

Vegas Water Wars

Growth's all well and good, but where's the water going to come from? "It's a real boom down there, but there's a lot more land in Nevada than there is water coming out of the Colorado," says Scott Balcomb, Colorado's representative to

[Glen Martin](#)

Sunday, July 17, 2005

No-limit poker isn't simply the defining prestige game for Las Vegas, it's also a metaphor for the physical structure of the city. For all practical purposes, Las Vegas has no geographic impediments to expansion. It doesn't have an ocean to run into, or a towering cordillera to abut: just the vast and sere desert on all sides, much of it flat and friendly to sprawling tracts.



[Printable Version](#)

[Email This Article](#)

All this elbow room has combined with an explosive economy to create growth that is positively fungoid in character.

Greater Las Vegas now has a population of 1.7 million, with about 80,000 new residents added annually. It far outstrips any other U.S. city in employment growth, generating 76,000 new jobs last year alone. Gridlock now grips Interstate 15 next to the Strip for much of the day -- and night.

By any measure, the construction is manic. Entire townships of new home and mall developments are lapping outward from the city core into the heat-blasted Mohave. It isn't gambling so much as construction that drives Vegas. You see a lot more pickups with racks than limousines, convertibles and pimpmobiles.

If the American dream can be summed up in a single word -- more -- Vegas is America's dream city. It is a city wholly about more: more money, booze, rich food, zipless sex, theme hotels and housing tracts. But sooner or later, Vegas is going to wake up from the dream of more in a cold, gray dawn, and it's going to have a screaming hangover and reach for a glass of water. And then it will find, as we all must, that you can only have more to a point. In the end, you can't have it all.

Because the water won't be there. Vegas may be hoping to supplant Chicago as America's second city, but Chicago has something Vegas doesn't have: Lake Michigan. All Vegas has is the Colorado River.

And fulfilling the great, resonant, never ending dream of more is simply too great a burden to place on this exiguous desert stream.

Vegas gets 90 percent of its water from the Colorado and its tributaries and 10 percent from groundwater. The critical legal document where the city's primary water source is concerned is the Colorado River Compact of 1922. In basic terms, the compact limits "lower basin" stakeholders -- Nevada, California, Arizona -- to 7.5 million acre-feet of water each year, plus the rights to divert another 1 million acre feet from the river's lower tributaries.

An acre-foot is 1 acre of surface area covered by a foot of water, or about 326,000 gallons. A single acre-foot will provide water for two households per year.

The "upper basin" stakeholders -- Colorado, Utah, Wyoming and New Mexico -- also share 7.5 million acre-feet each year. Additionally, under a treaty signed in 1944, Mexico is guaranteed a minimum of 1.5 million acre-feet of Colorado River water a year.

Las Vegas' share of lower basin Colorado River water amounts to about 300, 000 acre-feet a year. That's it. The compact and the Mexican treaty allow virtually no wiggle room.

"Is Las Vegas' rate of growth sustainable? No," said Scott Balcomb, Colorado's representative to the Upper Colorado River Commission. The commission's purview is safeguarding the interests of upper basin stakeholders; that clearly involves confronting Las Vegas' growing thirst, and Balcomb seems content with his role as enforcer for Colorado's water interests.

"At some point, they're going to reach their limits," Balcomb said. "We've been in a prolonged drought in this part of the country, and I see that as a warning of tougher times coming. Sooner or later, the demand and supply curves are gonna cross. It can't be avoided. It's a real boom down there, but there's a lot more land in Nevada than there is water coming out of the Colorado."

Still, southern Nevada is in some ways first among its peers along the Colorado River. That's because its rights are considered senior to the rights of the upper basin states. The river is backed up by two major reservoirs, Lake Powell in the upper basin, and Lake Mead, buttressed by Boulder Dam, on the lower basin, a few miles southeast of Vegas.

It might seem logical that Lake Powell would be the designated reservoir for upper basin stakeholders, while Lake Mead would serve the lower basin. That's not the case.

Lake Powell is basically a surety for Lake Mead, a holding basin. Upper Basin stakeholders get their water directly from the river and its tributaries, not Lake Powell.

"The upper basin can insist some things happen a certain way, and they can't be forced to give more than the 7.5 million acre-feet," said Craig Bell, the executive director of the Western States Water Council.

"But they must deliver that 7.5 million acre-feet," said Bell, "No matter what their own situation is. That's the bottom line."

That gives Las Vegas a level of security in good times and bad. Barring the Colorado drying up completely, the city should always be able to squeeze out its authorized 300,000 acre-feet a year.

And it can't be denied that city officials are trying to make their water stretch as far as possible. A lawn is hard thing to find in Las Vegas these days, thanks to the city's turf-reduction program. About 52 million square feet of grass has been removed from homes, golf courses and office-building complexes over the past five years, replaced with drought-tolerant landscaping. That amounts to an annual water savings of 2.8 billion gallons a year.

Vegas has about 50 golf courses, and most are enrolled in the program to one degree or another. At the forefront is Siena Golf Club, a relatively recent development that has converted 35 of its 175 acres of course greens to "native desert palette" plantings. Another 30 acres have been flagged for conversion, course superintendent Steve Swanson said.

Swanson said water savings run as high as 80 percent in areas planted to indigenous plants and that complaints from golfers have been few.

"Occasionally, they snub a shot, but mostly they get on the fairway," he said. "They understand the necessity of what we're doing."

But turf reduction on existing fairways may be the back story for water conservation in Vegas' golf industry. More significant, said Swanson, is a decision by county commissioners to limit all new courses to 45 acres of grass.

"There's no way you can plan a new course with only 45 acres of turf," said Swanson. "It's basically a de facto moratorium. I don't think there are going to be any new golf courses built here for a long time."

Still, turf reduction alone will not provide enough water to slake the thirst of the thousands of new residents who move to town monthly, to say nothing of the omnipresent tourist hordes. More water is needed. And nobody understands that better than Patricia Mulroy, the general manager of the Southern Nevada Water Authority.

Mulroy looks like she would be more comfortable astride a cutting horse than behind a desk at the authority's headquarters, located in a featureless strip mall on Valley View Boulevard. In her middle years, she has the clear, untroubled gaze, lazy smile and slow, precise way of talking you somehow associate with people from the deep interior West.

On Mulroy's office wall is a large, four-color map of the Colorado River basin and adjoining states. The vast terrain depicted by the map looks beyond arid, skewing toward scorched. This is not inaccurate. From her desk, all Mulroy has to do is cock her head to fully engage the challenges -- and limitations -- of her job.

"It is what it is," she said, cradling a coffee cup and leaning back in her chair to contemplate the map. "You work with what you have."

Mulroy's central problem is that the crafters of the 1922 Colorado River Compact were thinking in terms of agriculture, not urbanization, when they determined the water allotments.

"Nobody foresaw these huge cities," Mulroy said. "The regional realities today are very different than they were 85 years ago. There are now 26 million people in the lower basin. The Wasatch Front is exploding. Las Vegas is growing rapidly, but so is Denver and St. George. It's a mass movement of humanity, all heading west."

Still, the compact is locked in. Any new water Las Vegas obtains, Mulroy acknowledges, cannot be arrogated directly from the Colorado. It must be bought from other river compact partners or obtained from other sources.

"Flexibility has to be the keyword," she said. "Our water supplies are limited. At the same time, we're not going to make people go away. So we need regional, pragmatic solutions that are not zero sum."

Mulroy admires an agreement forged between Sacramento Valley rice growers and the Metropolitan Water District of Southern California.

"You basically have Met [Metropolitan Water District] buying water options from the farmers," she said. "The district gets the water during times of need, but the farmers fully retain their water rights. When the water shortages are over, they farm again. Everyone wins."

Nevada, spurred by Las Vegas, has begun moving in a similar direction. Late last year, Arizona agreed to bank 1.2 million acre-feet of water for Nevada through 2060 in exchange for \$330 million. That's expensive for government-project water, which can sell for \$50 or less an acre-foot in the West. But price isn't really the issue; if there's one thing Vegas has, after all, it's cash.

The city is also looking toward areas in central and eastern Nevada that might have aquifers to tap. "We would recharge the aquifers during wet years," Mulroy said. "I think that could become one of our basic tools: Store when wet, use when dry."

The pipeline could cost up to \$2 billion -- chicken feed for a desperately thirsty town wallowing in lucre. But the city's explorations in the hinterlands have made ranchers nervous, not just in Nevada, but also in the border regions of Utah. Aquifers, after all, don't acknowledge state lines. Suck up a lot of subterranean water near Baker, Nev., for example, and Farmer Jones in Garrison, Utah, may find his pump sucking air when it's time to irrigate the alfalfa.

"People around there are pretty upset," said Larry Anderson, director of the Utah Division of Water Resources. "They're worried they could be run over by the Southern Nevada Water Authority. Utah won't let that happen. Any agreement will have to be signed by our state engineer. Southern Nevada has assured us they will mitigate any impacts, so it's possible they may be able to take a little water. Ultimately, though, their options for alternative sources are limited."

Right now, Colorado River stakeholders are striving mightily to put a we're-all-in-this-together spin on things. But one Western adage remains as true today as it did in 1880: Whiskey is for drinkin' and water is for fightin' over. Despite the constrained politesse, the whiff of legal violence always hangs heavy in the air in any discussion of who gets Colorado River water -- and how much.

"We are not planning any lawsuits," Balcomb said. "On the other hand, lower basin contractors currently are taking more than the 1 million acre-feet from the lower tributaries allotted them under the compact. According to the compact, anything above (the 1 million acre feet) must be delivered to Mexico as surplus water. Pat (and other lower basin stakeholders) think those obligations should be met from the upper basin. So a legal case is not impossible."

Tracy Bower, a spokeswoman for the Southern Nevada Water Authority, said her agency has plans to draw from the tributaries in the future but currently is not taking any water from them.

Las Vegas could delay or even avoid the day its growth and water supply curves intersect if it radically changed the way it develops.

"The Southern Nevada Water Authority is a water-providing agency, so it will do whatever it has to do to obtain water. That is its mission," said Lambis Papelis, an associate with the Desert Research Institute in Las Vegas.

"Whether they can provide water sustainably is another matter," Papelis said. "If you add 1 to 2 million people in the short term and they all buy houses with landscaping, maybe even a little lawn, well, that is a tenuous situation. I don't think the authority can guarantee that water."

On the other hand, said Papelis, Las Vegas could grow extravagantly if it "Manhattanized," growing up instead of out.

"Residential high-rises can be designed so virtually all the water is recycled," he said. "Conceivably, you could have 5 million people living in the city without increasing the water burden."

Las Vegas' ebullient mayor, Oscar B. Goodman, already has proclaimed that Manhattanization is under way and that he has no concerns over future water supplies. Indeed, the Strip is as heavily urbanized as 5th Avenue in New York City, albeit with far wackier architecture.

But get beyond the Strip, and the model is Los Angeles, not New York, and it's probably going to stay that way. The people moving to Vegas aren't coming to live in biodomes. By and large, they are not hard-core urbanites of the Eastern stripe. Most want to drive big cars, not take taxis. They want the detached home, with a chunk of Mohave ratland in the back where they can grow a few tomatoes or maybe even a postage-stamp lawn along with the ocotillos and barrel cacti. And all those postage stamps add up to a heap of water.

"As things stand now," said Papelis, "I don't think they can look past 2010 without additional resources."

You have to be a chuckle-headed optimist, then, to think Las Vegas isn't going to hit a very dry wall. Now matter how you parse the numbers, they don't add up. You can't play ball with the desert and think you're going to come out on top; the desert bats last.

To really get a sense of Vegas' dilemma, drive 25 miles southeast to Boulder Dam by way of Highway 147. Before dropping down to the dam -- certainly one of the most elegant structures ever built -- you get an excellent vantage of Lake Mead.

In the desert air, the lake is sapphire blue and serene. It is very large, but that's not the same thing as immense. The surrounding, implacably dry desert, on the other hand, is truly immense. It's like Balcomb said: "There's a lot more land in Nevada than there is water in the Colorado." And that's not going to change for at least the next hundred millennia -- no matter how heated and frenzied Vegas' ambitions get.

E-mail Glen Martin at glenmartin@sfchronicle.com.