Management of the Central and West Coast Groundwater Basins

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WRD
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA
Local Groundwater Basins
420 square miles

43 cities

Population = 4 million
(over 10% of California’s population)

Groundwater provides 40% of the water supply

West Coast Basin

Central Basin
Wells Provide Local Water Supply
Over 100 Years Ago – Flowing Artesian Wells

Area of Flowing Artesian Wells
1904

Artesia

Long Beach
1900s-1950s
Pumping Much Greater than Natural Replenishment.

OVERDRAFT

- Plunging Water Levels
- Loss of Supply
- Wells going Dry
- Seawater Intrusion

100 foot drop in 10 years
1) **WRD formed in 1959 to replenish the basins to eliminate overdraft and to protect water quality.**

2) **Court adjudicated groundwater pumping in the 1960’s to cap pumping at 281,835 acre feet/year. Still higher than natural replenishment, with WRD making up the difference.**

3) **LA County Flood Control installed 16 miles of wells along the coast to stop seawater intrusion.**
L.A. County Replenishment Facilities

Rio Hondo spreading basins

San Gabriel River spreading basins
L.A. County Seawater Barrier Wells
RESULTS of Groundwater Management ...

... Rising Water Levels, Drought Protection, Seawater Intrusion Protection
Replenishment Water Costs

- **WRD’s cost to replenish over 100,000 afy is $42 million (< 1 cent per gallon).**

- **Additional cost for projects/programs, overall budget ~ $68 million / year.**

- **Most expensive water source is imported water ($744 - $1,300 /af)**

- **Recycled is less expensive and more reliable ($63 - $900 / af)**

- **Monies are collected from a pumping fee (replenishment assessment) currently $283 / af. Anyone who pumps groundwater pays to replace it.**
Current Challenges Facing WRD...

- Climate change / drought / environmental concerns reduces available recharge water.
- Imported water is less available and expensive.
- WRD needs to find alternative sources for recharge.
• Collection of projects to eliminate WRD demand for imported water
• Projects to:
  • Capture and conserve additional stormwater
  • Increase use of recycled water for groundwater replenishment
• Creates locally sustainable groundwater
GRIP is the cornerstone of WRD’s WIN Program.

GRIP will provide 21,000 acre-feet per year of recycled water in place of expensive and less reliable imported water.

Upon completion, groundwater basins will be completely locally sustainable.
Future GRIP Facility
Groundwater Storage

Spreading Grounds

Storage Space Available

450,000 AF
(330,000 CB & 120,000 WCB)

Optimum Quantity For Adjudicated Pumping Rights & Drought Protection

Bedrock

Ocean
Central and West Coast Basin Storage Categories

**CENTRAL BASIN**

- Community Storage
  - 111,250 AF
- Individual Storage Allocation (ISA)
  - 108,750 AF (50% of APA)
- Basin Operating Reserve
  - 110,000 AF

**WEST COAST BASIN**

- Regional Storage
  - 9,600 AF
- Community Storage
  - 35,500 AF
- ISA
  - 25,800 AF (40% of Adj. Right)
- Basin Operating Reserve
  - 49,100 AF

Available Dewatered Space

- Central Basin: 330,000 AF
- West Coast Basin: 120,000 AF

Adjudicated Storage Capacity

- Central Basin: 220,000 AF
- West Coast Basin: 70,900 AF
Local Stormwater Infiltration Projects

• Neighborhood and local business scale distributed low-impact developments (LIDS).

• Expands options for stormwater capture beyond centralized facilities (spreading grounds).

• Smaller footprint, lower recharge amounts, and higher unit costs than centralized facilities, but potential for meaningful capture of stormwater and water quality improvement when taken together and done in the right places.
Main Objectives

• Develop a prioritized list of locations for stormwater capture and recharge.
• Develop and model pilot project to assess recharge contribution.

Key Questions

• Which areas are most suitable for stormwater recharge projects?
• Can distributed stormwater infiltration be implemented cost-effectively for recharge purposes?
Prioritizing Stormwater Catchments

Sought regional expertise to evaluate:

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<tr>
<th>Opportunities</th>
<th>Constraints</th>
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<tr>
<td>• Existing or planned projects</td>
<td>• Soil &amp; Groundwater Contamination (GeoTracker, Envirostar)</td>
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<td>• Demonstrated success</td>
<td>• Surface Water Impairments &amp; TMDLs (LARWQCB)</td>
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<td>• Potential partners</td>
<td>• Dewatering Permits (LARWQCB) and maps of shallow groundwater</td>
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<td></td>
<td>• Land Disposal Sites (GeoTracker)</td>
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<td>• Waste Discharge Requirement Sites (Geotracker)</td>
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<td>• Soil Types (catchments overlying soils and geology not conducive to recharge aquifers).</td>
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Used Geographic Information System (GIS) layering to evaluate
Initial Feasibility Analysis Identified 49 Candidate Catchments out of 1,129 Catchments Investigated (4%)
Further Prioritization Reduced 49 to 17 Sites

Opportunities + Constraints Analysis Resulted in 17 High-Priority Catchments
Findings:

• 17 catchments show greater feasibility for stormwater capture to augment Central Basin and West Coast Basin
  ✔ Implementation of 17 distributed and subregional BMPs could capture ~4,300 AF/yr during an average rainfall year.
  ✔ 32 additional opportunity catchments show potential for another ~12,700 AF/yr of stormwater capture with appropriate projects.

• Most stormwater capture projects are very expensive ($/af) for a water supply agency to fund alone. Show multiple benefits for multiple funding partners. Apply for grants & loans.
First Project Completed: Broadway Neighborhood Stormwater Greenway Project

Councilmember Curren D. Price, Jr., The New 9th and LA Sanitation invite you to the

Broadway Neighborhood Stormwater Greenway Project

Ribbon-Cutting Ceremony

May 26, 2016 at 10:00 a.m.
5000 S. Broadway, Los Angeles, CA 90037
(parking lot of the Paradise Baptist Church, 5100 S. Broadway)
Thank You