

# Multi-State Salinity Coalition Annual Conference 2019

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# Multi-State Salinity Conference 2019

History of the Brine Line

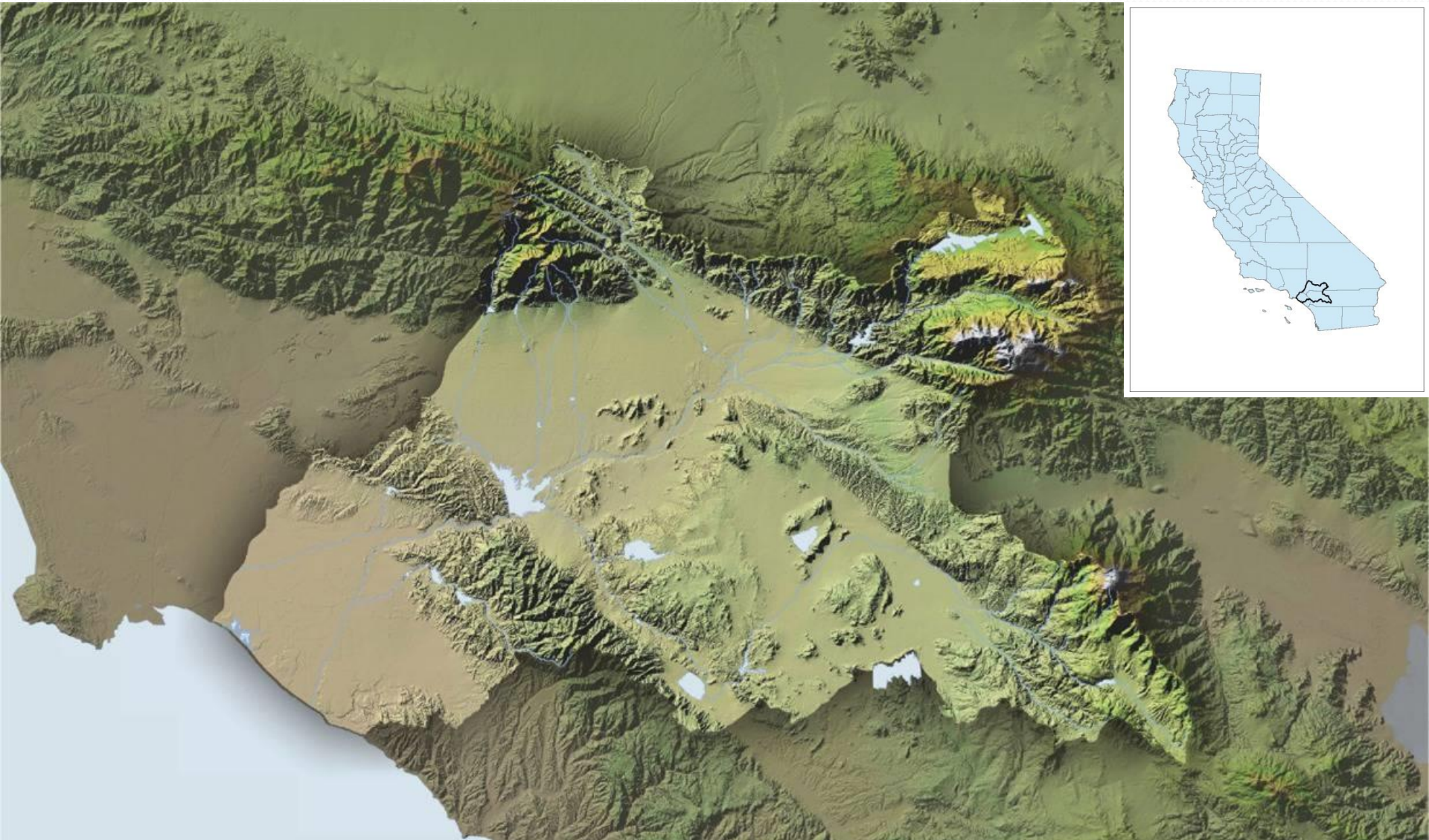
INLAND EMPIRE

Why is it important?

Operations

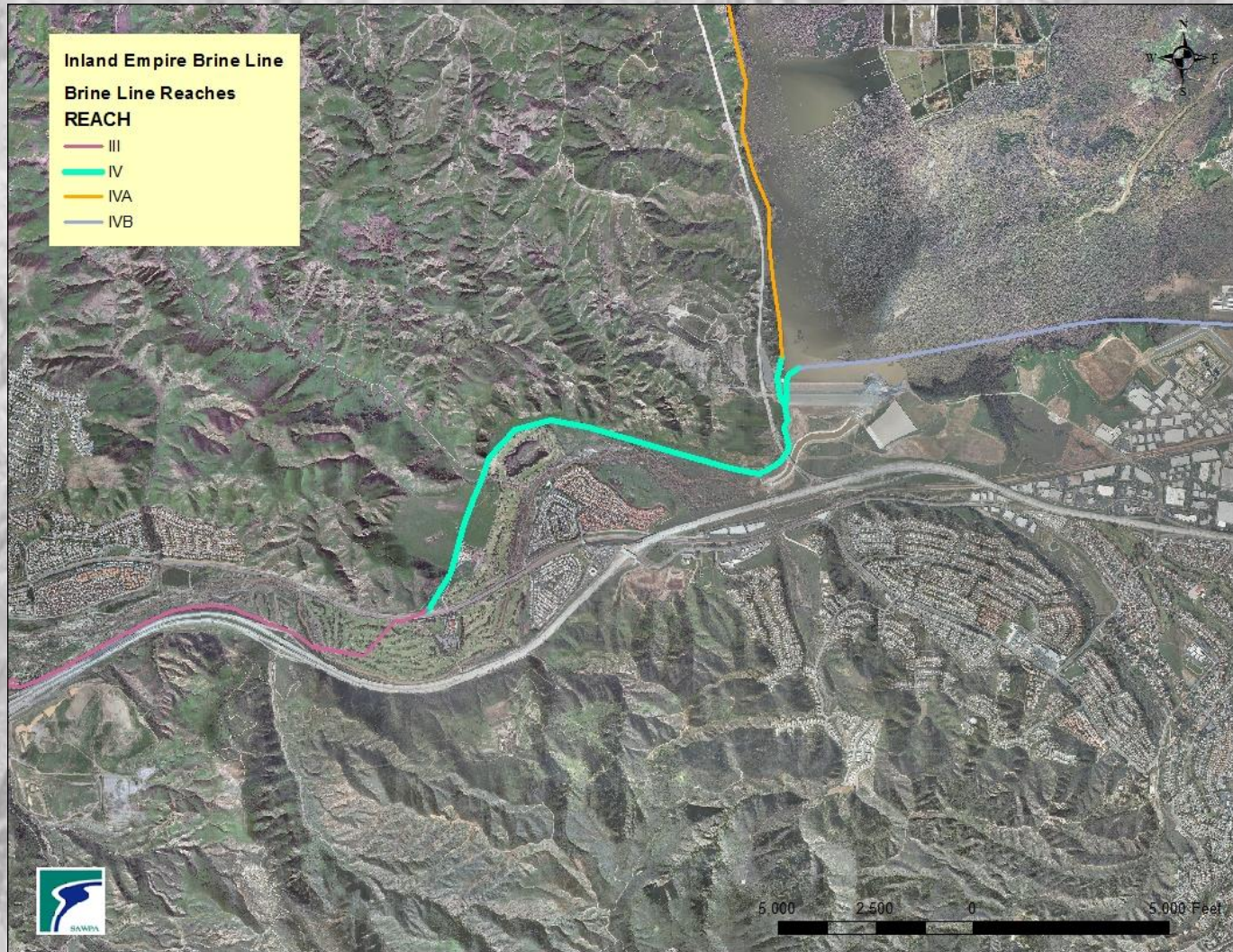
BRINE LINE

# Santa Ana River Watershed



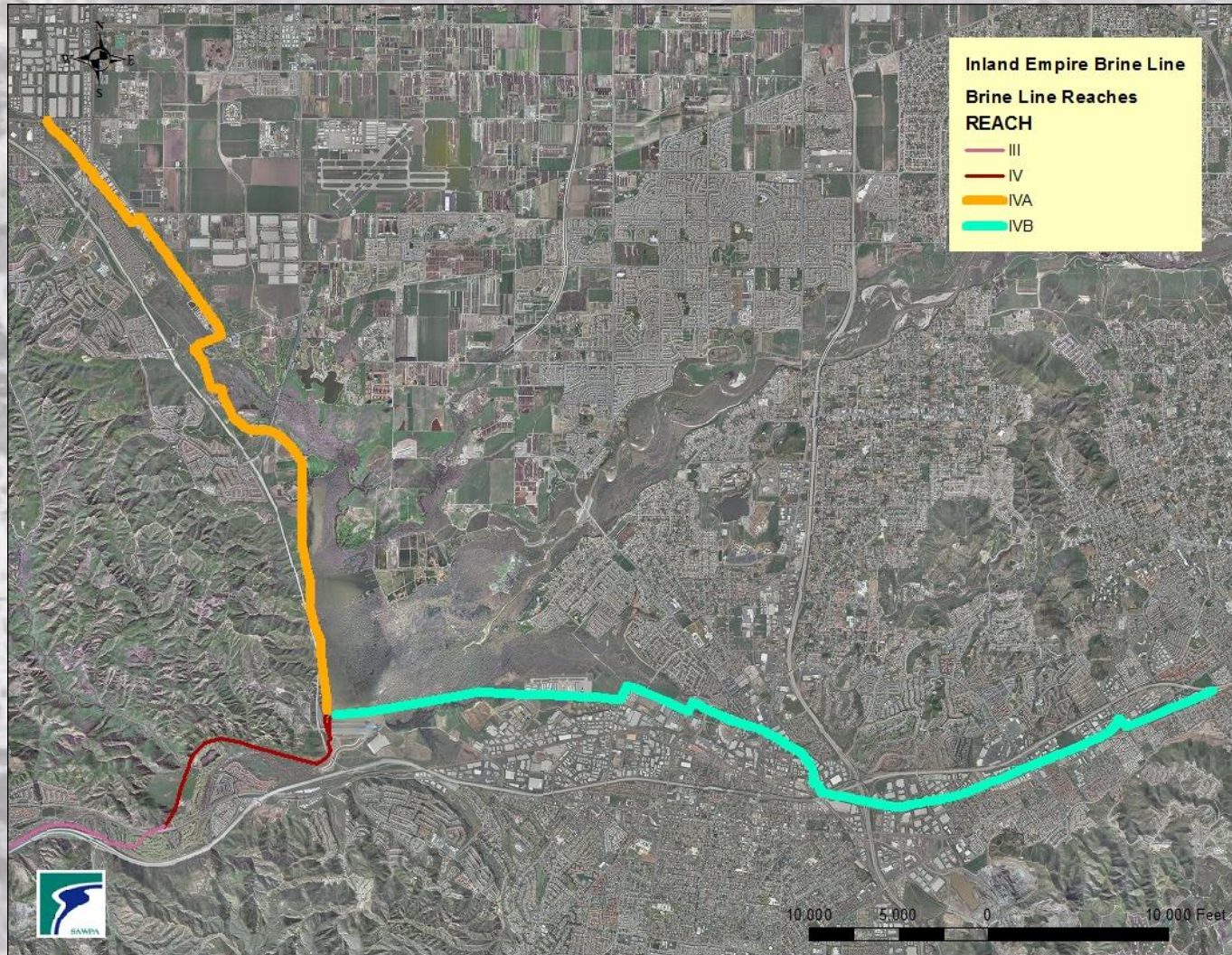


# Brine Line Reach 4



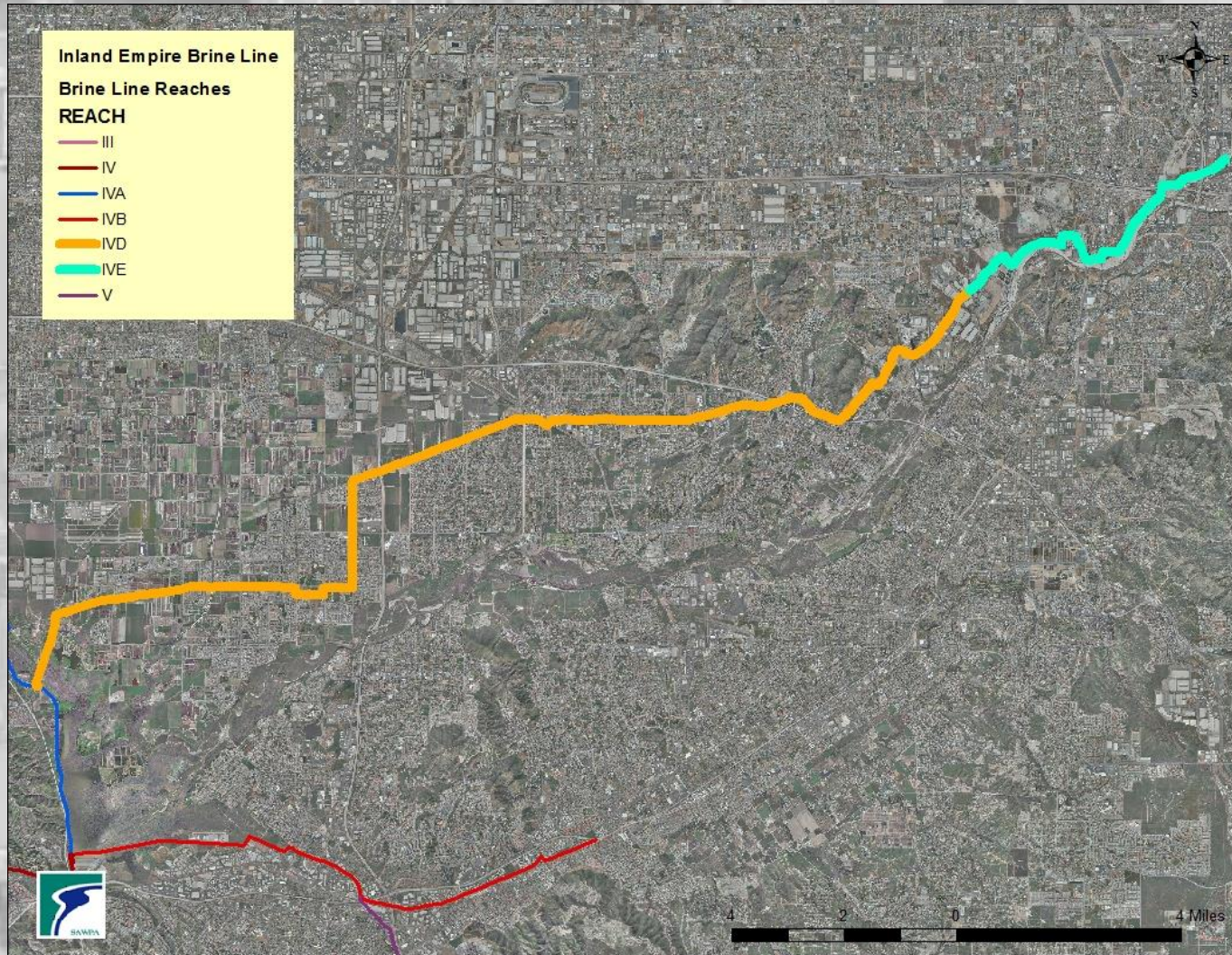


# Reaches 4A and 4B



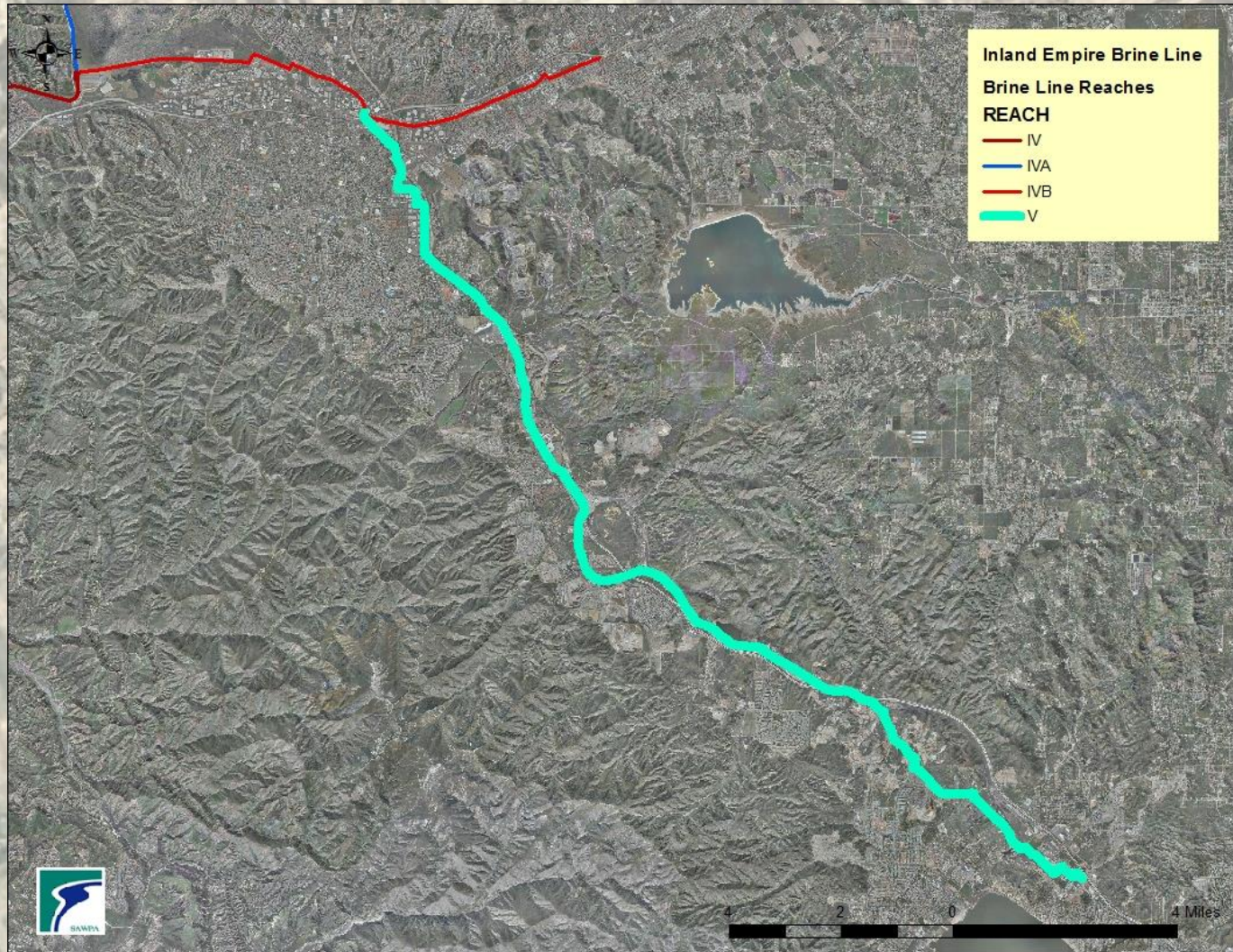


# Brine Line Reaches 4D and 4E





# Reach 5





# Inland Empire Brine Line

— Brine Line Laterals

## Brine Line

### REACH

— IV

— IVA

— IVB

— IVD

— IVE

— V



SBVMWD

IEUA

WMWD

EMWD

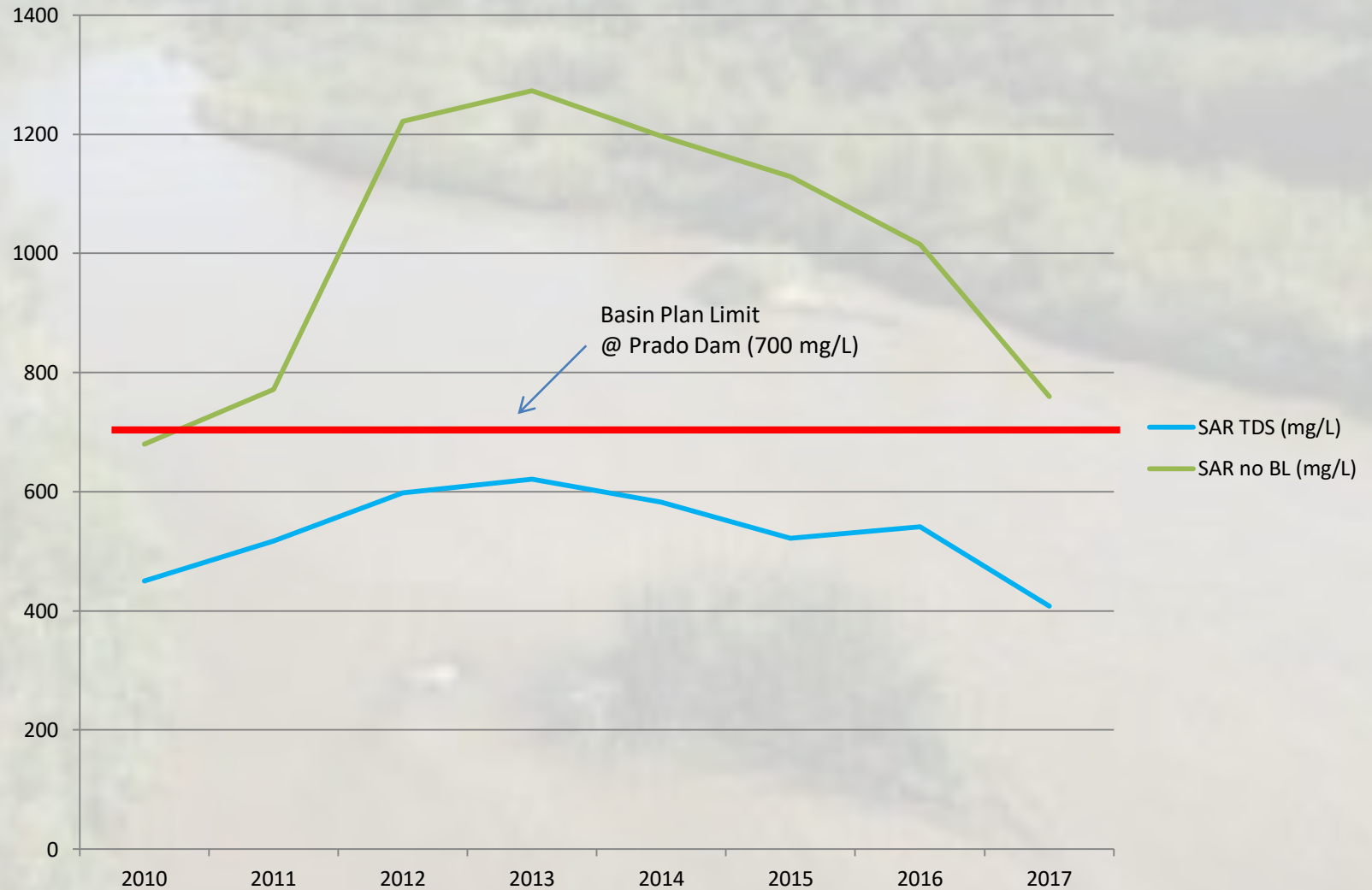
OCWD

5 2.5 0 5 Miles





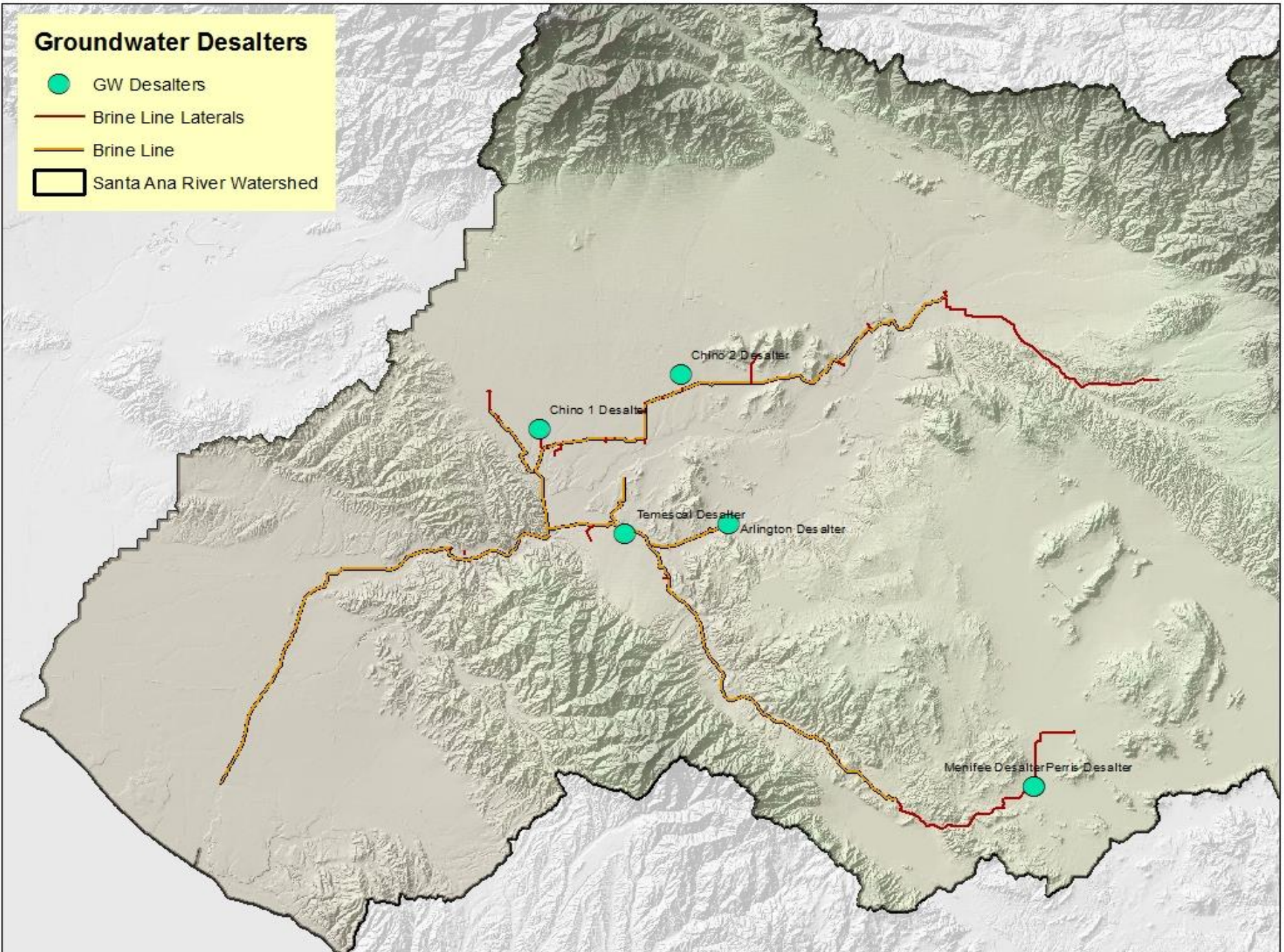
# Protecting Local Water Supplies





## Groundwater Desalters

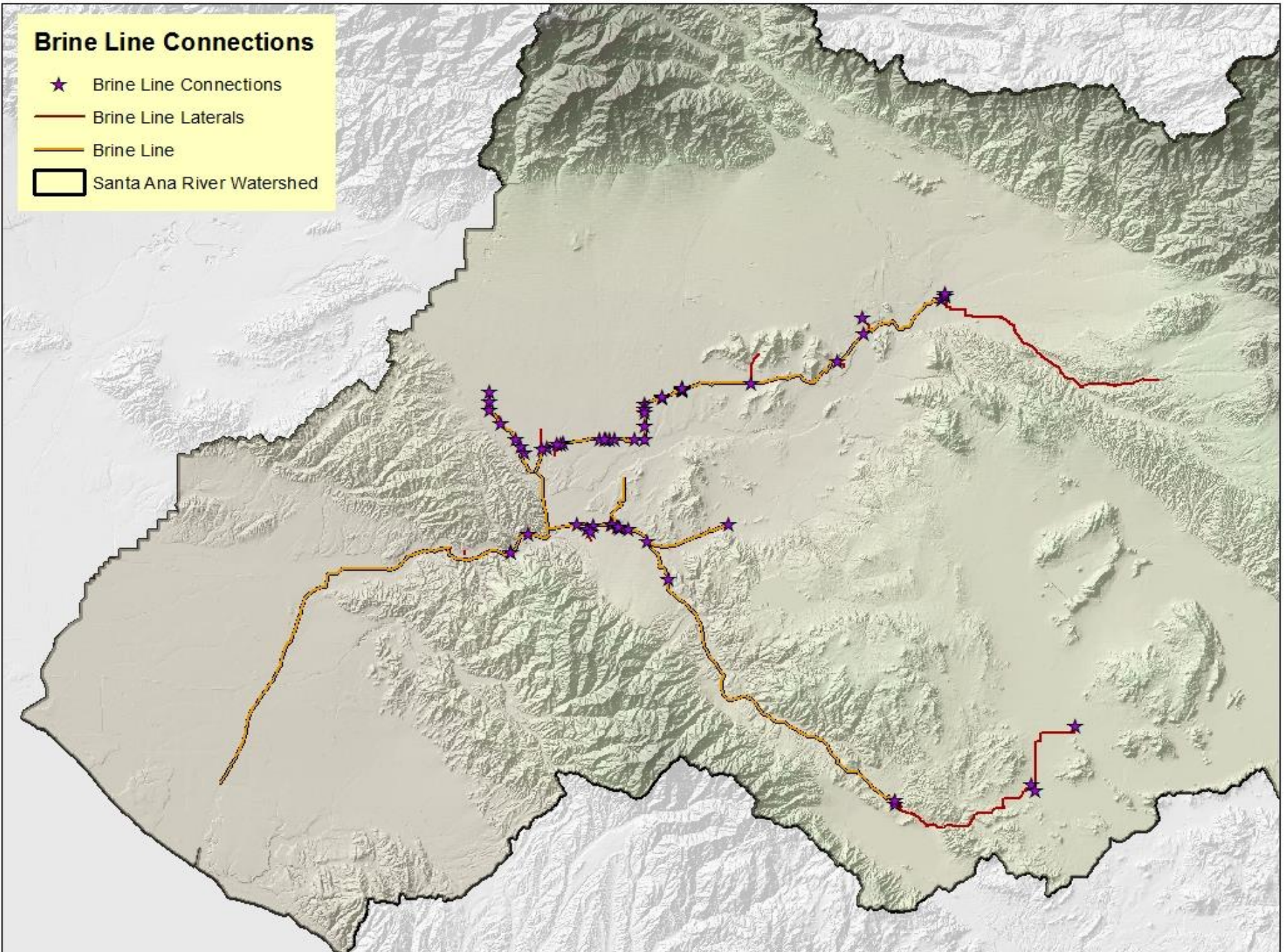
- GW Desalters
- Brine Line Laterals
- Brine Line
- Santa Ana River Watershed





# Brine Line Connections

- ★ Brine Line Connections
- Brine Line Laterals
- Brine Line
- Santa Ana River Watershed





# Brine Line Operations

- 73 miles of pipeline
- Major operational challenges
  - Increased construction activity
    - Higher risk of damage/SSOs
  - Scaling
  - Vandalism (AV)
  - AV maintenance
    - AV component corrosion
  - Flooding





02/14/2018 09:03





02/14/2018 09:35

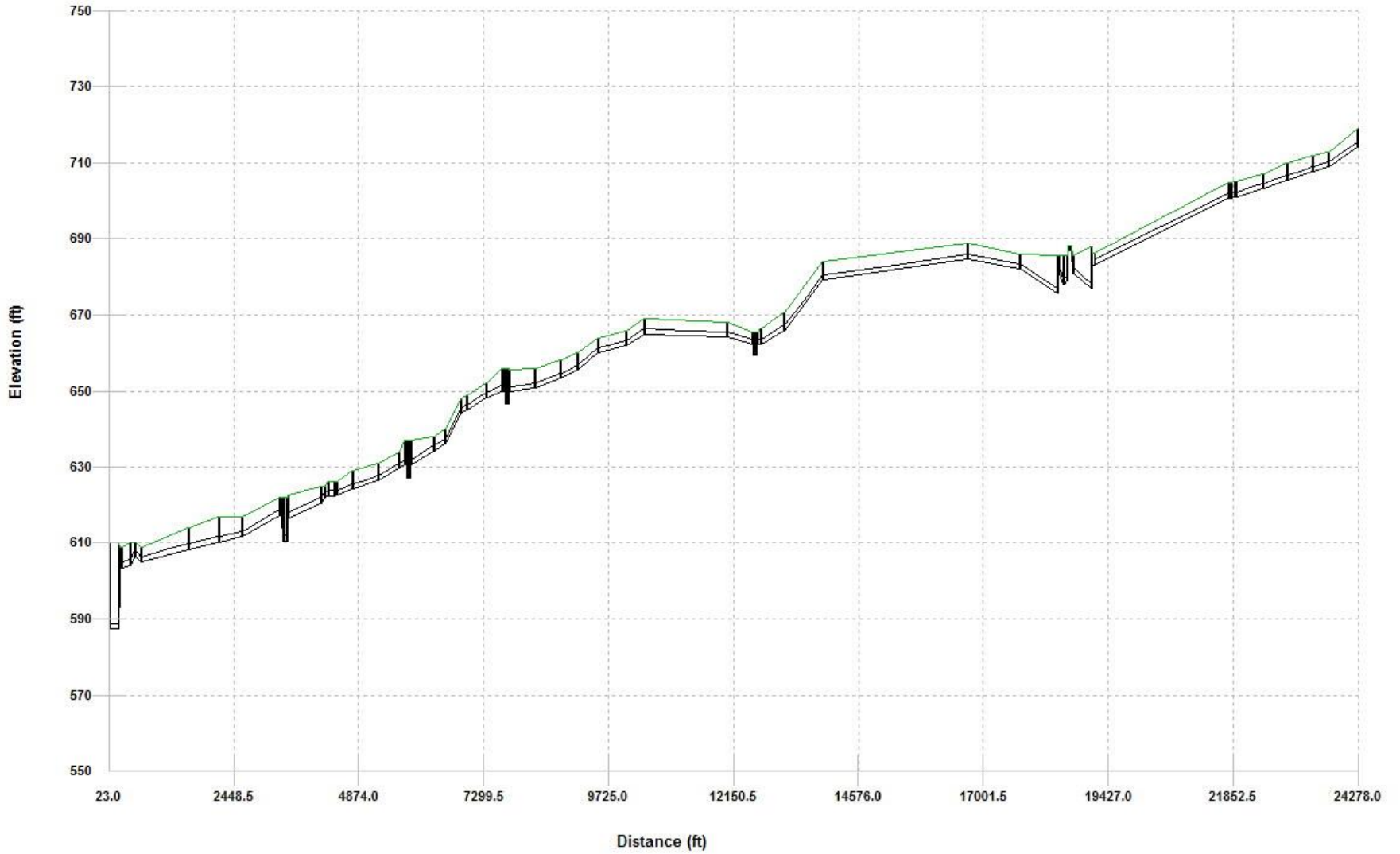






### Profile Plot of Links P-4B-0493,P-4B-0494,....,P-4B-0890




Link Node Ground Level Initial Depth Surcharge Depth

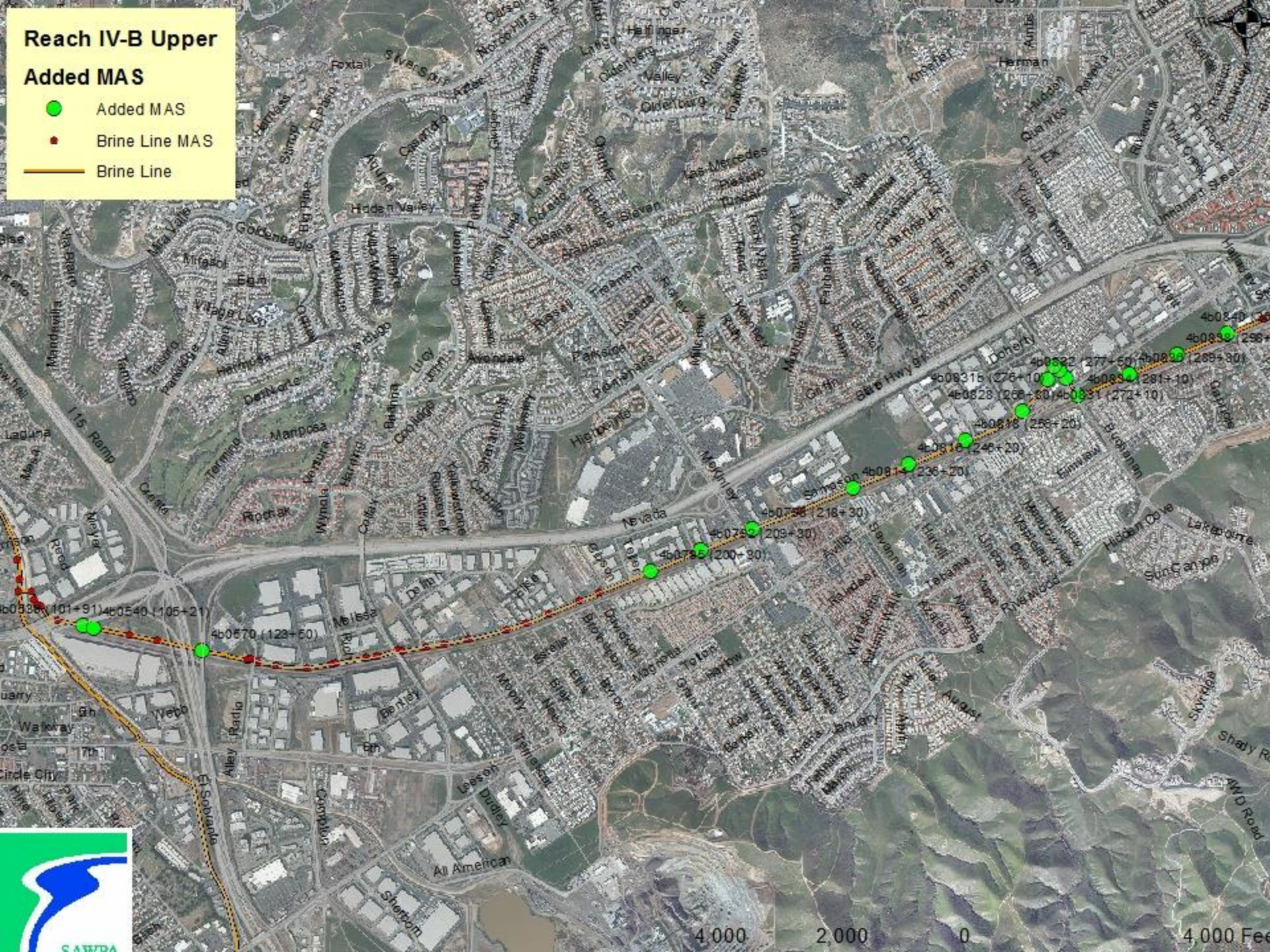




# Reach IV-B Upper

## Added MAS

-  Added MAS
-  Brine Line MAS
-  Brine Line



4,000 2,000 0 4,000 Feet



# Chemical Cleaning





# Use of Antiscalants



**Nutreat™ 1700**  
*Antiscalant/Dispersion/Antifoulant*







AV-0403

AV-0403

01/07/2019 11:02



AY-970

2015  
2016  
2017  
2018



02/12/2019 10:36







02/15/2019 08:43



A person in a red jacket stands on a rocky mountain peak, looking out over a vast, hazy landscape at sunrise. The sun is low on the horizon, casting a warm glow over the scene. The text "Looking Forward" is overlaid in the center.

Looking Forward



**Inland Empire Brine Line**

**Brine Line Reaches**

**REACH**

- III
- IV
- IVA
- IVB
- IVD
- IVE
- V

~ 7 miles of 42-inch Ø pipe







02/14/2019 12:49



# Brine Concentration



## Antiscalants



# Questions??

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# Santa Ana River – Brine Line

Year	SAR Flow (AF)	SAR TDS (mg/L)	BL Flow (AF)	BL TDS (mg/L)	SAR no BL (mg/L)	Increase
2010	298153	450	4,407.61	5029.054711	679.5237818	51.01%
2011	263232	517	4,270.70	5166.790551	771.5432972	49.23%
2012	116259	598	4,336.57	5908.701254	1222.009435	104.35%
2013	91297	621	3,874.92	5578.86778	1273.285546	105.04%
2014	99606	582	4,033.41	5453.796809	1197.242851	105.71%
2015	98386	522	3,888.98	5431.891867	1129.096336	116.30%
2016	119510	541	3,705.94	5292.75328	1014.548291	87.53%
2017	178126	408	3,813.54	5358.279623	759.4532494	86.14%