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## Durango Hills Water Resource Center

City of Las Vegas, Nevada

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The City of Las Vegas and the Las Vegas Valley Water District partnered to develop the Durango Hills Water Resource Center.

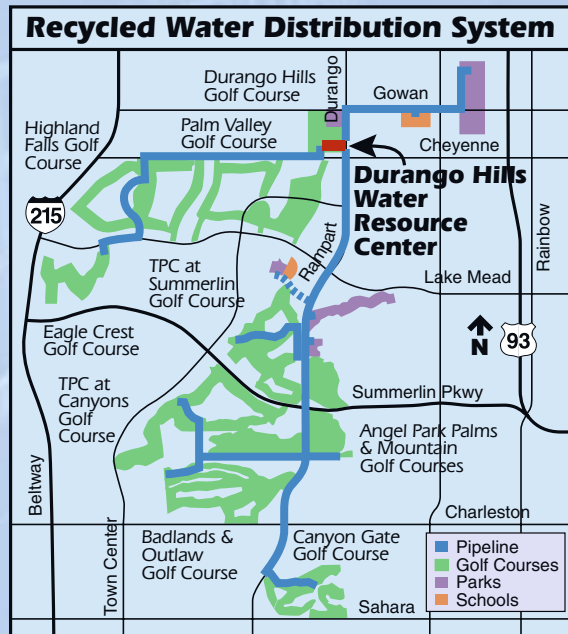
The \$37 million Durango Hills Water Resource Center is one of the biggest public works projects ever undertaken by the City of Las Vegas.

The Durango Hills Water Resource Center is built on 100 acres of City-owned property between Gowan Road and Cheyenne Avenue.

The 13-acre facility is surrounded by 87 acres of recreational amenities.

Groundbreaking ceremonies to start construction of the Durango Hills Water Resource Center were held March 3, 1999.

Approximately 125,000 cubic yards were excavated and 16,000 cubic yards of concrete were used in the construction.



The Durango Hills Water Resource Center officially started service July 6, 2001.

The City of Las Vegas owns and operates the Durango Hills Water Resource Center which can ultimately produce up to 10 million gallons of recycled water a day. That's enough water to fill 1,000 residential swimming pools a day.

The Las Vegas Valley Water District constructed and operates the recycled water distribution system which is comprised

of one main pump station, a storage reservoir, some 17 miles of pipelines, two remote booster pumping stations, and four recharge wells.

The Durango Hills Water Resource Center project included construction of a wastewater treatment and recycled water delivery system, pumping stations, treatment and filtration systems, pipelines and underground reservoirs.

Residual solids are returned to the sewer system for treatment approximately 18 miles away, at the City of Las Vegas Water Pollution Control Facility located at 6005 East Vegas Valley Drive.

The Durango Hills Water Resource Center's desert landscaping and southwestern-style architecture make a complementary addition to the community.

Delivering on the commitment to be a good community neighbor, all treatment processes in place today were specifically designed to be either underground or under cover, virtually eliminating the noise and odors typically associated with wastewater treatment facilities.

### City of Las Vegas Durango Hills Water Resource Center

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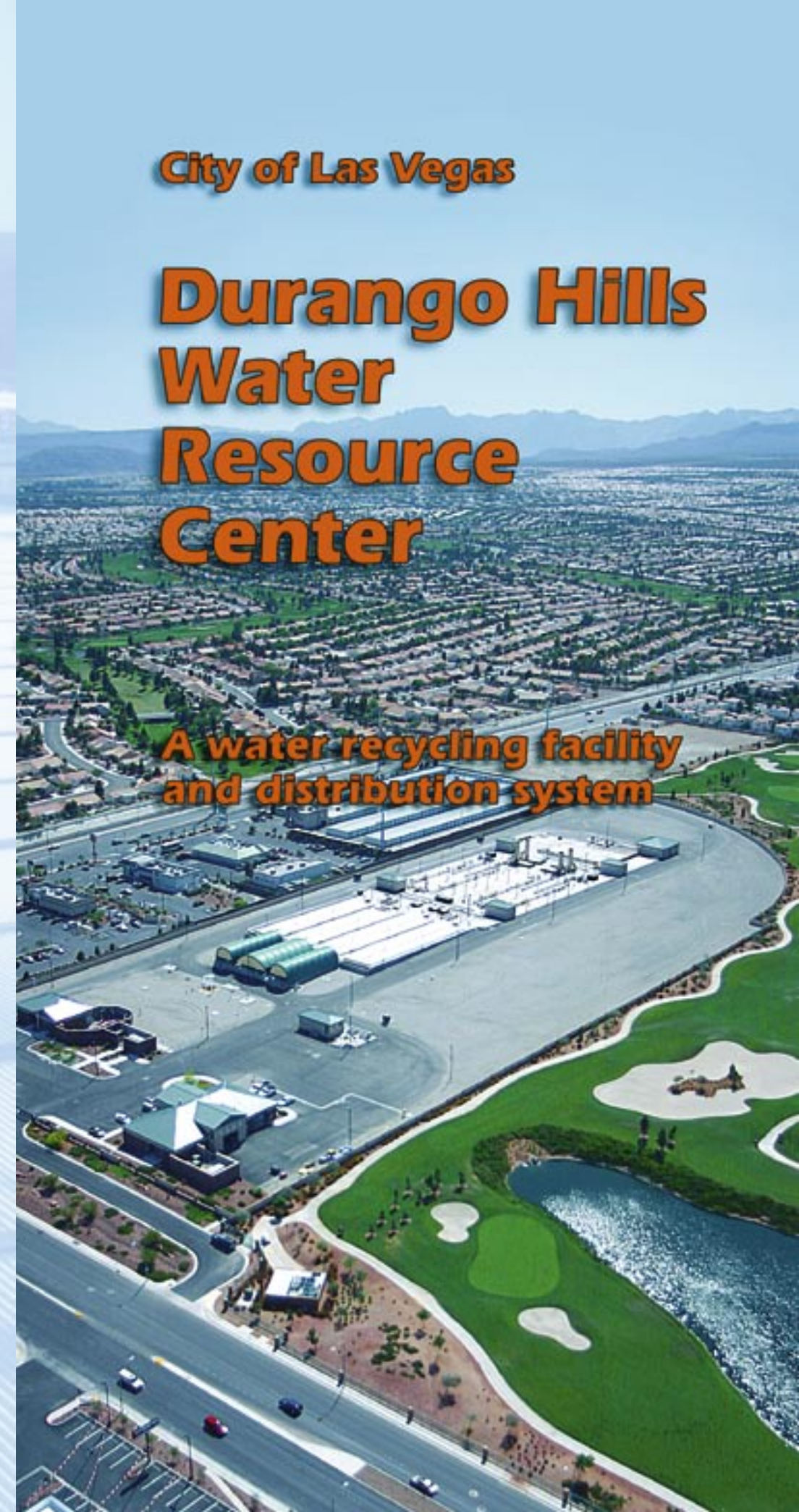


A City of Las Vegas Department of Public Works Publication

City of Las Vegas

# Durango Hills Water Resource Center

A water recycling facility  
and distribution system



# Charting our course to preserve tomorrow's precious water resources through water recycling today . . .

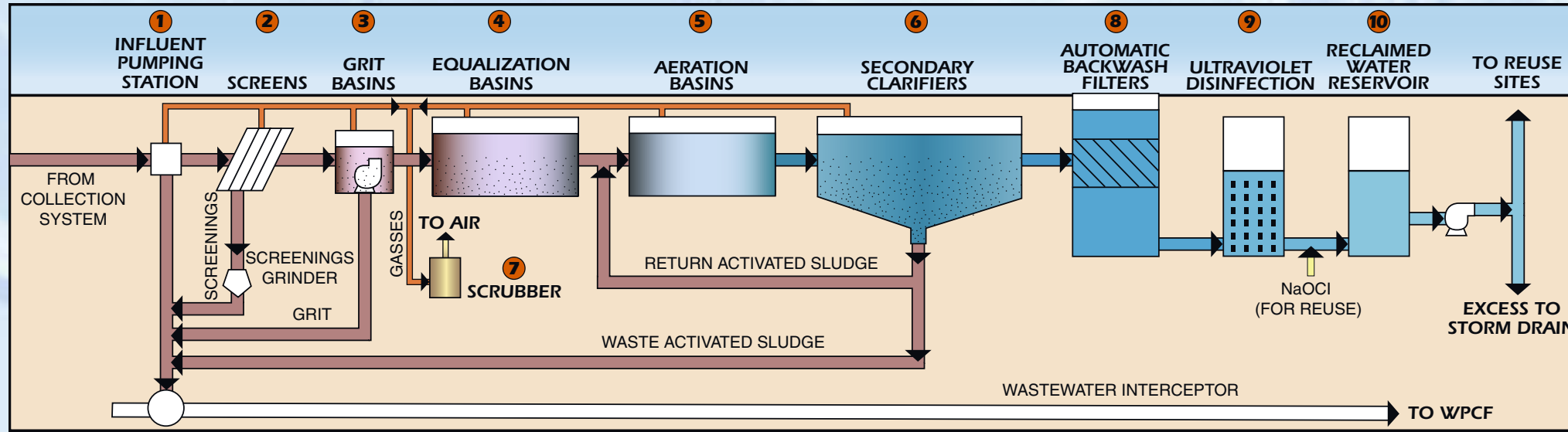
The Durango Hills Water Resource Center collects and treats wastewater flow from municipal sewer interceptors and produces recycled water, treated to specific water quality standards so it can be safely used for irrigation purposes.

Recycled non-drinking water produced at the Water Resource Center is used on large turf areas such as golf courses and parks helping to eliminate the practice of using drinking water for these purposes.

Every gallon of water that is treated and reused on golf

courses and other public areas means one less gallon of water is discharged into the Las Vegas Wash at Lake Mead. That is also one less gallon of drinking water that has to be pumped across the valley from the Las Vegas Valley Water District's treatment plant.

The Durango Hills Water Resource Center and distribution system helps reduce summer demands on the City of Las Vegas' main wastewater treatment system and the Las Vegas Valley Water District's potable water system.



## 1 Influent Pumping Station

Three wastewater collection system pipes converge here. Wastewater comes from the area bordered on the east by Durango/Rampart, the north by Alexander, the south by Alta and west to city limits. From the Influent Pumping Station, 100 horsepower pumps start the water through the treatment process.



## 2 Screens

The plant process starts with the screening facility. Rags, toy parts, miscellaneous trash and other large items are removed when incoming wastewater or influent goes through one of two grids. The screened items are put back into the collection system.



## 3 Grit Basins

Here the heavier inorganic solids such as stones, sand, and grit, are removed to prevent damage to pumps and other equipment. The basins slow the water and use centrifugal force for separation. These solids are returned to the Water Pollution Control Facility (WPCF) for further processing.



## 4 Equalization Basins

As the flow into the plant varies depending on time of day, these basins hold the wastewater, so it can be drawn out at a steady flow rate through the rest of the treatment process.



## 5 Aeration Basins

Wastewater is treated by a biological process called "activated sludge." Activated sludge uses microorganisms to remove ammonia and organic particulate matter from the water. The microorganisms are supplied with air, and their population is regulated to assure proper treatment.



## 6 Secondary Clarifiers

Clarifiers slow the water flow, allowing the activated sludge to settle to the bottom. Pumps then return the proper amount of organisms back to the aeration basins to treat more water. The clarified water goes on through the process for further treatment.



## 7 Odor Control

Four packed-bed scrubbers take air from the treatment process and chemically remove hydrogen sulfide and other odor producing agents. Two scrubbers are in operation at all times with two additional scrubbers available as backup if needed.



## 8 Automatic Backwash Filters

These filters remove most of the remaining particles from the water. Their unique design allows them to backwash using smaller pumps and without being removed from service, saving construction and energy costs.



## 9 Ultraviolet Disinfection

This final treatment uses high power ultraviolet light to remove harmful microorganisms. This disinfected water is then delivered to the reclaimed water reservoir for distribution.



## 10 Reclaimed Water Reservoir

The 2.0 million gallon reservoir holds highly treated effluent until ready for use. The Las Vegas Valley Water District controls pumps on this site and two other booster stations to provide water for parks and golf courses through their distribution system.

