


RECYCLED WATER PROGRAM FOR LOS ANGELES

Securing a Reliable Water Supply

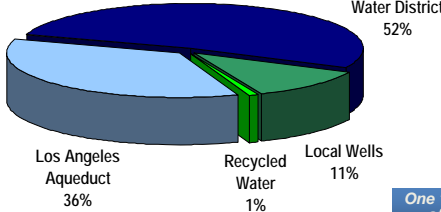
L.A.'s WATER SUPPLY SITUATION

L.A. Depends on Imported Water



Sources of Los Angeles' Water

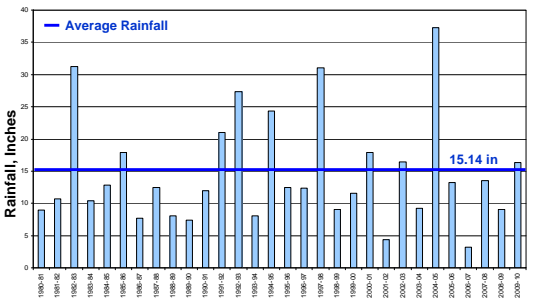
5-Year Average (FY 2006-2010):
621,700 Acre-Feet (AF)



Source	Percentage
Metropolitan Water District	52%
Los Angeles Aqueduct	36%
Local Wells	11%
Recycled Water	1%

One "Acre-Foot" of water is approximately 326,000 gallons

Los Angeles Rainfall History




Year	Rainfall (inches)
1980-81	10
1981-82	10
1982-83	32
1983-84	10
1984-85	13
1985-86	18
1986-87	8
1987-88	13
1988-89	8
1989-90	8
1990-91	12
1991-92	21
1992-93	28
1993-94	25
1994-95	8
1995-96	13
1996-97	13
1997-98	32
1998-99	10
1999-00	10
2000-01	18
2001-02	4
2002-03	17
2003-04	16
2004-05	9
2005-06	13
2006-07	38
2007-08	13
2008-09	14
2009-10	8
2010-11	16

Average Rainfall: 15.14 in

Source: National Weather Service

Current Water Supply Challenges

- Delta supplies**
Allocations and uncertainty with pumping restrictions, levee failure threats
- LA Aqueduct**
Owens Lake Dust Mitigation
- Contaminated groundwater**
Limits pumping of San Fernando Basin
- Climate change impacts**
- Water/energy nexus and carbon footprint**



Our Highest Priorities

Safety – Compliance with regulatory requirements

Reliability – Infrastructure Replacement and Upgrade

Sustainability – Increase Local Supply and Protect Environment

Maintain Competitive Rates



Securing L.A.'s Water Supply

Increased water conservation

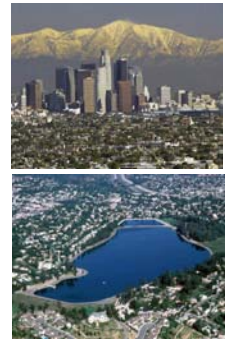
Increased water recycling

Enhanced stormwater capture

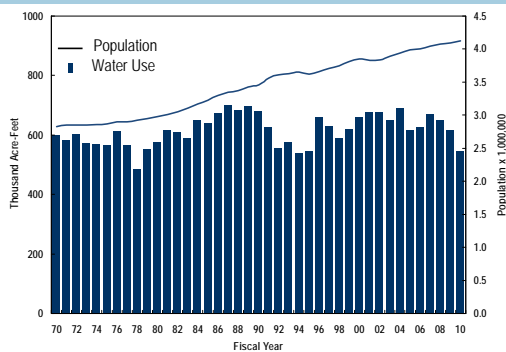
Accelerated groundwater cleanup

Green building initiatives

Expanded groundwater storage



Water Use and Population



Increased Water Conservation

LA Residents conserved over 40 billion gallons in 2009-2010

Study of Conservation Potential

- Less indoor conservation potential for the Commercial, Industrial & Institutional sector
- More outdoor conservation potential for single-family residential customers

The City will meet State requirements for 20 percent conservation by 2020



Increased Water Recycling

Recycle 59,000 AFY by 2035

Recycled Water Master Planning Key Strategies:

Groundwater replenishment with highly purified (advanced treated) recycled water

Expand recycled water distribution for irrigation and industrial use through "purple pipe" networks



Enhanced Stormwater Capture

Achieve 10,000 AFY capture and reuse, and increase groundwater production by 15,000 AFY by 2035

Stormwater Capture Master Plan


- To be initiated in mid-2011
- Will identify stormwater capture potential and identify strategies



Groundwater Cleanup

Restoration operation of over 50 production wells shut down due to contamination

Planned groundwater cleanup crucial to fully utilize San Fernando Basin



RECYCLED WATER FOR LOS ANGELES

What is Recycled Water?

Highly treated wastewater that undergoes multiple treatment steps

Meets strict health and safety laws

Monitored and tested 24/7



30 Years of Water Recycling in L.A.

Irrigation & industrial uses ("non-potable")

Seawater intrusion barrier ("indirect potable")

Lakes and river habitat

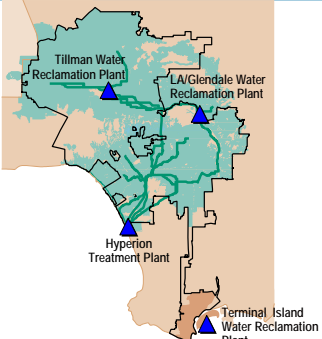


Where Recycled Water is Produced

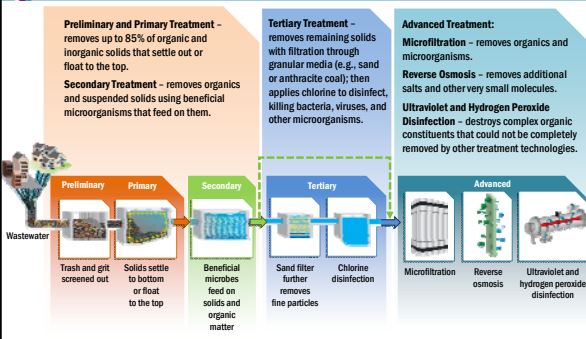
CITY OF LOS ANGELES
SANITATION DEPARTMENT OF PUBLIC WORKS

The City treats over 350 million gallons of wastewater every day

MOST OF THIS RESOURCE GOES TO THE OCEAN



How Recycled Water is Produced



Preliminary and Primary Treatment – removes up to 85% of organic and inorganic solids that settle out or float to the top.

Secondary Treatment – removes organics and suspended solids using beneficial microorganisms that feed on them.

Tertiary Treatment – removes remaining solids with filtration through granular media (e.g., sand or anthracite coal); then applies chlorine to disinfect, killing bacteria, viruses, and other microorganisms.

Advanced Treatment:
Microfiltration – removes organics and microorganisms.
Reverse Osmosis – removes additional salts and other very small molecules.
Ultraviolet and Hydrogen Peroxide Disinfection – destroys complex organic constituents that could not be completely removed by other treatment technologies.

Recycled Water Program

Completed & Planned Projects

Current & New Customers

Recycled Water Master Planning

- Expanded Uses

Groundwater Replenishment



About Groundwater Replenishment (GWR)

Highly purified: cleaner than drinking standards

Will use Advanced Treatment

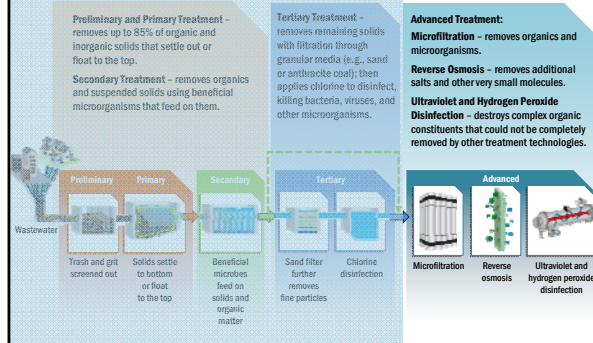
Mixes with groundwater

Regulated by Department of Public Health

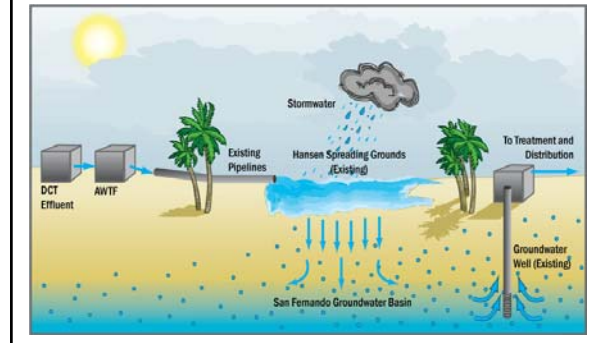


GOAL: Replenish Up to 30,000 AFY

HOW IT WORKS: The Purification Process



HOW IT WORKS: Groundwater Replenishment



Benefits of GWR

Reliable local source

Drought-proof supply

Recharges critical groundwater supplies

Highest water quality available for recharge

Our Outreach Efforts: Open, Transparent Process

- Briefings with Elected Officials
- Briefings with L.A. Stakeholders
- Recycled Water Advisory Group
- Recycled Water Forums



Independent Advisory Panel for GWR


12 Scientific & Academic Experts
Independent, technical review

5 areas required by Department of Public Health

- Treatment Engineering
- Chemistry
- Hydrogeology
- Toxicology
- Microbiology

Convened in October 2010

National Water Research Institute



Recycled Water Program Costs

- Spent to date: *Approximately \$220 Million*
- To Reach 50,000 AFY Recycled Water Use
Preliminary Capital Estimates: \$715 Million to \$1 Billion
- Recycled Water approx. \$1090 to \$1160 per acre-foot compared to MWD purchased water cost of \$1230 to \$1366 per acre-foot
(Present Value numbers accounting for increases over a 50-year lifecycle, including Capital and Operation & Maintenance costs)


Recycled Water Program Costs

- All alternatives cost less than forecasted MWD costs
- In addition, all alternatives are:
 - More reliable*
 - Locally controlled*
 - More environmentally-responsible*

All options are better than doing nothing

How You Can Play a Part

Stay updated on our website: www.ladwp.com
E-mail request for a presentation: serge.haddad@ladwp.com
Spread the word with other stakeholders
Fill out a support card or write a support letter




LADWP seeks support from all stakeholders for the Recycled Water Program, including Groundwater Replenishment and your input on how to communicate these goals.

Thank you!



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