California Water Supply Infrastructure

Natural: rivers, snowpack, aquifers
Aqueducts, canals, pipelines, pumping plants
Surface storage (dams, reservoirs)
Groundwater extraction and recharge
Urban: treatment, storm water capture, desalination
Geographical Features

- Coastal Range
- Sacramento River Valley
- San Joaquin River Valley
- Tulare Basin
- Delta
- San Francisco area
- Kern County
- Los Angeles area
- Imperial County
- Colorado River

[http://www.california-map.org](http://www.california-map.org)
Water Accounting in California

Average Usage

Agriculture: 33 MAF
Urban: 9 MAF

Some sources of supply

State Water Project: 3 MAF
Federal Water Project: 8 MAF
Colorado River: 5 MAF
Ground water: 15 MAF
Other from local projects and reuse
Water Supply Example: Irvine Ranch Water District

380,000 residents
Water Sources for IRWD

- Local streams
- Recycling (non-potable)
- Imported by MWD
- Local groundwater pumping (OCWD)
- Remote groundwater banking
- Desalination (future)
Role of Infrastructure in Water Transfers

calendar or aqueduct
Major California Water Projects

Federal, State and local

(Calendar Water Plan: Update 2013)
Left:
Sacramento – San Joaquin Delta
(Wikipedia)

Lower left:
Harvey O. Banks Pumping Plant
(baydeltalive.com)

Lower right:
Federal and State Aqueducts
(Wikipedia)
Los Angeles Aqueduct
(mohavedual-sport.com) above
(LADWP) right
California Reservoirs

- More than 1000
- Total capacity: 40+ MAF
- Top 12: 20+ MAF

(Wikipedia)
Ground Water Banks

Semitropic Water Storage District
Water Banking Project Allocations (1.65 MAF)

- Alameda County Water District: 150,000 af
- Santa Clara Valley Water District: 350,000 af
- Metropolitan Water District of So. Cal.: 350,000 af
- Zone 7 Water Agency: 65,000 af
- Newhall Land & Farming Co.: 55,000 af
- San Diego County Water Authority: 45,000 af
- Poso Creek Water Company: 60,000 af
- City of Tracy: 10,500 af
- Homer, LLC: 15,000 af
- Harris Farms: 10,500 af
- Unallocated Storage: 64,250 af
- Available Capacity: 474,750 af

(www.semitropic.com)
Annual Water Imports by Metropolitan Water District

Colorado River Aqueduct

Calendar year

State Aqueduct

Calendar year

(Data: USBR)

(Data: DWR)
Sacramento-San Joaquin Delta

(http://www.ppic.org/main/publication.asp?i=671)
Delta Elevation Map

(http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/Risk_Report_Section_5_Final.pdf)
Proposed Tunnel Underneath the Delta

(http://www.baydeltaconservationplan.com)