**California Aqueduct**

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| **California Aqueduct** |
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| **Official name** | Governor Edmund G. Brown California Aqueduct |
| **Begins** | [Clifton Court Forebay](http://en.wikipedia.org/wiki/Clifton_Court_Forebay)[37°49′48″N 121°33′25″W﻿ / ﻿37.829927°N 121.556894°W﻿ / 37.829927; -121.556894](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=37.829927_N_-121.556894_E_) |
| **Ends** | **West Branch**[Castaic Lake](http://en.wikipedia.org/wiki/Castaic_Lake)[34°35′15″N 118°39′25″W﻿ / ﻿34.587379°N 118.656893°W﻿ / 34.587379; -118.656893](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=34.587379_N_-118.656893_E_)**East Branch**[Silverwood Lake](http://en.wikipedia.org/wiki/Silverwood_Lake)[34°18′12″N 117°19′12″W﻿ / ﻿34.303457°N 117.319908°W﻿ / 34.303457; -117.319908](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=34.303457_N_-117.319908_E_)**Coastal Branch**[Lake Cachuma](http://en.wikipedia.org/wiki/Lake_Cachuma)[34°35′12″N 119°58′52″W﻿ / ﻿34.586656°N 119.980975°W﻿ / 34.586656; -119.980975](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=34.586656_N_-119.980975_E_) |
| **Maintained by** | [California Department of Water Resources](http://en.wikipedia.org/wiki/California_Department_of_Water_Resources) |
| **Length** | 715 mi (1,151 km) |
| **Conduit height** | 33 m (108 ft) max. |
| **Conduit width** | 10 m (33 ft) max. |
| **Capacity** | 370 m3 (13,000 cu ft) per second |
| **Construction began** | 1963 |
| **Opening date** | **Coastal Branch** 1997 |
| References  |

The [**Governor Edmund G. Brown**](http://en.wikipedia.org/wiki/Pat_Brown) **California Aqueduct** is a system of canals, tunnels, and pipelines that conveys water collected from the [Sierra Nevada Mountains](http://en.wikipedia.org/wiki/Sierra_Nevada_%28U.S.%29) and valleys of [Northern-](http://en.wikipedia.org/wiki/Northern_California) and [Central California](http://en.wikipedia.org/wiki/Central_California) to [Southern California](http://en.wikipedia.org/wiki/Southern_California). The [Department of Water Resources (DWR)](http://en.wikipedia.org/wiki/California_Department_of_Water_Resources) operates and maintains the California Aqueduct, including two [pumped-storage hydroelectric](http://en.wikipedia.org/wiki/Pumped_storage_hydroelectricity) plants, Castaic and Gianelli. Gianelli is located at the base of [San Luis Dam](http://en.wikipedia.org/wiki/San_Luis_Dam), which forms [San Luis Reservoir](http://en.wikipedia.org/wiki/San_Luis_Reservoir), the largest off stream [reservoir](http://en.wikipedia.org/wiki/Reservoir_%28water%29) in the United States. The [Castaic Dam](http://en.wikipedia.org/wiki/Castaic_Dam) and Castaic Power Plant are located on the northern end of Castaic Lake.

**Background**

The aqueduct begins at the [San Joaquin-Sacramento River Delta](http://en.wikipedia.org/wiki/San_Joaquin-Sacramento_River_Delta) at the [Banks Pumping Plant](http://en.wikipedia.org/wiki/Banks_Pumping_Plant) which pumps from the [Clifton Court Forebay](http://en.wikipedia.org/wiki/Clifton_Court_Forebay). Water is pumped by the Banks Pumping Plant to the [Bethany Reservoir](http://en.wikipedia.org/wiki/Bethany_Reservoir). The reservoir serves as a forebay for the [South Bay Aqueduct](http://en.wikipedia.org/wiki/South_Bay_Aqueduct) via the [South Bay Pumping Plant](http://en.wikipedia.org/wiki/South_Bay_Pumping_Plant). From the Bethany Reservoir the aqueduct flows by gravity approximately 60 mi (97 km) to the O'Neil Forebay at the [San Luis Reservoir](http://en.wikipedia.org/wiki/San_Luis_Reservoir). From the O'Neil Forebay it flows approximately 50 mi (80 km) to the [Dos Amigos Pumping Plant](http://en.wikipedia.org/wiki/Dos_Amigos_Pumping_Plant). After Dos Amigos the aqueduct flows about 95 mi (153 km) to where the [Coastal Branch](http://en.wikipedia.org/wiki/Coastal_Branch%2C_California_Aqueduct) splits from the "main line". The split is approximately 16 mi (26 km) south-southeast of [Kettleman City](http://en.wikipedia.org/wiki/Kettleman_City%2C_California). After the coastal branch, the line continues by gravity another 66 mi (106 km) to the Buena Vista Pumping Plant. From the Buena Vista it flows approximately 72 mi (116 km) to the Teerink Pumping Plant. After Teerlink it flows about 2.5 mi (4.0 km) to the Chrisman Pumping Plant. Chrisman is the last pumping plant before [Edmonston Pumping Plant](http://en.wikipedia.org/wiki/Edmonston_Pumping_Plant), which is 13 mi (21 km) from Chrisman. South of the plant the coastal branch splits off in a southwesterly direction to serve the central coast. At Edmonston Pumping Plant it is pumped 1,926 ft (587 m) over the [Tehachapi Mountains](http://en.wikipedia.org/wiki/Tehachapi_Mountains).

Water flows through the aqueduct in a series of abrupt rises and gradual falls. The water flows down a long segment, built at a slight grade, and arrives at a pumping station powered by [Path 66](http://en.wikipedia.org/wiki/Path_66) or [Path 15](http://en.wikipedia.org/wiki/Path_15). The pumping station raises the water, where it again gradually flows downhill to the next station. However, where there are substantial drops, the water's [potential energy](http://en.wikipedia.org/wiki/Potential_energy) is recaptured by [hydroelectric](http://en.wikipedia.org/wiki/Hydroelectric) plants. The initial pumping station fed by the Sacramento River Delta raises the water 240 ft (73 m), while a series of pumps culminating at the Edmonston Pumping Plant raises the water 1,926 ft (587 m) over the Tehachapi Mountains. The Edmonston Pumping station requires so much power that several [power lines](http://en.wikipedia.org/wiki/Electric_power_transmission) off of Path 15 and [Path 26](http://en.wikipedia.org/wiki/Path_26) are needed to ensure proper operation of the pumps.

A typical section has a [concrete](http://en.wikipedia.org/wiki/Concrete)-lined channel 40 feet (12 m) at the base and an average water depth of about 30 ft (9.1 m). The widest section of the aqueduct is 110 feet (34 m) and the deepest is 32 feet (9.8 m). Channel capacity is 13,100 cubic feet per second (370 m3/s) and the largest pumping plant capacity at Dos Amigos is 15,450 cubic feet per second (437 m3/s).

**Branches**

The aqueduct divides into three branches: the **Coastal Branch** in the Central Valley; and the **East-** and **West-Branches** after passing over the Tehachapi Mountains.

**East Branch**

The East Branch supplies [Lake Palmdale](http://en.wikipedia.org/wiki/Lake_Palmdale) and terminates at [Lake Perris](http://en.wikipedia.org/wiki/Lake_Perris), in the area of the [San Gorgonio Pass](http://en.wikipedia.org/wiki/San_Gorgonio_Pass).

**West Branch**

The West Branch continues to head towards its terminus at [Pyramid Lake](http://en.wikipedia.org/wiki/Pyramid_Lake_%28California%29) and [Castaic Lake](http://en.wikipedia.org/wiki/Castaic_Lake) in the [Angeles National Forest](http://en.wikipedia.org/wiki/Angeles_National_Forest) to supply the western Los Angeles basin.

**Coastal Branch**

The Coastal Branch splits from the main line 11.3 mi (18.2 km) south-southeast of [Kettleman City](http://en.wikipedia.org/wiki/Kettleman_City%2C_California) transiting [Kings County](http://en.wikipedia.org/wiki/Kings_County%2C_California), [Kern County](http://en.wikipedia.org/wiki/Kern_County), [San Luis Obispo County](http://en.wikipedia.org/wiki/San_Luis_Obispo_County) to deliver water to the coastal cities of [San Luis Obispo](http://en.wikipedia.org/wiki/San_Luis_Obispo%2C_California), [Santa Maria](http://en.wikipedia.org/wiki/Santa_Maria%2C_California), and [Santa Barbara](http://en.wikipedia.org/wiki/Santa_Barbara%2C_California).[[4]](http://en.wikipedia.org/wiki/California_Aqueduct#cite_note-3#cite_note-3) Coastal Branch is 116 mi (187 km) and five pump stations. Phase I, an above ground aqueduct totals 15 mi (24 km) from where it branches from the California Aqueduct, was completed in 1968. With construction beginning in 1994, Phase II consists of 101 mi (163 km) of a 42–57-inch (1.07–1.45 m) diameter buried pipeline extending from the Devils Den Pump Plant, and terminates at Tank 5 on [Vandenberg Air Force Base](http://en.wikipedia.org/wiki/Vandenberg_Air_Force_Base) in [Santa Barbara County](http://en.wikipedia.org/wiki/Santa_Barbara_County). The [Central Coast Water Authority](http://en.wikipedia.org/w/index.php?title=Central_Coast_Water_Authority&action=edit&redlink=1) (CCWA) extension, completed in 1997, is a (30-39 in) (76-99 cm) diameter pipeline that travels 42 mi (68 km) from Vandenberg through [Vandenberg Village](http://en.wikipedia.org/wiki/Vandenberg_Village%2C_California), [Lompoc](http://en.wikipedia.org/wiki/Lompoc%2C_California), [Buellton](http://en.wikipedia.org/wiki/Buellton%2C_California), and [Solvang](http://en.wikipedia.org/wiki/Solvang%2C_California) where it terminates at [Lake Cachuma](http://en.wikipedia.org/wiki/Lake_Cachuma) in [Los Padres National Forest](http://en.wikipedia.org/wiki/Los_Padres_National_Forest).

**Bikeway**

When it was open, the **California Aqueduct Bikeway** was the longest of the paved paths in the [Los Angeles area](http://en.wikipedia.org/wiki/Los_Angeles_area), at 107 miles (172 km) long from [Quail Lake](http://en.wikipedia.org/wiki/Quail_Lake) near Gorman through the desert to [Silverwood Lake](http://en.wikipedia.org/wiki/Silverwood_Lake) in the [San Bernardino Mountains](http://en.wikipedia.org/wiki/San_Bernardino_Mountains). This path was closed in 1988 due to bicyclist safety and liability issues. It is expected to remain closed indefinitely due to the continued liability issues and an increased focus on security, especially after the [September 11, 2001 attacks](http://en.wikipedia.org/wiki/September_11%2C_2001_attacks).

**Pumping stations**

Phase I, Canal

* Las Perillas Pumping Plant [35°50′35″N 119°54′33″W﻿ / ﻿35.843143°N 119.909055°W﻿ / 35.843143; -119.909055](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=35.843143_N_-119.909055_E_)

* Badger Hill Pumping Plant [35°50′05″N 119°56′34″W﻿ / ﻿35.834680°N 119.942658°W﻿ / 35.834680; -119.942658](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=35.834680_N_-119.942658_E_)

Phase II, Pipeline and Tunnel

* Devil's Den Pumping Plant [35°42′43″N 120°00′39″W﻿ / ﻿35.711935°N 120.010958°W﻿ / 35.711935; -120.010958](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=35.711935_N_-120.010958_E_)

* Bluestone Pumping Plant [35°42′29″N 120°05′04″W﻿ / ﻿35.707946°N 120.084429°W﻿ / 35.707946; -120.084429](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=35.707946_N_-120.084429_E_)

* Polonio Pass Pumping Plant [35°43′52″N 120°12′28″W﻿ / ﻿35.731046°N 120.207682°W﻿ / 35.731046; -120.207682](http://toolserver.org/~geohack/geohack.php?pagename=California_Aqueduct&params=35.731046_N_-120.207682_E_)

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