses.**

Their letters were thoughtful and comprehensive but, for brevity, are summarized to the following main concerns:

- Reducing water use will negatively impact the design, quality, or aesthetics of the course.
- Reducing turf will lead to members/players opting for another course or region, loss of membership revenue, loss of greens fees, loss of private events, or other revenue losses.
- The costs required to make improvements would affect member dues or green fees.
- The basis of calculation for the water budget should consider conservation improvements made to date, water source, or be based on a percentage reduction.

10

**Rule implementation in January 2024 allows additional time for golf courses to make adjustments to their operations or facilities to meet the deadline.**

- Refrain from overseeding the golf course
- Maintain a healthy warm-season grass stand
- ★ Convert existing cool-season grass to a warm-season species
- ★ Line irrigation ponds and improve irrigation pond management (address line leaks, etc.)
- ★ Perform annual irrigation system checkups
- ★ Assess irrigation systems and upgrade/retrofit where appropriate
- ★ Reduce out-of-play turf areas
- ★ Replace driving range tee areas with artificial turf
- Replace driving range turf with combination of hardscape and targets
- Utilize best industry practices like aerification, soil cultivation, wetting agents, etc.
- Educate customers about the purpose of changes

11

**Next Steps**

| | |
|---|---|
| January 3, 2023: | LVVWD Board considers updates to the LVVWD Service Rules that would incorporate the proposed golf course water budget |
| January 1, 2024: | Golf course water budgets reduced to 4.0 acre-feet per irrigated acre, pending approval |
| | Courses that exceed the budget are subject to the following surcharges: |

| Percentage of Budget | 101% - 120% | 121% - 140% | More than 140% |
|---|---|---|---|
| Surcharges apply only to water use in excess of the budget | 2.0 times the highest non-potable rate | 5.0 times the highest non-potable rate | 9.0 times the highest non-potable rate |

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# LAS VEGAS VALLEY WATER DISTRICT
# BOARD OF DIRECTORS
# AGENDA ITEM

December 6, 2022

**Subject:**
General Manager Evaluation

**Petitioner:**
Marilyn K. Kirkpatrick, President, Board of Directors

**Recommendations:**
That the Board of Directors conduct a performance evaluation of the District's General Manager and, if appropriate, make a salary adjustment in accordance with the employment agreement.

**Fiscal Impact**:
Should the Board make an adjustment to the General Manager's compensation, funds for current year expenditures are available in the District's Operating Budget. Funds for future year expenditures will be budgeted accordingly.

**Background:**
John J. Entsminger has served as the District's General Manager since February of 2014. His current employment agreement, which was last amended on December 7, 2021, sets forth the terms and conditions of his employment, including provisions regarding salary and adjustments in pay.

At this time, the Board of Directors is being asked to conduct a performance evaluation of the District's General Manager and, if the Board deems it appropriate, adjust his salary as authorized in Mr. Entsminger's employment agreement.

This action is authorized by Sections 9(1) and 9.5 of the Las Vegas Valley Water District Act, Chapter 167, Statutes of Nevada 1947. The office of the General Counsel has reviewed and approved this item.

JJE:CNP:AMB:KH:mdb
Attachments: None

AGENDA ITEM # 2