Regional Water Quality Plan

2015 Accomplishments

In January 2009, the Las Vegas Valley Watershed Advisory Committee (LVVWAC) adopted a Regional Water Quality Plan to help meet its mission to:

Protect, preserve and enhance the quality and quantity of water resources in the Las Vegas Valley watershed and to sustain economic well-being and protect the environment for present and future generations.

In December 2012, the LVVWAC approved a Strategy Document that further defines its goals and summarizes actions needed to fulfill the Regional Water Quality Plan.

Each LVVWAC member agency has individual responsibilities that contribute to the management of the Las Vegas Valley watershed. Following is a summary of LVVWAC’s collaborative accomplishments for 2015.
GOAL ONE

Protect Lake Mead as a source of water for Southern Nevada and downstream users

The Las Vegas Valley accesses Nevada’s Colorado River allocation through existing facilities at Lake Mead. The Muddy River, Virgin River and the Las Vegas Wash also contribute inflows to Lake Mead. In 2015, LVWWAC member agencies monitored and responded to upstream inflows to Lake Mead through the following actions:

- Continued to utilize the 2012 Lake Mead Monitoring Plan and optimized resources by sharing staff and equipment to accomplish the goals of the Plan;
- Continued to implement the Las Vegas Wash Surface Water Quality Monitoring and Assessment Plan;
- Completed the Shallow Groundwater Study, a collaborative effort to better characterize the shallow groundwater in the Valley.
- Conducted water-quality sampling and analysis in Lake Mead, Las Vegas Wash, Muddy River, Virgin River, and Colorado River above Lake Mead and below Hoover Dam; and
- Leveraged the Lower Colorado River Water Quality Database — a database utilized by agencies in the lower Colorado River region to facilitate data sharing.

LVWWAC member agency accomplishments relative to managing non-point sources from the Las Vegas Valley include:

- Completed construction of the Three Kids Weir (19 permanent erosion control structures have been completed);
- Revegetated 26 acres along the Las Vegas Wash to armor the banks against erosion and limit sediment and contaminant movement downstream to Lake Mead;
- Supported ongoing conservation initiatives in the Las Vegas Valley;
- Obtained Nevada Division of Environmental Protection (NDEP) approval for two programs intended to address surface water quality impacts posed by new development and significant redevelopment (NDSR). Development of these programs satisfied a commitment of the Storm Water Management Plan (SWMP) adopted in 2012 as required by the 2010 National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit for the Las Vegas Valley. NDSR design requirements for 1) parking lots larger than one acre and; 2) water quality features in regional detention basins were codified in an amendment to the Hydrologic Criteria and Drainage Design Manual and thus added to the comprehensive suite of existing measures detailed in the SWMP. Modifications to the outlet structure for Angel Park North Detention Basin to install water quality features were completed in September 2014. Retrofits to add water quality features for Equestrian and Pioneer Detention Basins began construction in 2014 with anticipated completion in 2015;
- Continued the execution of the Construction and Industrial Site Storm Water Inspection Program to fulfill requirements of the SWMP;
- Completed all monitoring required for the MS4 Permit and NPDES Wastewater Discharge Permits, and reported results to the State of Nevada;
• Continued participation in NDEP’s Lake Mead Water Quality Forum and two of the forum’s sub-committees (Selenium Sub-Committee and the Lake Mead Ecosystem Monitoring Workgroup);
• Continued participation in the Las Vegas Wash Coordination Committee and sub-committees (Operations Study Team, Administrative Study Team, and Research and Environmental Monitoring Study Team);
• Continued wastewater pre-treatment programs to monitor and prevent contaminants and industrial wastes from entering the wastewater collection system; and
• Installed 36 pet waste disposal bag dispensers in communities throughout the Las Vegas valley to keep pet waste out of the Las Vegas Wash.

The Clark County Water Reclamation District (CCWRD) and the cities of Henderson, Las Vegas and North Las Vegas operate and maintain the community’s wastewater treatment facilities. These facilities discharge highly-treated reclaimed water to Lake Mead via the Las Vegas Wash. Additionally, many of these facilities provide reclaimed water for direct non-potable reuse at area parks, golf courses, and industries. LVWWAC member agencies managed, coordinated and optimized water reclamation facilities by:

• Obtained renewals of the National Pollutant Discharge Elimination System permits that allow and regulate the discharges from these facilities to the Wash;
• Reduced the number of Sanitary Sewer Overflows to below the EPA benchmark for well operated sanitary sewer systems of two overflows per year per 100 miles of sanitary sewer;
• Continued operation of state-of-the-art membrane bio-reactor treatment plant by the City of North Las Vegas and City of Henderson;
• Completed various rehabilitation and optimization efforts at numerous biological nutrient removal plants, which resulted in increased energy efficiency, improved biological phosphorus removal, reduced chemical utilization, and decreased sludge hauling costs;
• Began design of a reclaimed water line from the City of North Las Vegas WRF to the Nellis AFB golf course to provide reclaimed water for irrigation. Project is scheduled to go online in 2017;
• Fine-tuned operation of 30 MGD membrane-filtration/ozone-disinfection demonstration project at the CCWRD, and started collecting and analyzing conventional, trace organic and microorganism data on the effectiveness of the facilities;
• Began construction of Paradise Whitney Interceptor, a 54 to 72 inch diameter, 13 mile long, 150 MGD capacity sanitary sewer pipeline that will connect the southwest Valley to CCWRD’S Flamingo Water Resource Center (FWRC);
• Began construction of the 65 MGD capacity dual media filters to replace aging infrastructure at the FWRC;
• The Nitrification DeNitrification (NDN) conversion process was fine-tuned at the City of Las Vegas Water Pollution control Facility and performance testing and analysis was done to determine real life capacity and performance; and
• Participated in water and wastewater treatment optimization studies.
GOAL TWO

Meet or surpass federal, state and local standards and regulations

Key water quality laws and regulations, such as the Clean Water Act, the Safe Drinking Water Act and the Nevada Administrative Code are in place to safeguard local and regional water sources. While Southern Nevada’s water treatment facilities are capable of addressing many source water quality challenges, proactive management of the Las Vegas Valley watershed remains key to protecting the region’s overall water resources. To protect Lake Mead, the Las Vegas Wash and associated tributaries, LVWWAC member agencies:

- Continued year-round phosphorus removal at wastewater treatment facilities to meet the 334 pound-per-day Waste Load Allocation for total phosphorus surpassing permit requirements, which only require phosphorus removal between March 1 and October 31;
- Continued year-round ammonia removal;
- Developed and exceeded internal goals for minimizing Sanitary Sewer Overflows;
- Received results of the 2014 NDEP storm water NPDES audit. The Stormwater Quality Management Committee (SQMO) is working to address audit findings by meeting a schedule of deliverables agreed upon with NDEP;
- Executed wet weather monitoring programs;
- Performed treatment studies that examined the removal of unregulated contaminants, such as endocrine-disrupting compounds in wastewater, which provided guidance on control strategies and the minimization of these contaminants in effluent discharges to the Las Vegas Wash and Lake Mead;
- The City of North Las Vegas continues to work with the Environmental Protection Agency to enhance its Industrial Pretreatment Program in accordance with an Administrative Order received in August 2015;
- The cities of Henderson and Las Vegas earned the National Association of Clean Water Agencies (NACWA) Platinum Peak Performance Award for years of consecutive 100 percent NPDES permit compliance. The City of Las Vegas achieved 17 consecutive years of compliance, and the City of Henderson reached 12 consecutive years of compliance; and
- CCWRD earned the NACWA Gold Peak Performance Award for 100 percent NPDES permit compliance at both the Laughlin and Flamingo Water Resource Centers. CCWRD also earned NACWA peak Performance Awards at the Desert Breeze Water Resource Center and the Indian Springs and Moapa Valley Treatment facilities.

Ensuring that Southern Nevada’s water meets or surpasses federal, state and local regulations is of key importance to LVWWAC member agencies. As such, LVWWAC is proud to report that:

- Southern Nevada’s drinking water quality continues to meet or surpass state and federal drinking-water regulations;
- Weekly monitoring of Lake Mead was conducted to determine the impacts of the inflows (Las Vegas Wash, Virgin River, Muddy River and Colorado River) on the Southern Nevada Water Authority (SNWA) intakes;
Quarterly endocrine disrupting compound monitoring was conducted in the Las Vegas Wash, Lake Mead and below Hoover Dam. The effluent of CCWRD was also sampled;

Lake Mead’s new intake was put into service in 2015. The new intake accesses better water quality; and

Began construction on a new low level pumping station near Lake Mead. The pumping station will work alongside Intake No. 3 to protect access to Nevada's Colorado River allocation.
GOAL THREE

Preserve and enhance the natural, cultural, historic and recreational values of the watershed and Lake Mead.

The Las Vegas Valley watershed includes the Lake Mead National Recreation Area and the Las Vegas Wash. These water sources and open lands present opportunities for recreation and support important environmental resources including wildlife and habitat. The following efforts were made by LVWWAC member agencies to provide for recreation and to manage wildlife and habitats:

- Continued the implementation of the Las Vegas Wash Wildlife Management Plan, including biweekly avian point counts and annual vegetation monitoring at 31 points along the channel;
- Surveyed for the federally endangered Southwestern Willow Flycatcher and Yuma Ridgway’s Rail, and the threatened Yellow-Billed Cuckoo at the Las Vegas Wash. Detected a Yuma Ridgway’s rail for the first time in nine years;
- Provided and managed recreational opportunities in the Clark County Wetlands Park and Henderson Bird Viewing Preserve that are compatible with native plants and wildlife;
- Continued general invertebrate inventory on the Las Vegas Wash, identifying more than 10 new species, and participated in the Southwest monarch Study;
- Documented continued defoliation by northern tamarisk beetle larvae;
- Planted native flowering plants to attract pollinators, including milkweed for monarch habitat near the Clark County Wetlands Park Nature Center;
- Engaged more than 10,000 youth and adult individuals in educational events and programs, including 4,000 children grades 1-5 through the Field Trip Program at the Wetlands Park; and
- Removed an estimated 13,000 pounds of trash and debris at the Wetlands Park; and

LVWWAC supports National Park Service missions to provide for the enjoyment of scenery, natural and historic objects and wildlife in a manner that will leave such resources unimpaired for future generations. LVWWAC member agencies made the following progress in minimizing impacts to cultural and historic values:

- Continued to implement the Programmatic Agreement for the Clark County Wetlands Park between the Bureau of Reclamation, Army Corps of Engineers, SNWA, Clark County, the Nevada State Historic Preservation Office and the Advisory Council on Historic Preservation to expedite the construction of erosion-control structures in the Las Vegas Wash;
- Continued to support the Cultural Resources Coordinating Committee;
- Minimized impacts to cultural and historical features by managing recreational activities at the Las Vegas Wash;
- Completed compliance process for upcoming weir construction projects; and
- Conducted a remote sensing project at the Larder site that identified possible pithouses.

LVWWAC member agencies also took the following measures to prevent and control invasive species:
- Removed more than 20 acres of tamarisk at the Las Vegas Wash;
- Continued to participate in meetings and symposiums regarding quagga mussels; and
- Continued to monitor and evaluate quagga mussel progression in Lake Mead.

LVWWAC actively worked to support recreational uses and the health of fisheries and other water-dependent wildlife by:

- Managed nutrient inputs from wastewater treatment plants to support a healthy fishery in Lake Mead;
- Monitored selenium concentrations in Las Vegas Wash and its tributaries to establish background concentrations and determine sources; and
- Ensured that wastewater quality met the water-quality standards as determined by NDEP for recreation.
GOAL FOUR

Sustain and coordinate water resources for future generations

All of LVWWAC’s member agencies addressed regional water quality planning and management efforts by working collectively and through participation in various regional committees and groups, such as the Las Vegas Wash Coordination Committee, the Lake Mead Water Quality Forum, the Lake Mead Ecosystem Monitoring Workgroup and the SQMC. In the year 2015, significant strides were made to improve the structural integrity of the Las Vegas Wash and prevent further erosion. Accomplishments include:

- Completed construction of the Three Kids Weir;
- Reestablished the crest and chute of Bostick Weir;
- Reconstructed damaged access tramps and a down drain;
- Established survey control for long-term maintenance of the Las Vegas Wash;
- Removed the sandbar from the Rainbow Gardens Weir impoundment; and
- Continued design Tropicana Weir, construction to begin in the 2016.

To optimize the use of limited water resources:

- Southern Nevada Regional Water Recycling Study recommendations were implemented;
- Henderson, Las Vegas, North Las Vegas and CCWRD reclaimed 100 percent of their highly treated reclaimed water effluent, either by returning it to Lake Mead or distributing it to golf courses, parks, industries, and other customers throughout the valley; and
- Reclaimed water was efficiently utilized at the Clark County Wetlands Park and Henderson Bird Viewing Preserve to support plant communities and wildlife habitats.

Water and wastewater treatment and delivery processes require significant energy resources, which link the need to conserve both water and energy and develop renewable energy resources. LVWWAC member agencies have undertaken a number of renewable energy projects that reduce dependence on non-renewable and less-efficient energy sources. Progress highlights include:

- Continued with the Fats, Oils and Grease pilot operation increasing the amount taken in and boosting gas production at the City of Las Vegas wastewater treatment plant. Improving the gas processing infrastructure with siloxane removal and new variable speed compressors. Replacing the old waste gas flares with new more efficient and cleaner burning flares;
- The City of Las Vegas has continued operation of the 3-megawatt solar power plant, which offsets a portion of the power used to treat wastewater at its main wastewater treatment facility and has almost finished design of the 2MW expansion of the solar plant;
- Completed the development of a solar photovoltaic test center at the SNWA’s River Mountains Water Treatment Facility (RM). Performed in conjunction with Sandia National Lab and UNLV, the test center is currently collecting data from a new Concentrating Solar PV technology and is
being expanded to accept additional technologies; and

- Leveraged opportunities to share wastewater treatment and transmission facilities between wastewater agencies to reduce energy expenditures.

Enhancements to Energy and Water Conservation Programs include:

- Expanded renewable energy resources when the SNWA completed the installation of a 14 MW solar facility installed at the RM site, where SNWA will utilize the power from the system to offset power that otherwise would be purchased from the grid. The new installation will mean that between SNWA and Las Vegas Valley Water District (LVVWD), 18 percent of its power requirements will be derived from renewable resources. The system has been operating since the end of 2015;

- Continued discussions on instituting an energy conservation project at the LVVWD campus. The project would incorporate energy-efficient devices and possibly include renewable energy systems that will reduce energy usage by up to 30 percent at the campus;

- Two vehicle charging stations are scheduled to be installed at the SNWA main office fleet parking. These additions will mean that SNWA/LVVWD will have vehicle charging facilities at five locations; and

- Enforced policies aimed to reduce water use such as turf limits, fountain and water feature restrictions, mist system restrictions, golf course water budgets, landscape codes, vehicle washing restrictions, and surface, building, and equipment washing restrictions.
Manage flood risks

Despite an average rainfall of only four inches per year, the region often experiences periods of intense rainfall and subsequent flash flood events. This year, LVWWAC’s member agencies took the following measures to minimize the loss of life and property:

- Continued implementation of the Master Plan of Flood Control Facilities;
- Completed eight flood control projects, such as Vegas Drive Storm Drain, Rancho to Shadow Mountain; Angel Park North Detention Basin Expansion; Tropicana Wash, Flamingo Road to Palo Alto and Grand Teton Storm Drain, Hualapai to Tee Pee Lane;
- Funded 11 projects for construction;
- Continued work on the design of channel improvements for the Las Vegas Wash to protect their main reclamation facility at the east end of Flamingo Road. The CCWRD selected a contractor and construction is scheduled to begin in 2015;
- Continued construction on the Las Vegas Wash project through the Desert Rose Golf Course. The project’s flood control elements are complete and the reconstruction of the golf course is ongoing, with an expected completion date in early 2015; and
- Continued extensive public outreach efforts, including school presentations, neighborhood meetings, community events and supplying materials for events held by community partners. A total of 48 schools were visited in 2014. Approximately 6,550 students received flash flood and storm water quality information. Public outreach also included three neighborhood meetings attended by about 350 people and two larger community events. Additional public outreach was conducted via media during the Clark County Regional Flood Control District’s annual Flash Flood Awareness press conference.
GOAL SIX

Build community awareness and support for regional watershed management

Understanding that the public has a direct impact on the overall quality of the Las Vegas Valley's watershed, LVWWAC engaged the community to enhance awareness and support of regional watershed management. In 2015, LVWWAC's member agencies contributed to presenting a unified public education program. Initiatives included:

- Implemented education and outreach grants from NDEP on non-point source pollution entering the Las Vegas Wash and Lake Mead;
- Continued to offer and conduct personal and self-guided interpretive and educational programs at the Wetlands Park. Through these programs, more than 750 community members engaged in active, hands-on stewardship; more than 220 Wetlands Walker Program participants tracked their walking mileage; more than 2,200 Clark County School District students enjoyed an outdoor learning experience; and more than 1,000 families participated in environmental education;
- Promoted flood safety through “Flash Flood Awareness Month” with the Clark County Board of Directors classroom presentations; a Flood Safety Awareness campaign (a combination of billboards, radio, television, and print media); a license plate billboard contest; a new public service announcement for television; a new smartphone application called FloodSpot that allows users to get weather updates, see flood reports, share flood photos and learn about floods and insurance; and the production of the Flood Channel (a 30-minute informational television program);
- Hosted Clark County Water quality Planning’s “Only Rain in the Storm Drain” at the Wetlands Park. The Exhibit Hall hosted over 27,000 visitors in 2015;
- Continued public outreach efforts such as classroom presentations, attendance at neighborhood meetings, staffing of tables at community events such as Night Out Against Crime and supplying materials for events held by community partners. A total of 68 schools were visited in 2015. Approximately 2900 students received flash flood and storm water quality information. Public outreach also included storm water literature at various locations throughout the Las Vegas valley as well as 20 storm water training sessions attended by approximately 588 people, and 8 outreach events attended by approximately 1665 people;
- Provided tours to 190 individuals at the City of Henderson’s Water Reclamation Facility and Southwest Water Reclamation Facility;
- The City of Las Vegas Environmental Compliance section participated in several public outreach activities. These included Green Fest in Downtown Summerlin, the Shark Reef Party for the Planet celebrating Earth Day, the Trunk or Treat Halloween Festival and Care Show and Cowboy Christmas at Floyd Lamb state park;
- Facilitated field trips for local schools to educate students about the water cycle in Las Vegas and Henderson; held two Green-Ups and a World Wetlands Day event at the Las Vegas Wash; led tours and participated in community outreach, hosting or attending 21 outreach events throughout the year with a total participation of more than 2000 people. The Green-Ups and field trips with students from Mabel Hoggard were funded in part through a non-point source pollution grant from NDEP;
Continued the public website, www.lvwash.org and a Facebook page for the Las Vegas Wash project and distributed a monthly newsletter to keep the public informed of project progress;

Continued the “Medicine Disposal Program,” which emphasizes the proper methods to dispose of unused medications by placing disposal boxes in all law enforcement agencies in Southern Nevada;

Updated with the Springs Preserve to provide “Pain in The Drain” education to visitors throughout 2015;

Partnered with the Springs Preserve for the “Holiday Cooking Oil” recycling campaign at the Preserve during the 2014 holiday season;

Attended numerous outreach events including Clark County Commissioner town hall meetings and Fire Department open houses to promote public education and awareness on “Pain in the Drain” and the medicine disposal initiative; and

Conducted the annual Clark County Water Reclamation District “Open House” at the Flamingo Water Reclamation Center to educate the public on wastewater collection and treatment and the “Pain in the Drain” campaign.

LVWWAC integrated existing stakeholder programs to specifically address watershed issues:

All agencies promoted water conservation and water resource management through the “Be Water Smart” and “Pain in the Drain” programs;

A special web page on the SNWA website provided enhanced accessibility to LVWWAC information (http://www.snwa.com/wq/watershed_lvwwac.html). This page carries all LVWWAC reports and presentations, as well as posted agendas and meeting minutes;

The continued linking of the Lower Colorado River Water Quality Database to the LVWWAC website provided a mechanism to access the water-quality data collected in the Las Vegas Valley; and

Presentations and updates on LVWWAC activities were given to the Las Vegas Wash Coordination Committee and the Lake Mead Water Quality Forum.

Students participating in International Migratory Bird Day