Wastewater Reclamation & Return Flow Credits

John S. Ridilla, P.E.
Deputy City Attorney
City of Las Vegas, NV

International Municipal Lawyers Association
Advancing Excellence in the practice of Local Government Law

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Wastewater Reclamation

- ✓ How humans have disposed of wastewater is a fundamental part of the desire to stay healthy, happy and live in a clean environment.
- ✓ Historically, wastewater has been reused for agricultural purposes.
- ✓ Septic systems and drain fields recharge groundwater aquifers (especially shallow water table areas).
- ✓ Increased demand on water supply systems and drought require consideration of how wastewater can be reclaimed for reuse.

The Colorado River

- ✓ The Law of the River
  - ➢ Group of compacts, federal law, court decisions and decrees, contract and regulatory guidelines.
  - ➢ Colorado River Compact of 1922. Cornerstone of the Law of the River negotiated between the upper and lower basis states and the Federal government.

Colorado River Basin



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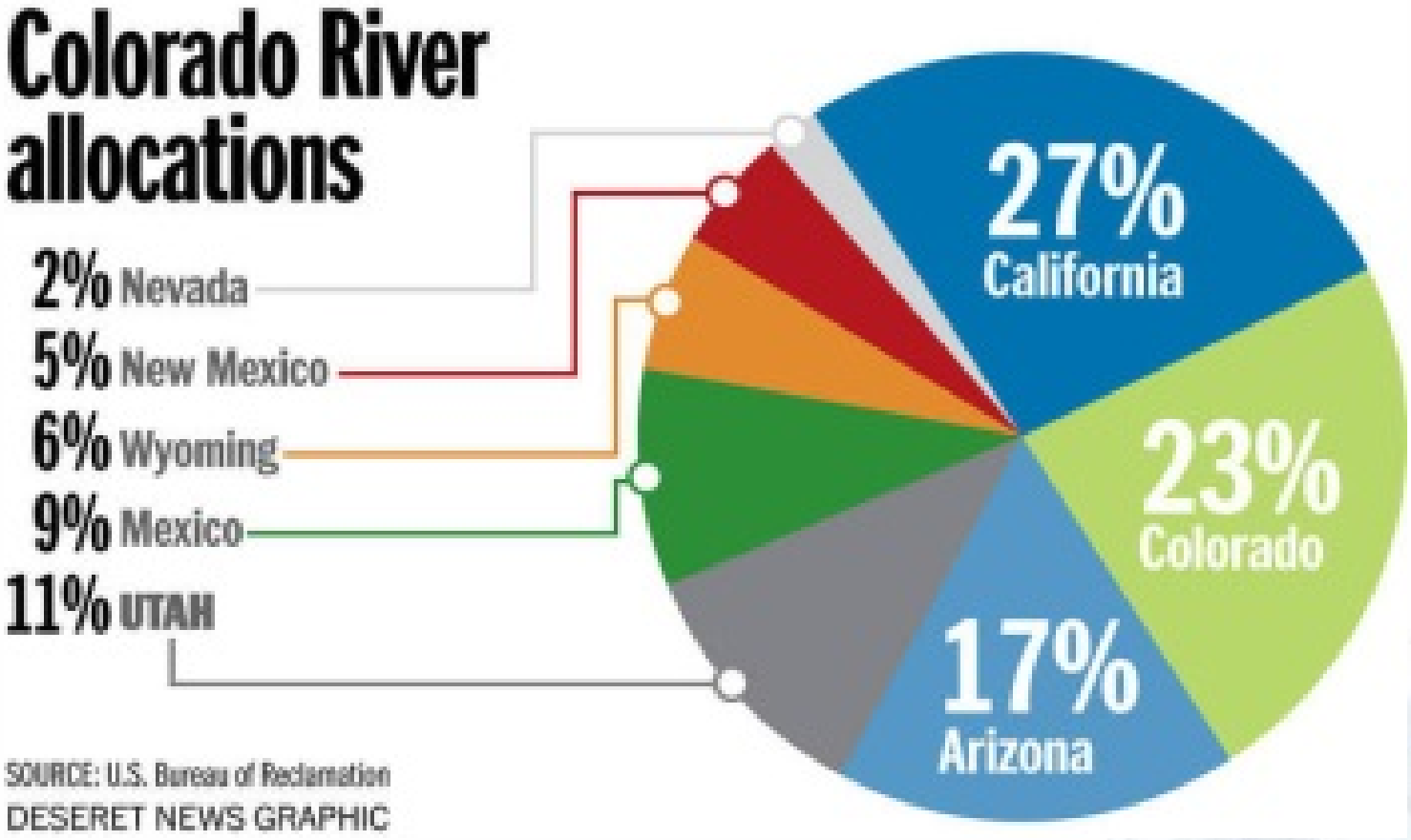
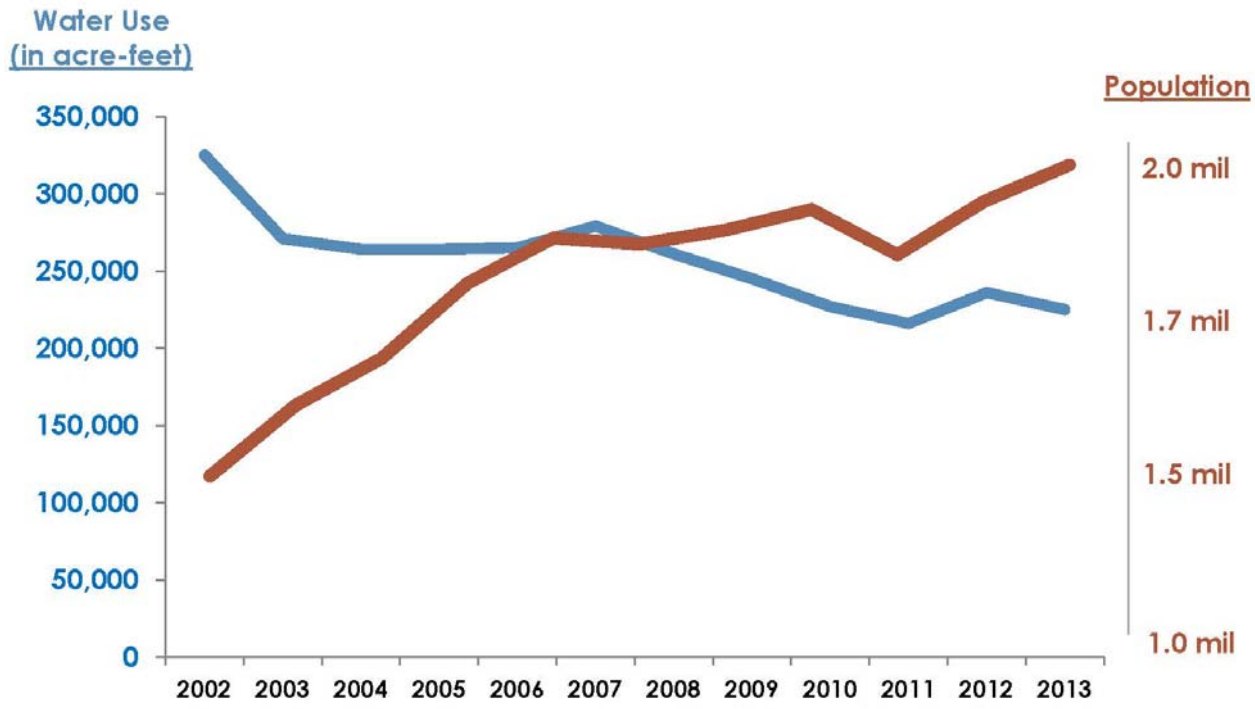
  - ➢ Colorado River Compact of 1922. Cornerstone of the Law of the River negotiated between the upper and lower basis states and the Federal government.
  - ➢ 1928 Boulder Canyon Project Act awarded NV 300,000 acre-feet per year (based on consumptive use not a diversion number).
  - ➢ 1935 Colorado River Commission of Nevada created by the NV Legislature (NRS 538).
    - Accountable for NV's use of the Colorado River water (which makes up about 90% of LV's water use).

Colorado River Water Allocation



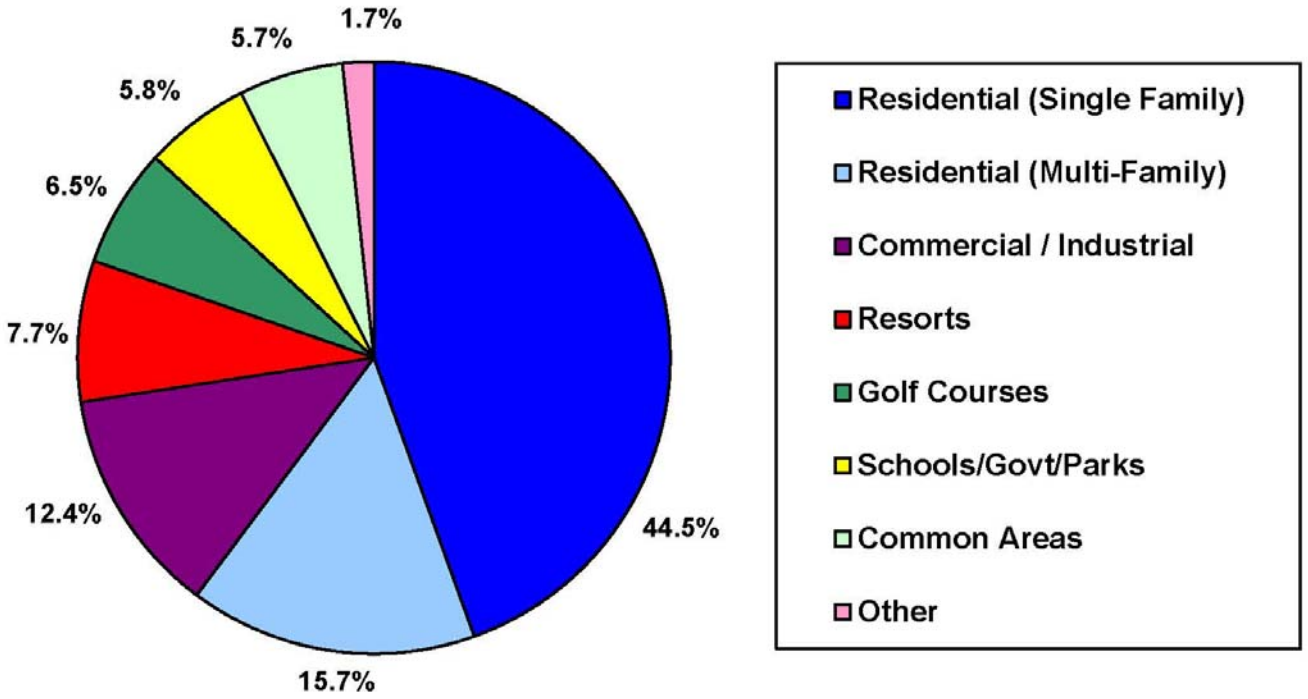
Southern Nevada Water Use

Southern Nevada consumptively used about 100,000 acre-feet less water in 2013 than in 2002, despite adding 480,000 new residents and serving nearly 40 million annual visitors.



Southern Nevada Water Use

Metered Water Use



Based upon 2012 metered usage for all SNWA entities

Water Reuse – Direct Reuse

- ✓ Differing levels of treatment dictate reuse options.
- ✓ Greywater
  - ➢ Reuse of household or commercial water without fecal contamination (i.e. sinks, showers, baths, washing machines and dish washer).
  - ➢ Can often be used untreated for flushing toilets and subsurface irrigation (May be banned by local code).
- ✓ Reclaimed Water
  - ➢ Wastewater treated to varying levels based on use.
  - ➢ May be used for irrigation, industrial needs, or to recharge groundwater aquifers or surface waters.
  - ➢ Often distributed through “purple pipe”.

Water Reuse – Direct Reuse

- ✓ Direct Potable Reuse
  - ➢ Treating wastewater to drinkable standard and for immediate human consumption.
  - ➢ Yuck factor – “toilet to tap”

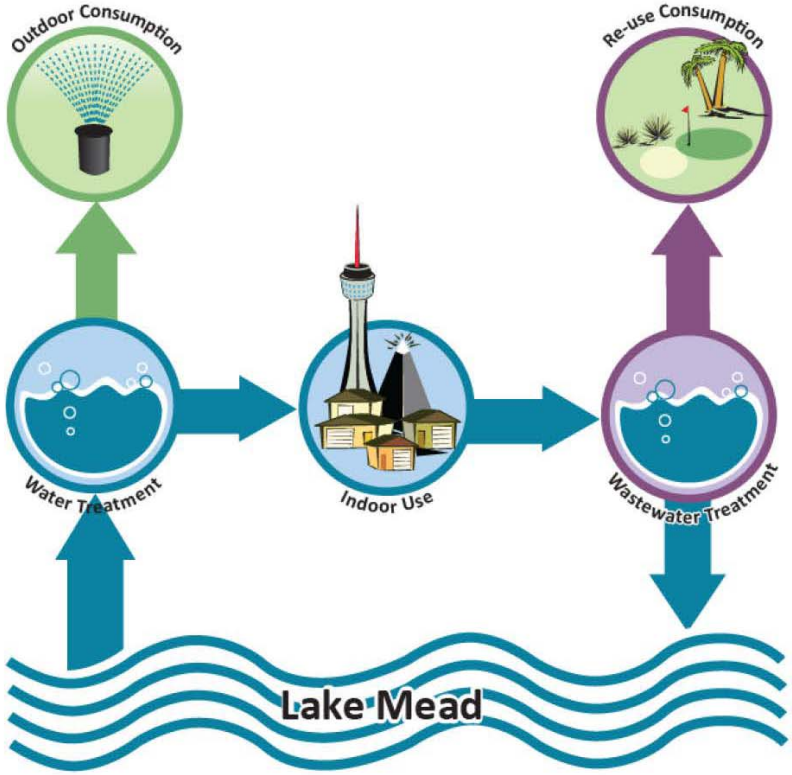


Water Reuse - Return Flow Credits

- ✓ 1928 Boulder Canyon Project Act / 1964 Supreme Court Decree in Arizona v. California.
- ✓ Established CA and NV as “Consumptive Use Contracts”.
  - ➢ Water that is “consumed” and not returned to the place of diversion.
    - Portion of water that evaporates, used in agriculture, industry, landscaping and by people and livestock.
- ✓ With return flow credits, NV can divert more than its 300,000 AFY apportionment. RFCs account for nearly 50% of Southern NV water use.

Return Flow Credits

Southern Nevada is able to extend its 300,000 AFY supply to more than 500,000 AFY due to *return-flow credits*, generated by returning water to Lake Mead



Water Reuse - Return Flow Credits

- ✓ By the Numbers

Colorado River Water Diverted =	441,124 AF
Total Return Flow Credits =	216,508 AF
Total Consumptive Use =	224,616 AF
Direct Reuse =	18,000 AF
Ground Water Pumped* =	49,308 AF

*Excludes private wells and domestic well pumping

Water Reuse - Return Flow Credits

- ✓ Return Flow Credits DO NOT currently include:
  - ➢ Ground Water
  - ➢ Storm Water
  - ➢ Water from outside the Las Vegas Valley
    - SNWA allowed to “add” water from other tributaries (Virgin and Muddy Rivers) to the Colorado River for credit.
    - Extensive ground water pumping plan from central NV under consideration ($15B+ and high operating costs)
    - SNWA will likely seek full approval to discharge treated non-Colorado River water and withdraw the resource until consumptively used.

The Future…

- ✓ Strains on the Water Supply:
  - ➢ Population growth and distribution.
  - ➢ Economic changes.
  - ➢ Changing weather patterns from historical norms.
- ✓ Reuse of wastewater:
  - ➢ Generally regulated at the state level, although EPA has issued guidelines.
  - ➢ Countless communities reuse treated wastewater for irrigation and industrial uses.
  - ➢ Orange County has state of the art ground water recharge with highly treated wastewater - 70 MGD.
  - ➢ San Diego recently approved a $3.5B project to treat up to 83 MGD

The Future…

- ✓ It is not just for California
  - ➢ Wichita Falls and Big Spring, Texas
  - ➢ Perth, Australia
  - ➢ Windhoek, Namibia



Ten million dogs can't be wrong.

The Future…

- ✓ Return Flow Credits
  - ➢ Critical component of the future of Las Vegas Valley.
  - ➢ Potentially a cost effective way to manage your community's water supply.
  - ➢ Regulatory issues as communities recharge and tap shared resources (both ground and surface waters).

- ✓ Take away…
  - ➢ Conservation and Reuse are the future of water.
  - ➢ Plan for the Future, but Take Action Now!
  - ➢ Seek Collaborative Solutions.