

LOS ANGELES RIVER ECOSYSTEM RESTORATION

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<https://la.curbed.com/2015/8/19/9936922/la-river-history-before-concrete-after-photos>



**US Army Corps
of Engineers**®



OUTLINE

- History
- Project Background
- 2015 Feasibility Study Features
- LARER Hydrology and Hydraulic Modeling

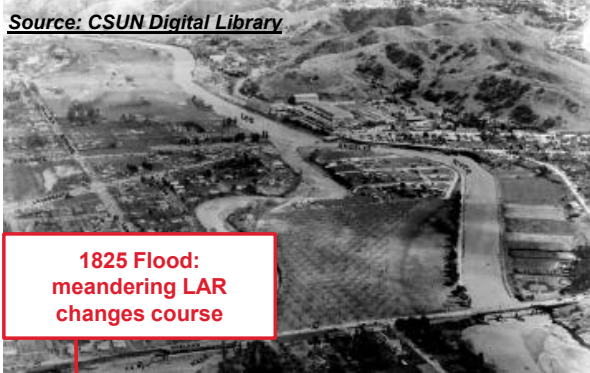




A BRIEF HISTORY



Source: CSUN Digital Library



1825 Flood: meandering LAR changes course



Source: CSUN Digital Library

1938 Flood: \$78M damages
100+ perished
Channelization begins

USACE Channelization

2015 LARER Feasibility Study Published

2020 LARER Design Study Initiated

1825

1914

1938

1960

2015

2020



Source: Homestead Blog

1920 Devil's Gate Dam

1929-31 Pacoima, Big Tujunga Dams

1940-41 Hansen, Sepulveda Dams

1954 Lopez Dam

1914 Flood: causes \$10M damages

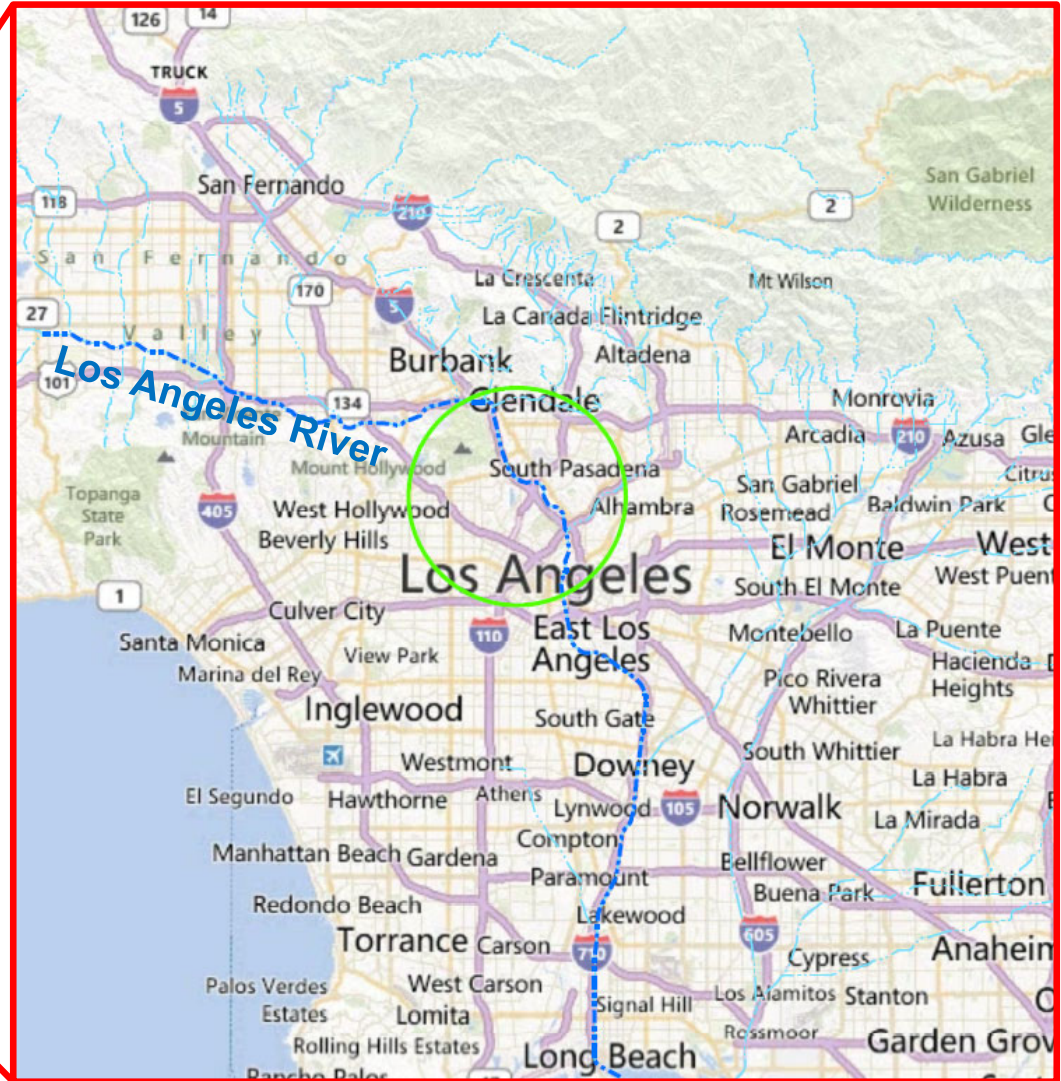
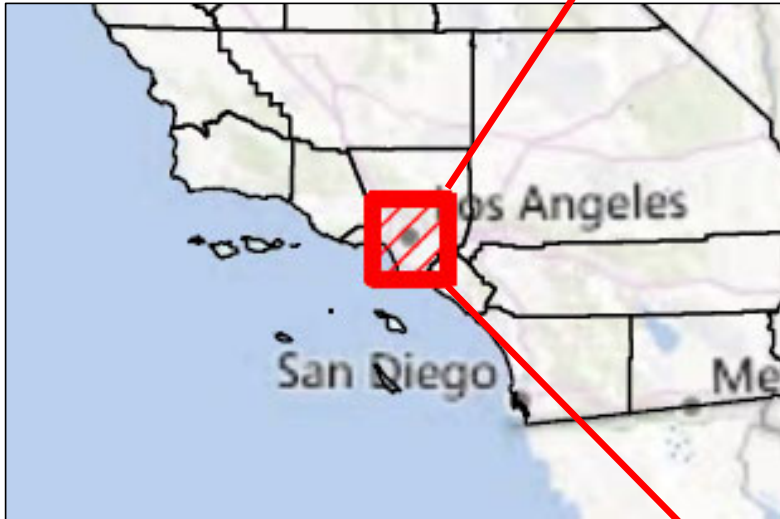
1960: Channelization completed



Source: CURBED LA



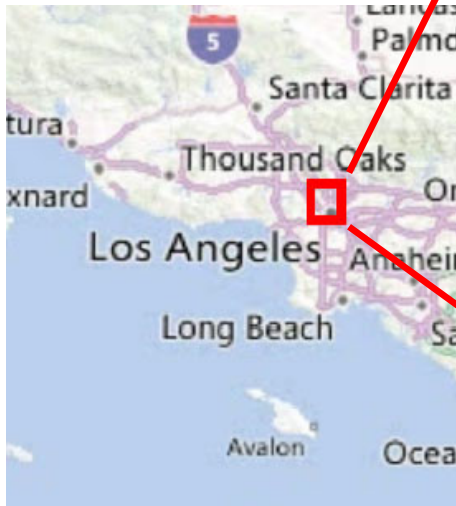
BACKGROUND





BACKGROUND

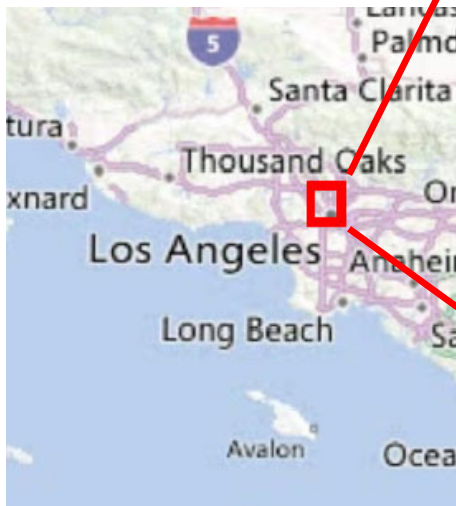
8 Reaches





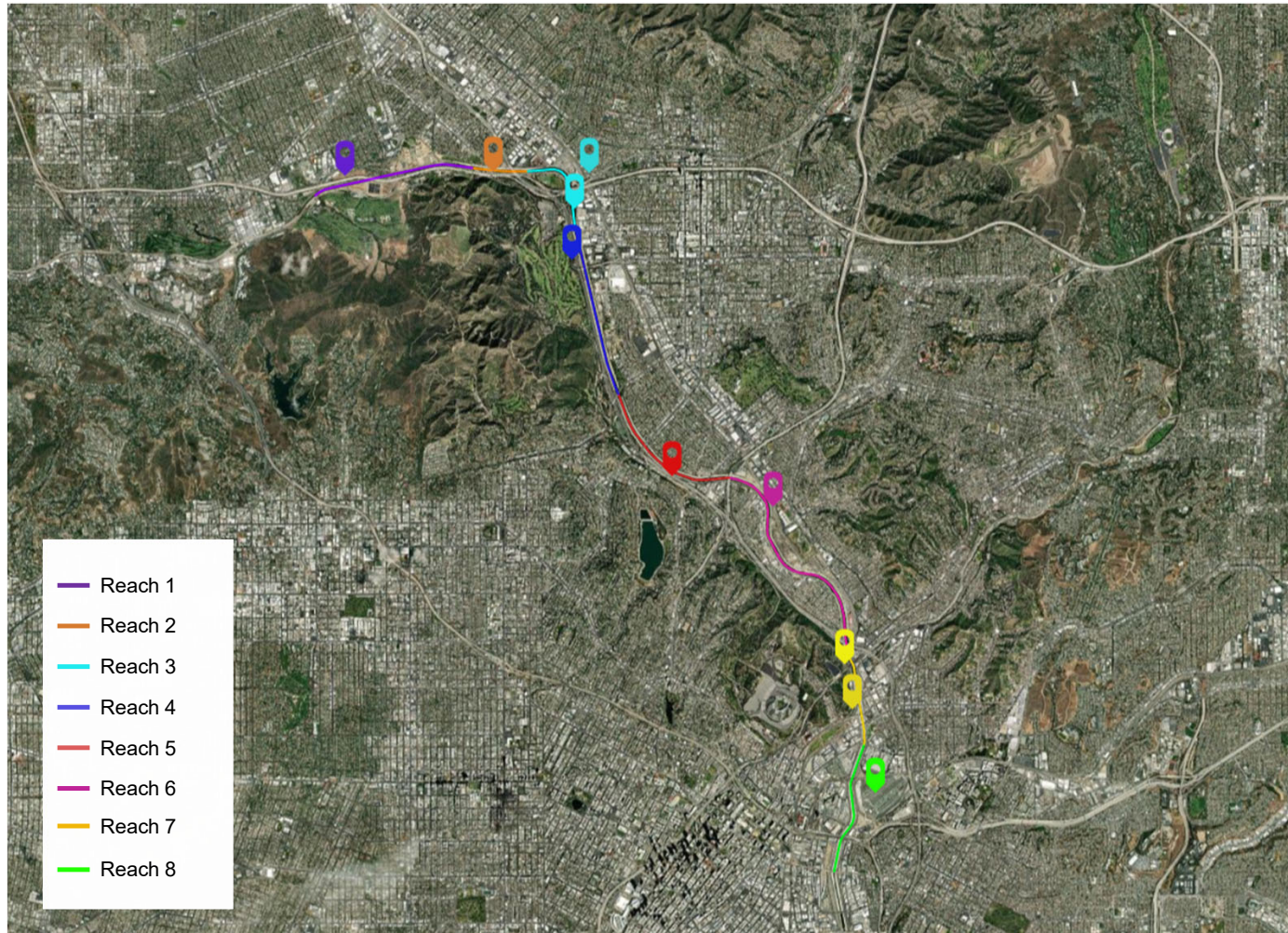
BACKGROUND

Primarily, channel with concrete invert and concrete side slopes





RESTORATION FEATURES BY REACH





REACH 1

Restoration of riparian habitat corridors outside of the channel

No channel modification

Reach 1 Overbank – Pre-project Condition



Google Earth 2022





REACH 2

Restoration of riparian habitat corridors outside of the channel

Change channel configuration from trapezoidal to rectangular

Reach 2 – Pre-project Condition



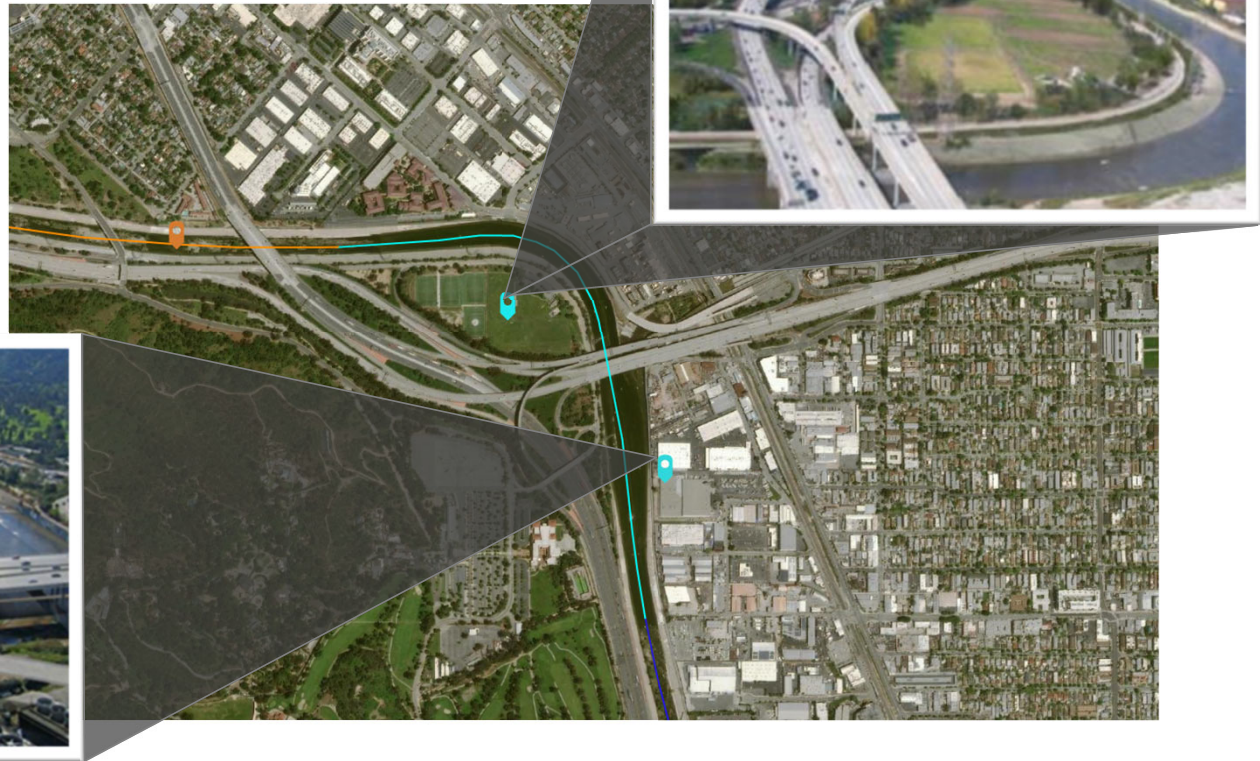


REACH 3

Restoration of riparian habitat corridors outside of the channel

Develop a side channel

Daylight storm drains





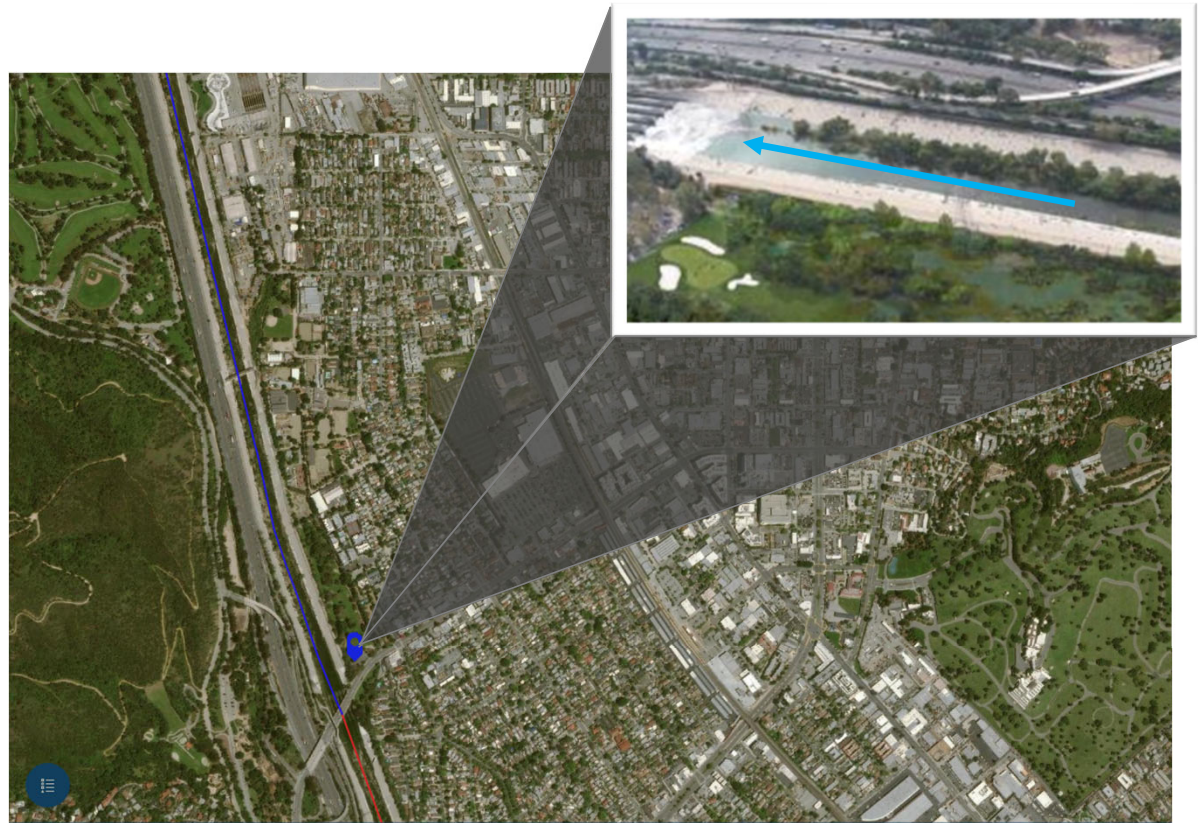
REACH 4

Restoration of riparian habitat corridors outside of the channel

Daylight storm drains



Atwater Park 2011. Daylighted Storm Drain





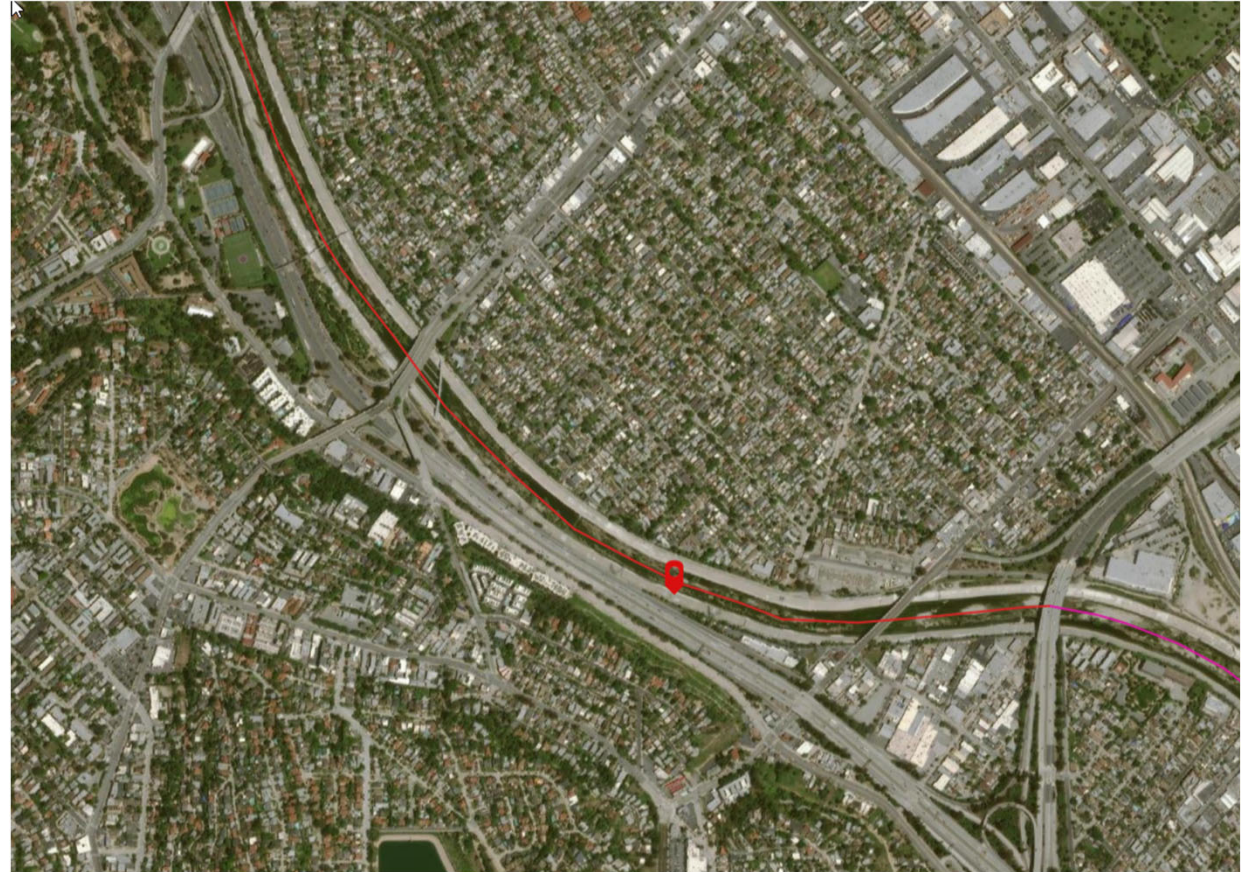
REACH 5

Restoration of riparian habitat corridors outside of the channel

Daylight storm drains

Terraced banks

Reach 5 – Pre-project Condition





REACH 6

Restore riparian habitat

Widen channel





REACH 7

Restoration of riparian habitat corridors

Terrace the right bank

Daylight storm drain



Google Earth 2022

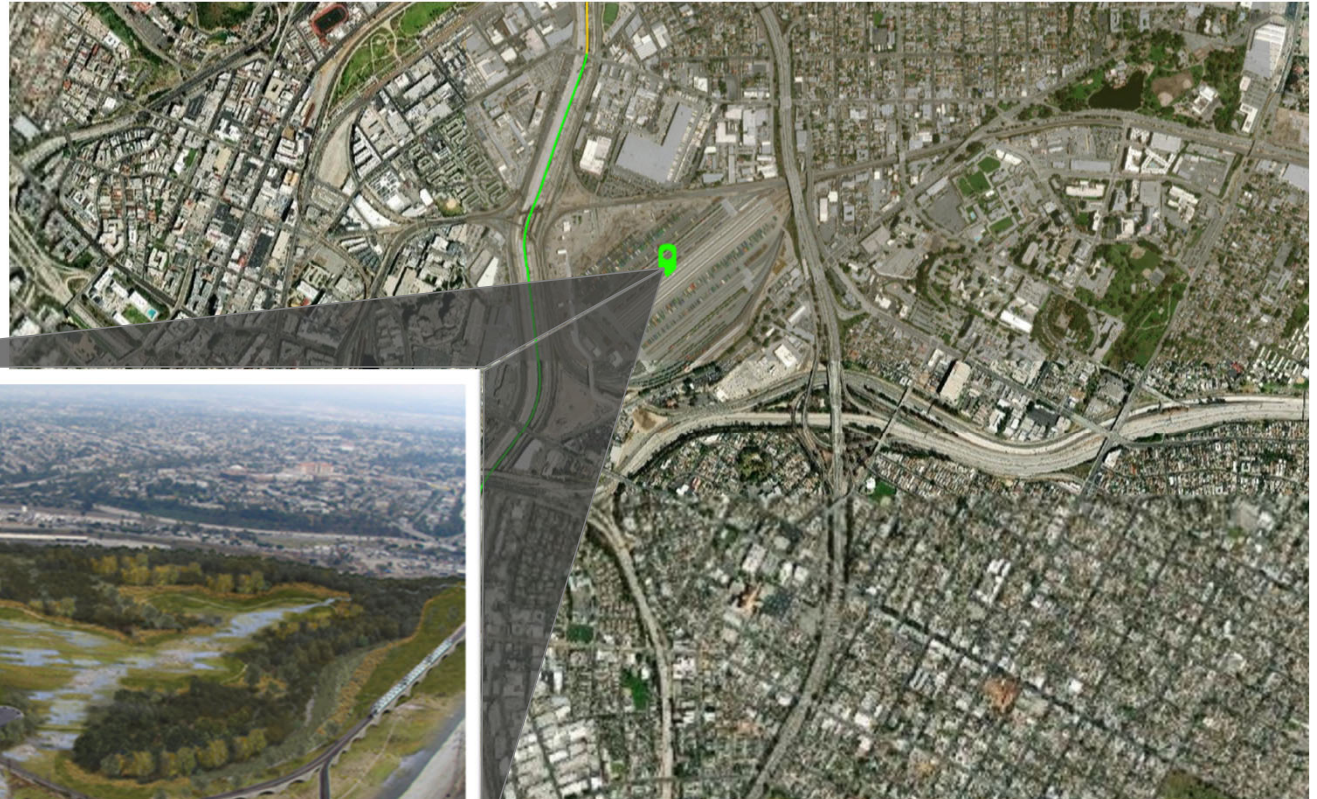


REACH 8

Restoration of riparian habitat corridors outside of the channel

Widen Channel

Terrace the right bank





HYDROLOGY

- Mediterranean with average annual precipitation = 17.5 inches
- Upper LAR Watershed = ~600 square miles (~1,550 square km)
- Performed model calibration in HEC-HMS
- 6 reservoirs: HEC-ResSim for complex reservoir operations
- Bulletin 17C Methodology for Flood Frequency Analysis



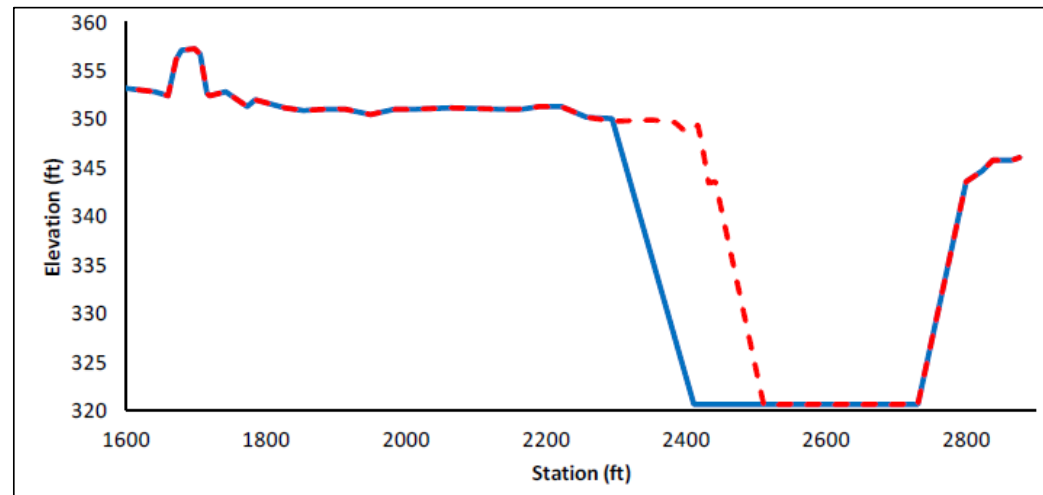
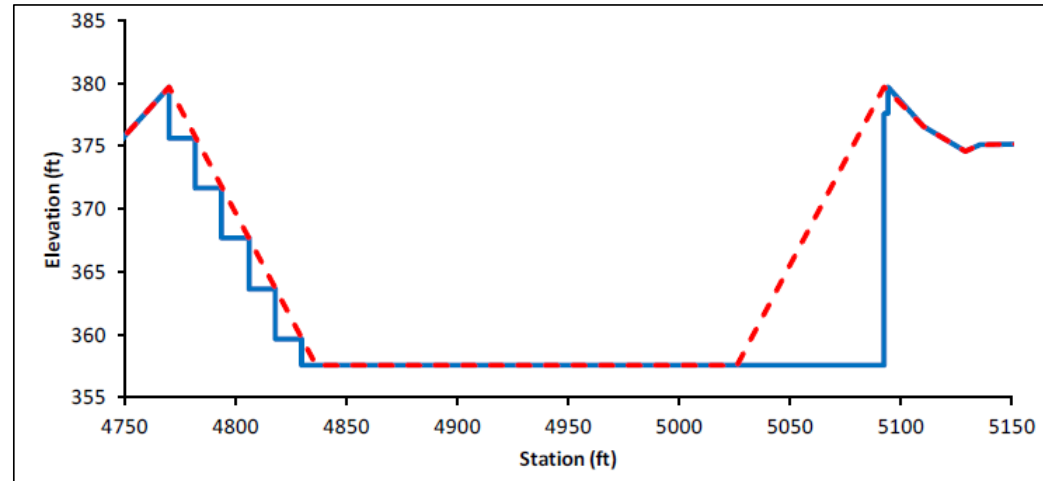


HYDRAULICS

- Baseline hydraulic modeling will establish current conditions
- 2-Dimensional ADH model for 11-mile reach
- 3-Dimensional modeling at select confluences
- Physical model results used for numerical model validation

- - - Existing

— Project Channel Modifications





THANK YOU

