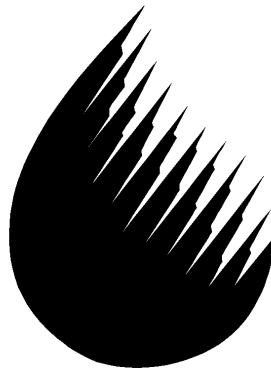


REPORT FROM THE
SOUTHERN NEVADA WATER AUTHORITY
YOUTH ADVISORY COUNCIL
TO THE
SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS

March 2004



SOUTHERN NEVADA
WATER AUTHORITY

INTRODUCTION

About the SNWA Youth Advisory Council

The Southern Nevada Water Authority (SNWA) has a strong history of commitment to public participation through citizen advisory committees and other venues. Because the youth of Southern Nevada represent the future, the SNWA Board of Directors felt it was essential that they be included in making decisions that will affect them in years to come. The inaugural SNWA Youth Advisory Council was formed in January 1999 at the request of the Board. The initial group of students reported to the Board in January 2000. Now in its fifth year, the Youth Advisory Council is one component of H₂O University, the SNWA's youth education program.

The goal of the Youth Advisory Council is to provide a forum in which the SNWA can receive structured and unstructured input from the youth of Clark County on issues of importance to the SNWA, and on water issues that the youth see as pertinent to this community. The objectives of the council are to include Southern Nevada youth as stakeholders in SNWA activities; gather ideas from a youthful perspective; receive input on current SNWA programs; strengthen the SNWA's relationship with the Clark County School District; and offer learning activities and leadership experience for Southern Nevada youth. The Youth Advisory Council is slated to report and bring recommendations to the SNWA Board of Directors annually.

To this end, the principals of every public and private high school in Southern Nevada are asked to appoint a representative to sit on the Youth Advisory Council for one year. Twenty-nine schools participated this year. The list of 2003-2004 Youth Advisory Council members and their high schools follows. They were selected by their school principals on the basis of involvement and leadership qualities, as well as interest in water or environmental issues. As in past years, Hilarie Hicks Robison, SNWA Management Services, coordinated and facilitated the council.

While the primary purpose in forming the Youth Advisory Council is to receive input from local youth, there is also a desire and need to provide background information and education about water issues to ensure youth input is of the highest possible quality. Therefore, the students begin their tenure on the Youth Advisory Council with a 20-hour educational course on local water issues. Through this process, students learn about water conservation, resources, quality, the history of water in Southern Nevada, and the Las Vegas Wash. They also tour applicable sites, including the Gardens at the Springs Preserve, Alfred Merritt Smith Water Treatment Facility, and Las Vegas Wash.

After successfully "graduating" from their water courses, the students are equipped with knowledge about the local water situation and the challenges that an arid desert community faces in providing high-quality water for its population. Following this experience, the students are ready to think about the issues and challenges associated with water and determine how to address them from their unique perspective.

From April 2003 to March 2004, the current Youth Advisory Council met at least monthly to decide its area of focus, develop a plan and carry out a project focused on local water issues. The meeting summaries are attached as Appendix 1. During these meetings, the students developed an innovative project idea and created a valuable community partnership to carry out their plans. The following report describes the project, related activities, and recommendations of the 2003-2004 SNWA Youth Advisory Council.

2003-2004 SNWA Youth Advisory Council Member List

<i>NAME</i>	<i>HIGH SCHOOL</i>
Brittney Evans	Advanced Technologies Academy
Ryan O'Hair	Area Technical Trade Center
Kathleen Martinez	Basic
Meilin Young	Bonanza
Stephanie Barth	Boulder City
Nia Carter	Community College High School-East
Amanda Vicente	Community College High School-South
Michelle Saxe	Community College High School-West
Crystina Gonzalez	Centennial
Darla Zarndt	Cheyenne
Makelle McBride	Cimarron-Memorial
Young Ran	Clark
Cambria Horton	Coronado
Elizabeth Muñoz	Desert Pines
Lacey Fabbi	Durango
Michelle Walsh	Eldorado
Jordan Hafen	Foothill
Courtney Futryk	Bishop Gorman
Jonathan Ebert	Green Valley
Christopher Wolfe	Las Vegas
Jaron Lukasiewicz	Las Vegas Academy
Tara Siefert	Meadows
Christina Johnson	Mojave
Bria Kadlub	Palo Verde
Darryl Alpiche	Rancho
James Jobin	Silverado
Sammy Flores	Vo-Tech
Violetta Taing	Valley
Sasha Johnson	Western

YOUTH ADVISORY COUNCIL REPORT

Problem Statement and Background

Throughout its water education experience, the 2003-2004 Youth Advisory Council met with various SNWA experts to learn about current water issues as well as the efforts SNWA is making to address them. After receiving a presentation from Conservation Manager Doug Bennett, the students became concerned about water conservation, particularly in light of the current drought situation.

One concept related to water use and conservation especially caught their attention: consumptive versus non-consumptive uses of water and their link to return flow credits in Lake Mead. They came to understand the terms this way:

Consumptive Use

Outdoor Water Use

- Water that is used and “lost forever” (example: watering the lawn)
- Any use of water that does **not** end in a drain (plus storm drain water)
- This water cannot be recovered
- This water evaporates and/or flows untreated into Lake Mead, so the community does not earn return flow credits for it
- 70-90% of residential water use is consumptive

Non-Consumptive Use

Indoor Water Use

- Any use of water that **does** end in a drain leading to the wastewater system (example: taking a shower), where it is treated to federal standards and returned to Lake Mead via the Las Vegas Wash
- Provides return flow credits: For every gallon of water the community returns to Lake Mead, Southern Nevada is allowed to withdraw that amount again, increasing the area’s allocation from the Colorado River by as much as 200,000 acre feet last year (the allocation without return flow credits is 300,000 acre feet per year)
- 10-30% of residential water use is non-consumptive

With this understanding of consumptive and non-consumptive water uses, it was clear to the Youth Advisory Council that reducing outdoor use is the key to water conservation. They learned that residents use most of the water in Southern Nevada (about 65 percent), and that the vast majority of residential water is used outdoors, with much wasted. The students also learned that SNWA has been successful in helping many homeowners convert their grass to desert landscape through the Water Smart Landscapes rebate program. Knowing this, the Youth Advisory Council decided to focus on new home developments—specifically, finding a way for homeowners to make water efficient

landscape choices in the beginning, so there is no need to convert later. In doing so, the students chose to address residential developers, builders and new home buyers.

Based on their concerns about outdoor water use and their desire to target the builder and new home buyer audience, the 2003-2004 Youth Advisory Council developed the following problem statement:

How can we inform new home buyers and developers about consumptive and non-consumptive water usage and the benefits of desert landscaping in Southern Nevada?

To address this problem statement, the students developed an innovative project idea. They created a concept for a “water smart” home. The idea was for a model home in a new residential community development to showcase water conservation through water smart landscaping and efficient indoor features. To actually carry out this idea, the Youth Advisory Council needed a partner.

Partnership with Pulte Homes

The Youth Advisory Council met with Pulte Homes and presented their idea for a water smart home. The students’ proposal for the home included the following general criteria:

- 1) Indoors: Water-efficient appliances and fixtures
- 2) Outdoors: Efficient landscape choices (students work with builder’s landscape architect on design)
 - Focus on desert landscape
 - Alternative turfs and/or subsurface irrigation where turf has specific purpose or use
- 3) Make indoor and outdoor water smart features available as options for buyers
- 4) Submeter landscape separate from indoor use
- 5) Signs or placards (created by the students) inside and outside the model indicating water smart features and explaining their functions
- 6) Youth Advisory Council students attend/participate in grand opening of the new community
- 7) Track costs of the water smart upgrades as well as their water and energy savings, projected into long term monetary savings

Pulte was enthusiastic in accepting the Youth Advisory Council’s proposal to build a water smart home. They agreed to all of the students’ criteria, then contributed ideas and resources to make the home even more water efficient, based on Pulte’s prior

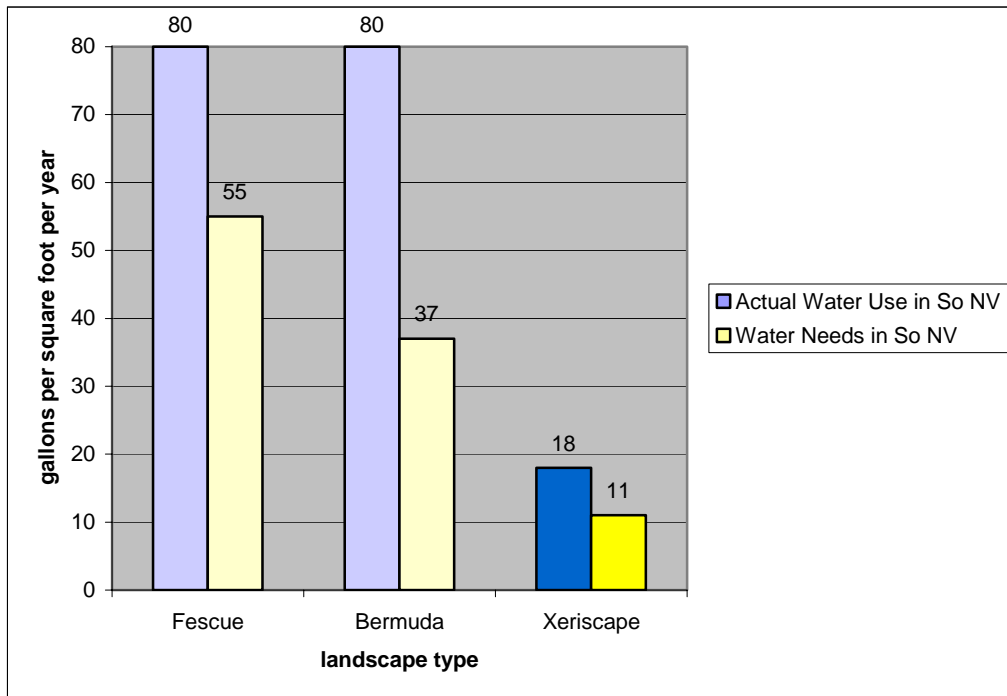
experience in promoting water conservation in several of their other communities, including removing over an acre of turf along the roadways in Anthem and installing artificial turf in the model homes at Solera and Anthem Highlands. The partnership has been mutually beneficial to both Pulte and the Youth Advisory Council, as a creative and collaborative relationship developed among the students and Pulte employees while they worked together to educate new home buyers about water consumption and conservation.

Pulte identified its new development, Escala in Summerlin, as an ideal location to build the water smart model home. The third of Escala’s three models was designated as the water smart home.

Water Smart Home Features

The Youth Advisory Council worked with Pulte staff to incorporate water smart features into Escala’s model home design. The home showcases water conservation through both outdoor and indoor features. Water smart choices like the desert landscaping and efficient indoor technology can result in water savings of approximately 115,000 gallons each year.

The students worked with Pulte’s landscape designer to develop a beautiful desert landscape. The water smart home landscape incorporates twenty-four different water efficient plants and trees showcased in the back and front yards; the water smart model does not have any turf. The other two Escala models feature small demonstration plots of fescue turf and Bermuda grass, as comparison sites for their relative water usage. A chart showing the average water use, as well as water needs, of three landscapes types (fescue, Bermuda, xeriscape/desert landscape) is shown below.



The above chart is posted in the yards of all three model homes to help visitors understand the water use of various landscape types. Students developed additional signs to explain the project, entice the public to visit the backyards, and to identify the specific desert plants in the landscape. These signs are posted in appropriate places outside the water smart home.

Inside the home, Pulte installed appliances and fixtures that showcase the latest in water efficient technology. Each feature is identified with an explanatory sign, including the information below.

Dual Flush Toilet

- ◆ Unique system with two buttons: Full Flush (1.6 gallons per flush) and Half Flush (.8 gallons per flush)
- ◆ Annual water savings: more than 17,000 gallons

Low Flow Showerhead

- ◆ Saves 3.5 gallons of water per minute compared with a regular showerhead.
- ◆ Volume control feature allows adjustment of the amount of water from a gentle stream to a full force. Temperature memory also saves water.
- ◆ Annual water savings: more than 50,000 gallons

Clothes Washer

- ◆ Requires 50% less energy than standard washers.
- ◆ Uses 18-25 gallons of water per load, compared to 40 gallons for a standard machine.
- ◆ Extracts more water from clothes during the spin cycle, thus saving energy by reducing drying time.
- ◆ Annual water savings: about 10,000 gallons

Infrared Faucet

- ◆ Motion-activated faucet with temperature control knob and automatic shut-off after 30 seconds.
- ◆ Saves as much as \$50 per year in utility costs.
- ◆ Improves sanitation and hygiene by breaking the contamination cycle caused by clean hands turning off dirty faucet knobs.
- ◆ Annual water savings: about 10,000 gallons

Foot Pedal Sink

- ◆ Keeps hands free while working in the kitchen, but can be used manually when needed.
- ◆ Improves sanitation and hygiene by breaking the contamination cycle caused by clean hands turning off dirty faucet knobs.
- ◆ Water is not left running steady, which creates water and energy savings.
- ◆ Annual water savings: approximately 10,000 gallons

Efficient Dishwasher

- ◆ Uses 25% less energy than the federal standard for energy consumption.
- ◆ Saves as much as \$30 per year in utility costs.
- ◆ Automatic dishwashers are more water-efficient than washing dishes by hand.

Hot Water Recirculation Pump

- ◆ Saves 2-3 gallons per use by providing hot water almost instantly.
- ◆ Annual water savings in the shower alone: more than 4,000 gallons

Activities and Events

Related to the water smart home project, the Youth Advisory Council participated in a number of activities and events, as described below.

Day with the Experts

The students decided to augment their project by participating in SNWA's annual Day with the Experts on October 11, 2003. At that event, they teamed with Pulte to provide an educational booth. Throughout the all-day event, the students interacted with the public to teach them about consumptive versus non-consumptive



water use and discuss the importance of reducing outdoor water use, as well as showcasing their plans for the water smart home. The Youth Advisory Council also prepared an informational flyer to distribute at the event (see Appendix 2).

Field Trip to Construction Site

On December 22, 2003, the Youth Advisory Council visited the water smart model home while it was still under construction. They learned about the building process from Pulte staff, toured the home to see the placement of the water-saving indoor features, and discussed the layout of the landscaping.



Landscaping at Water Smart Home

The Youth Advisory Council assisted with installation of the water smart home's landscape on February 7, 2004. The students started the day with a training session alongside Pulte sales staff, where they learned the details of the home's unique water-saving features. They then met with local horticulturist Linn Mills, who taught the group about the water-saving adaptations of the desert plants used in the landscape. He also showed them proper planting techniques, then the students set to work digging holes and

planting hundreds of water-efficient plants. This activity allowed the Youth Advisory Council to be involved in the full landscaping process, from design to installation, for the water smart model home.



Grand Opening Event

The water smart model home at Pulte's Escala neighborhood in Summerlin opened to the public with a gala event on February 28, 2004. Approximately 500 people attended the event and toured the water smart model. Youth Advisory Council students greeted visitors and, using the interpretive signage installed throughout the home and landscape, showcased the water-saving features of the home. The students were able to educate visitors and provided information to help them save water. A handout describing the home's indoor water-saving features, as well as identifying the desert plants used in the landscape, was distributed and will continually be available at the model home (see Appendix 3). This event marked the culmination of the water smart home project accomplished through the Youth Advisory Council's partnership with Pulte Homes.



Impact of Water Smart Home Project

The Youth Advisory Council believes the benefits and impacts of the water smart home project are far-reaching. Most obviously, the model home provides a visible example of conservation, currently estimated at a water savings of approximately 115,000 gallons each year. Over time, actual data on water savings will be available by monitoring the home's meters. This information will be especially helpful in separating indoor use from outdoor watering, as the landscape is sub-metered separately from the house.

By residents visiting the home itself, and/or learning about the project through the various events described above, the Youth Advisory Council has been able to inform the community about the importance of water conservation. Beyond that, residents who

actually purchase the water smart home package will contribute to Southern Nevada's water conservation goals and benefit from having water-saving options in their homes. For those visitors who do not purchase a new home, the water smart home also provides ideas, information and inspiration for homeowners to retrofit and make changes in their existing residences, thereby saving additional water.

The effects of the water smart home project are multiplied because of the partnership the Youth Advisory Council developed with Pulte Homes. Pulte Homes and the Youth Advisory Council, as well as the broader community, benefited from the partner project. Although Pulte was already taking action to be water-efficient in their new home communities, this partnership has solidified and magnified their commitment to water conservation, with multiple layers of staff and contractors involved in the project. Youth Advisory Council students had the opportunity to be active in their community, voice their ideas and make a positive contribution to the critical issue of water conservation in Southern Nevada.

Recommendations

Based on their experience in developing and implementing their water smart home project, the 2003-2004 SNWA Youth Advisory Council recommends that the Southern Nevada Water Authority implement a community-wide "Water Smart Home" or "Water Smart Neighborhood" program. This would extend the water smart home concept throughout the Southern Nevada community. The students recommend a water drop recognition symbol or logo be used to identify a water smart home, similar to the "Energy Star" concept. As with Energy Star, a water smart home program will need to be based on specific criteria, such as a percentage of water savings and/or the number of water efficient features. The Youth Advisory Council recommends that SNWA staff use their expertise to determine these criteria. The council also recommends that the program include incentives for builders to make their communities and homes eligible for the water smart designation. The program should have provisions to allow older homes to receive the designation so long as they are retrofitted (including fixtures, appliances and landscaping) to meet the water smart criteria.

Conclusion

In addition to the development and implementation of their water smart home and related activities, the students have reached a number of residents through informal interactions. They proudly shared their knowledge of, and enthusiasm for, water conservation with their families, friends, teachers, and neighbors. They became engaged in an issue and worked to help improve their community. While the impact in their own lives is significant, it also extends to all those with whom they interact. The students appreciate this opportunity to make a difference while learning and serving as part of the 2003-2004 Southern Nevada Water Authority Youth Advisory Council.

APPENDICES

Appendix 1: 2003-2004 Youth Advisory Council meeting summaries

Appendix 2: Day with the Experts Handout

Appendix 3: Water Smart Home Handout