
# Santa Maria Basin Fringe Areas
# Presentation on Results of Basin Characterization and Boundary Modification Options Study

February 28, 2018

Arroyo Grande, CA

Dick Tzou, Water Resources Engineer
Courtney Howard, Water Resources Division Manager

# Agenda

Purpose

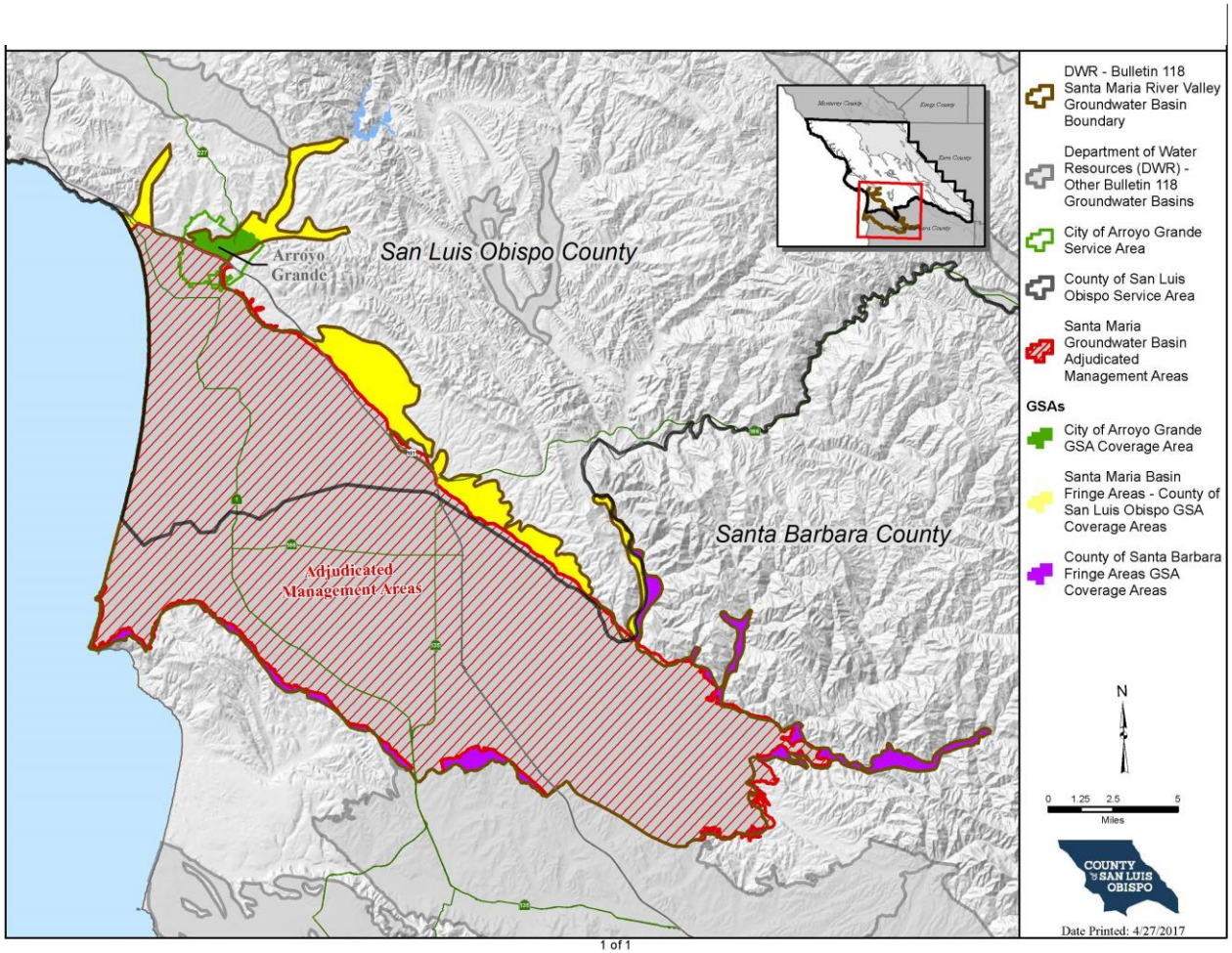
Presentation on the Results of the Santa Maria Basin Fringe Area Study

Timeline/Schedule

Future Items

Q&A

# Santa Maria Basin Fringe Areas and GSAs



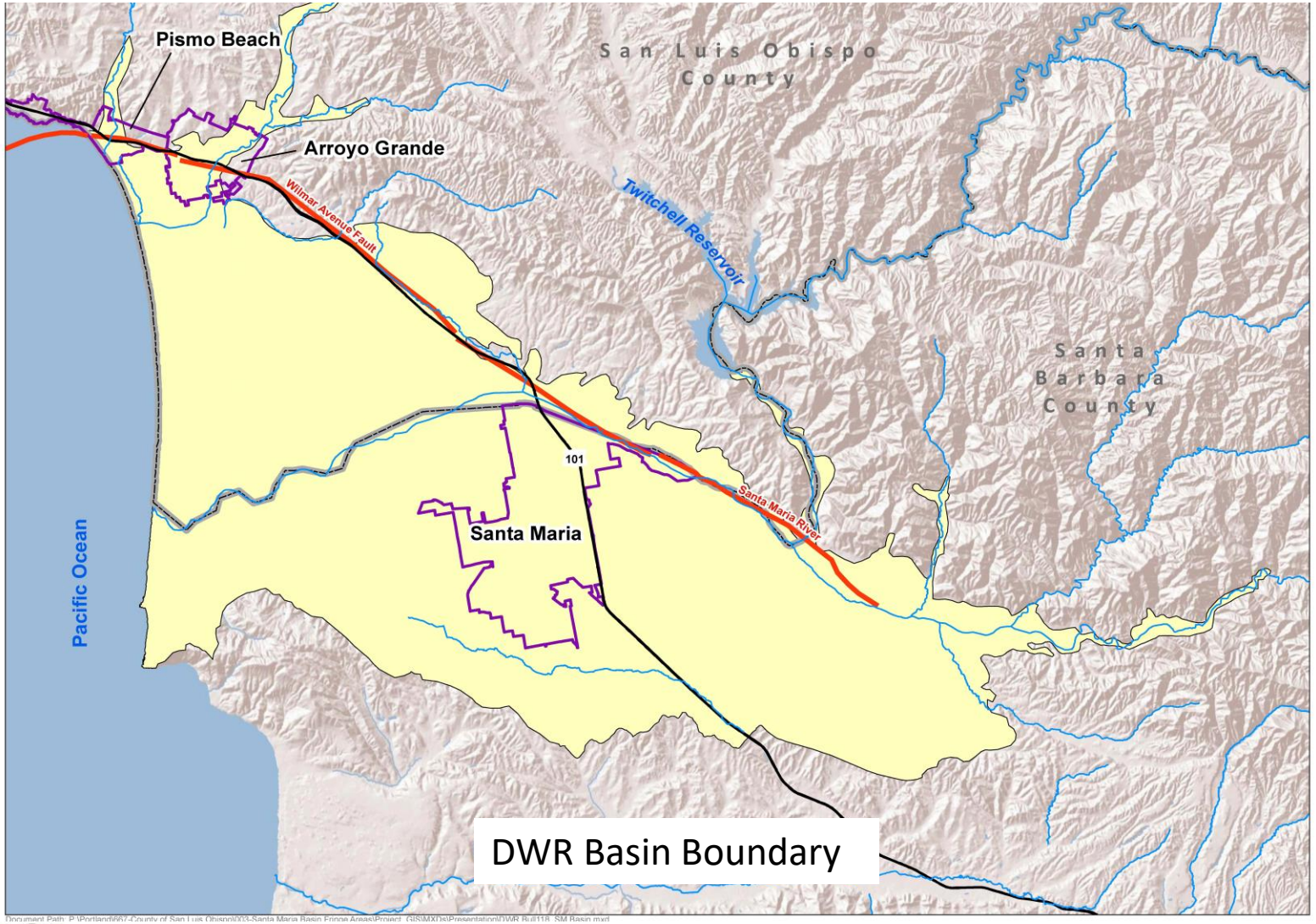

1 of 1

# Basin Characterization and Boundary Modification for the Fringe Area of the Santa Maria Groundwater Basin

San Luis Obispo County Flood Control and Water Conservation District

**Paul Sorensen**
Principal Hydrogeologist
GSI Water Solutions, Inc.
February 27-28, 2018

# Santa Maria River Valley Groundwater Basin (SMRVGB)

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# What is SGMA?

- **Sustainable Groundwater Management Act**
  - Groundwater Sustainability Agencies by 2017
  - Groundwater Sustainability Plans in 2022
  - Annual reporting requirements
  - Sustainability by 2042

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# What is Adjudication?

- A formal court judgment on a disputed matter over legal rights to the water supply.
  - Court defines the area
  - Results in a legally binding set of required groundwater management actions

- SMRVGB adjudication.
  - Judgment finalized in 2008
  - Three management areas (NCMA, NMMA, SMVMA)

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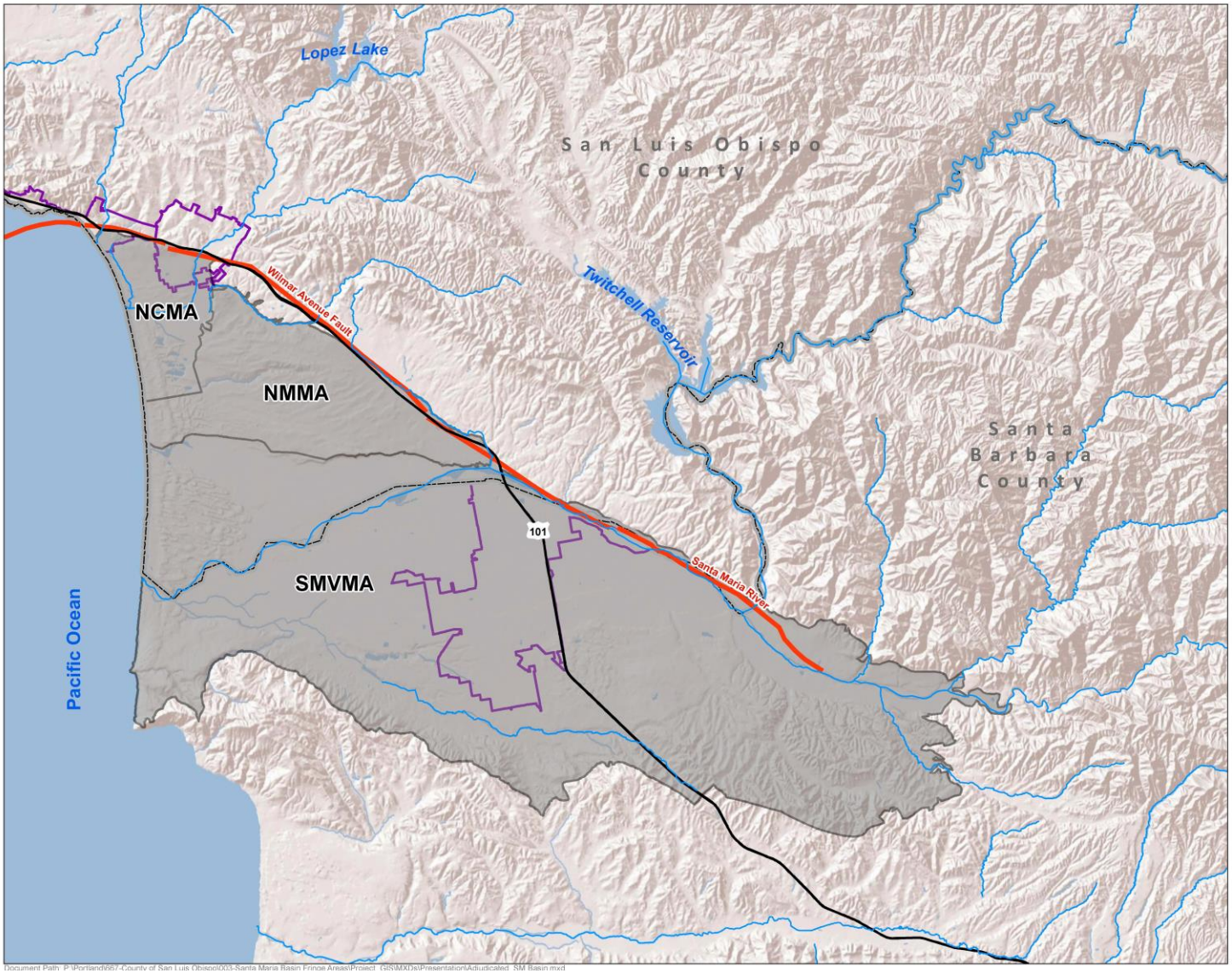
# SMRVGB Adjudicated Boundary

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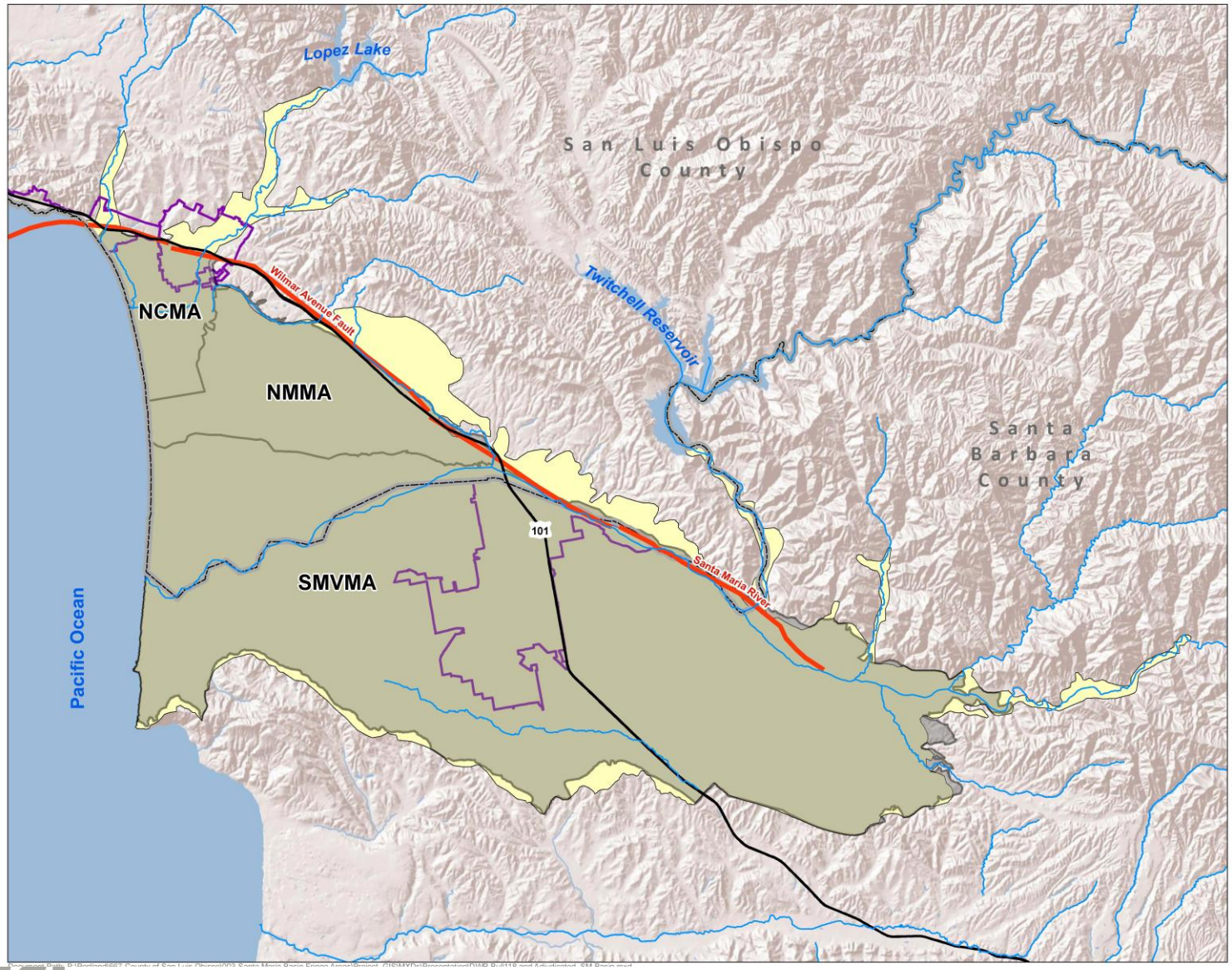
# What is a Fringe Area?

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# What is BBMR?

- **B**asin **B**oundary **M**odification **R**equest
  - A State-defined administrative process to amend established Basin Boundaries
  - Based on scientific and technical characterization
  - Must be submitted to DWR by June 30, 2018.

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# Why Request BBMR?

- Why pursue BBMR?
  - Reconcile scientific basis of boundary
  - Focus resources where needed

- Options in SMRVGB Fringe Areas
  - Request concurrence that a fringe area is a non-basin (scientifically exclude from SMRVGB)
  - Scientifically re-define fringe area as hydrologically distinct subbasin of SMRVGB

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# Definitions

- Basin – Aquifer or stacked aquifers with defined lateral boundaries and a definable bottom
- Subbasin– Subdivision of a basin based on geologic or hydrogeologic barriers
- Non-basin – Alluvial stream aquifer that flows into a basin but is otherwise not connected to the basin

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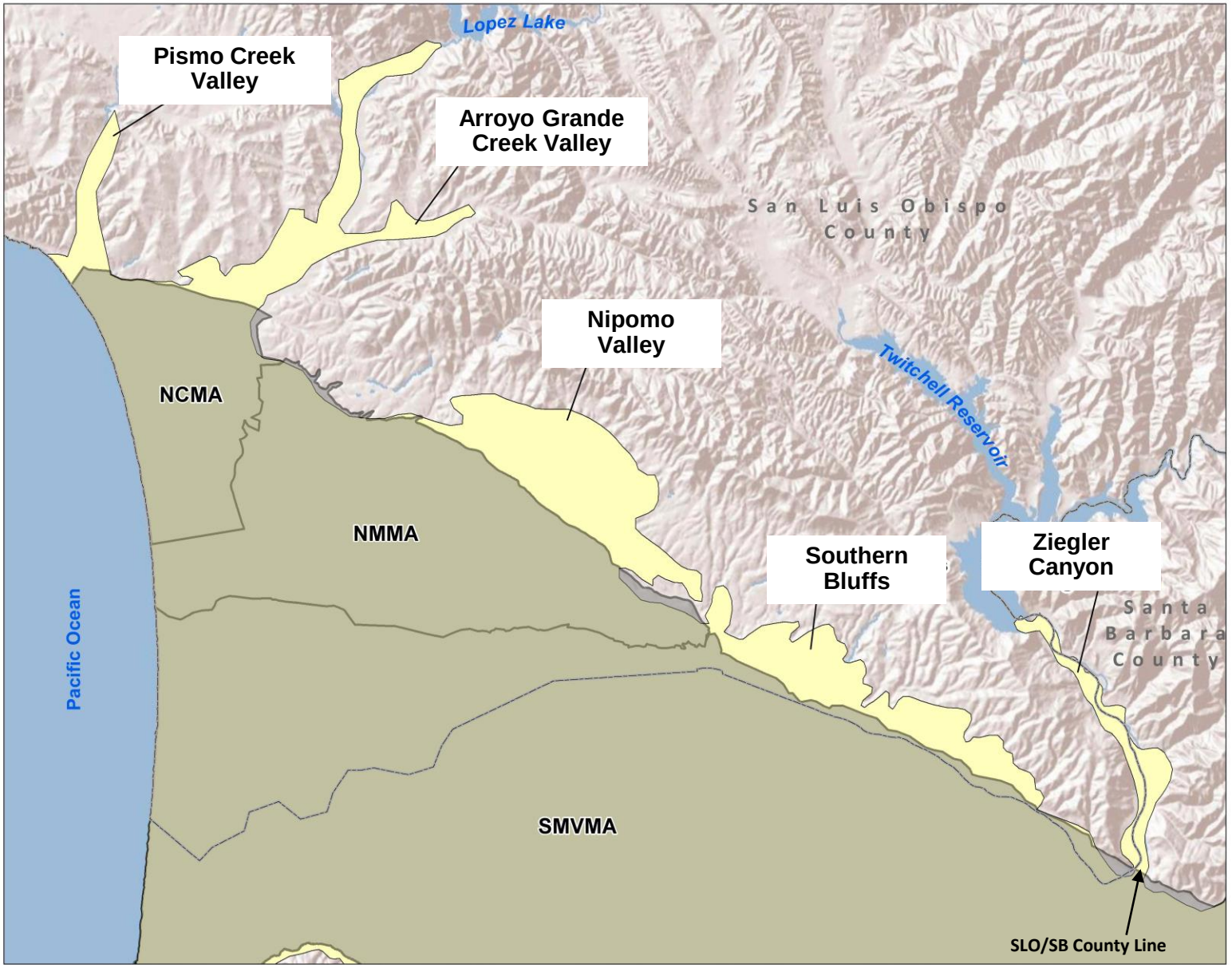
# Overview of Fringe Areas



# Approach to Basin Characterization

- Physical Setting – Air photos, topographic maps, land use, water use, hydrology
- Geologic Setting – Geologic maps, cross sections
- Hydrogeologic Setting – Hydraulic parameters, hydrographs, water level maps, SW/GW interaction, underflow calculations

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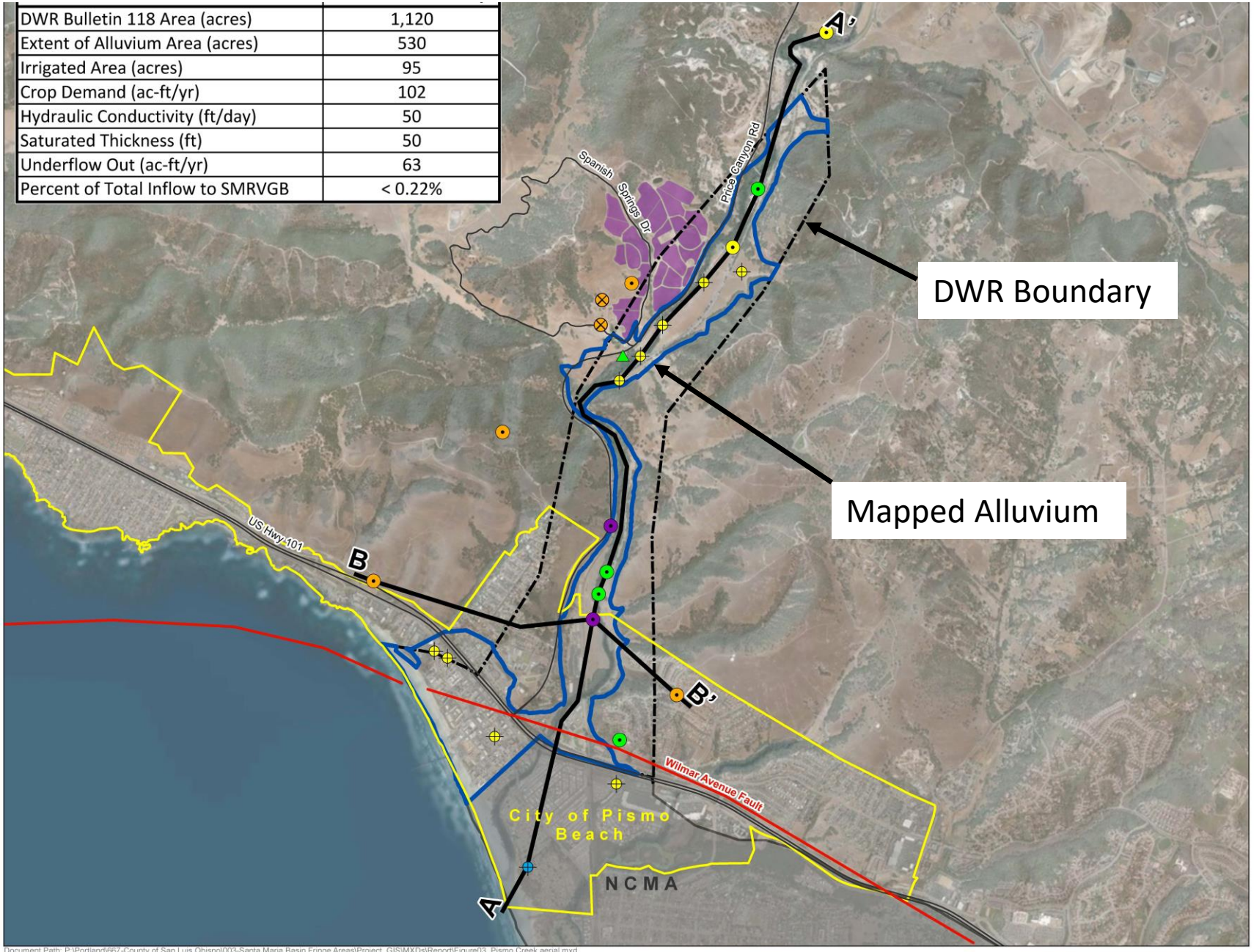
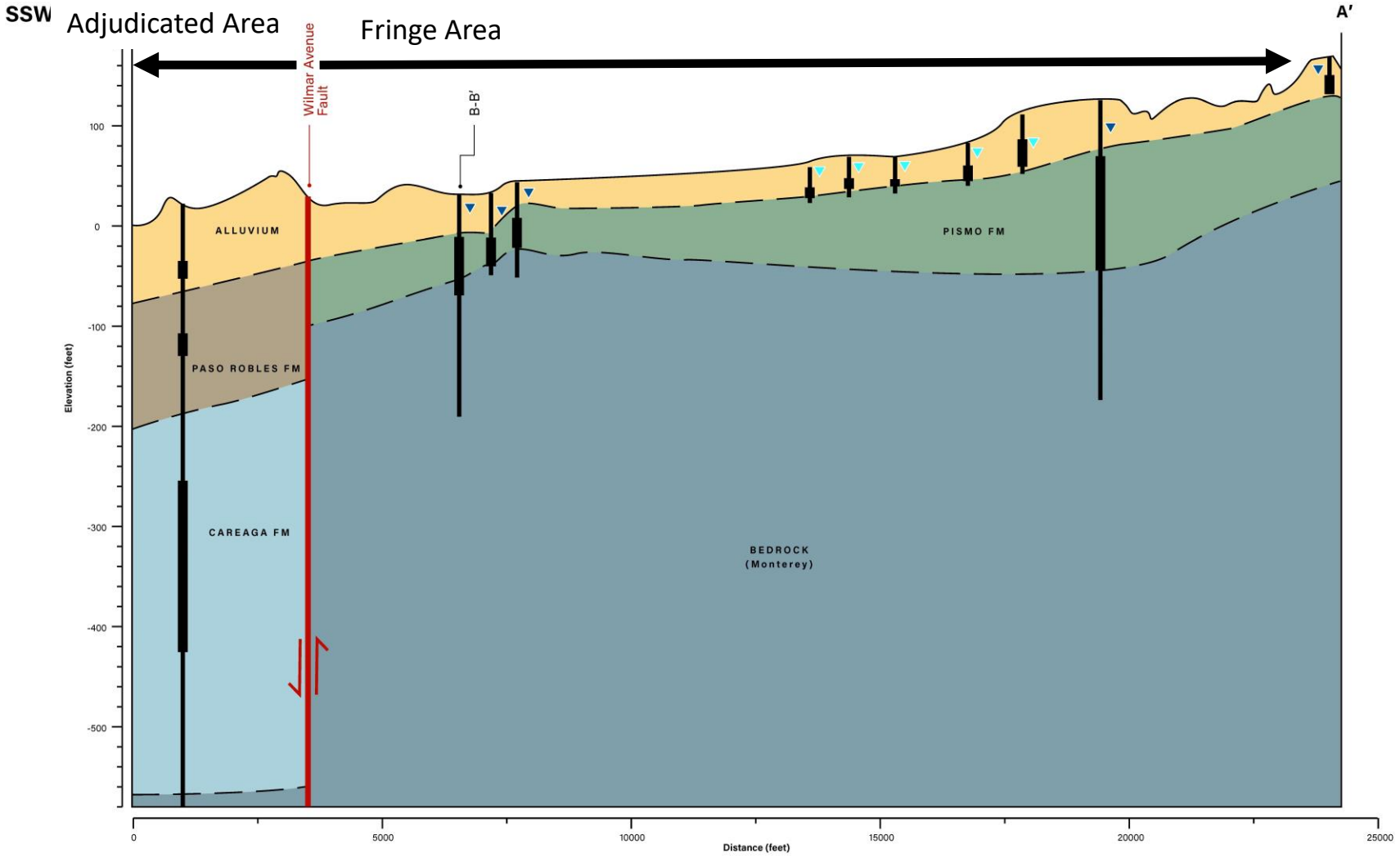
# Pismo Creek Valley

| | |
|---|---|
| DWR Bulletin 118 Area (acres) | 1,120 |
| Extent of Alluvium Area (acres) | 530 |
| Irrigated Area (acres) | 95 |
| Crop Demand (ac-ft/yr) | 102 |
| Hydraulic Conductivity (ft/day) | 50 |
| Saturated Thickness (ft) | 50 |
| Underflow Out (ac-ft/yr) | 63 |
| Percent of Total Inflow to SMRVGB | < 0.22% |



# Pismo Creek Valley Cross Section A-A’

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# Pismo Creek Fringe Area Summary

- Minor alluvial groundwater use
- Underflow to SMRVGB estimated at 63 acre-feet/year, or 0.22% total recharge to Basin. Not significant.
- Wilmar Avenue Fault places Basin sediments against bedrock
- Actions in the Basin do not affect groundwater conditions in Pismo Creek Valley

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# Pismo Creek Valley Fringe Area

- BBMR Alternatives
  - Request to be designated a separate subbasin of SMRVGB, with refined alluvial boundary
  - Request to exclude area from SMRVGB, designate area as “non-basin”

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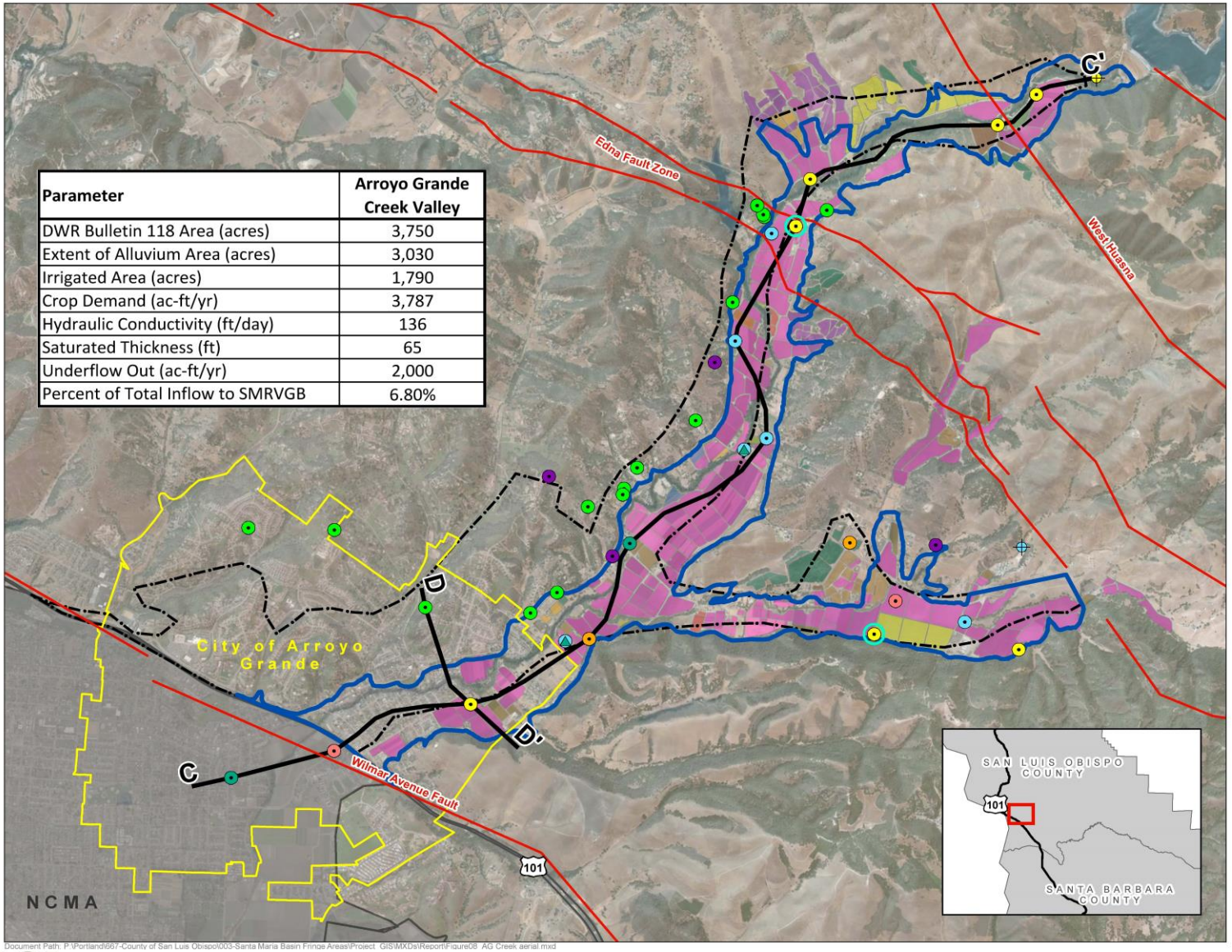
# Arroyo Grande Creek Valley




| Parameter | Arroyo Grande Creek Valley |
|---|---|
| DWR Bulletin 118 Area (acres) | 3,750 |
| Extent of Alluvium Area (acres) | 3,030 |
| Irrigated Area (acres) | 1,790 |
| Crop Demand (ac-ft/yr) | 3,787 |
| Hydraulic Conductivity (ft/day) | 136 |
| Saturated Thickness (ft) | 65 |
| Underflow Out (ac-ft/yr) | 2,000 |
| Percent of Total Inflow to SMRVGB | 6.80% |

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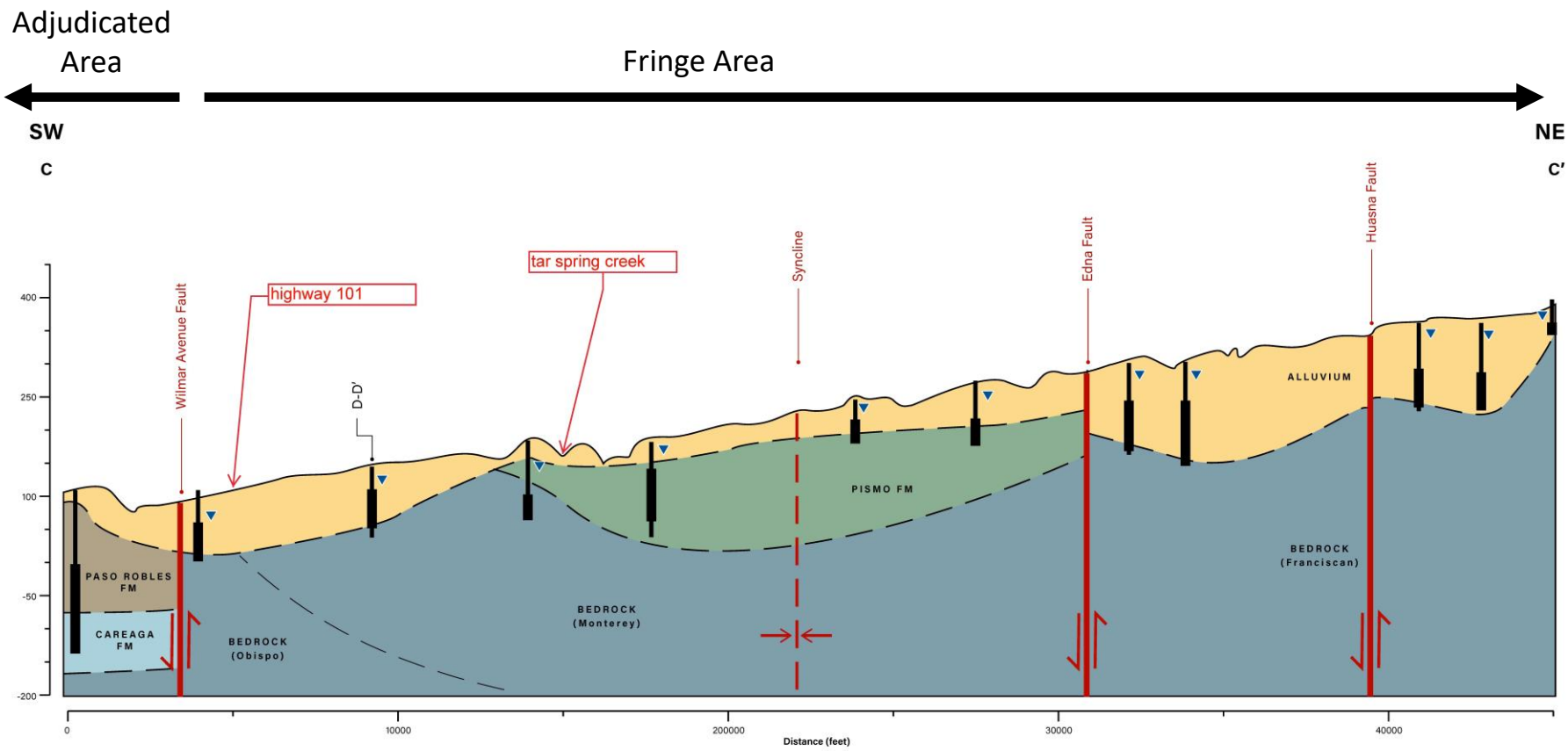
# Arroyo Grande Creek Valley Cross Section C-C’

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# Arroyo Grande Creek Fringe Area Summary

- Significant use of groundwater for irrigation.
- Groundwater levels are stable, due to regular recharge of alluvium from Lake Lopez releases.
- Underflow to SMRVGB estimated at 2,000 AFY, or 7% total recharge of Basin.
- Wilmar Avenue Fault places Basin sediments against bedrock.

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# Arroyo Grande Creek

- BBMR Proposed Alternative
  - Request to be designated a separate subbasin of SMRVGB, with refined alluvial boundary

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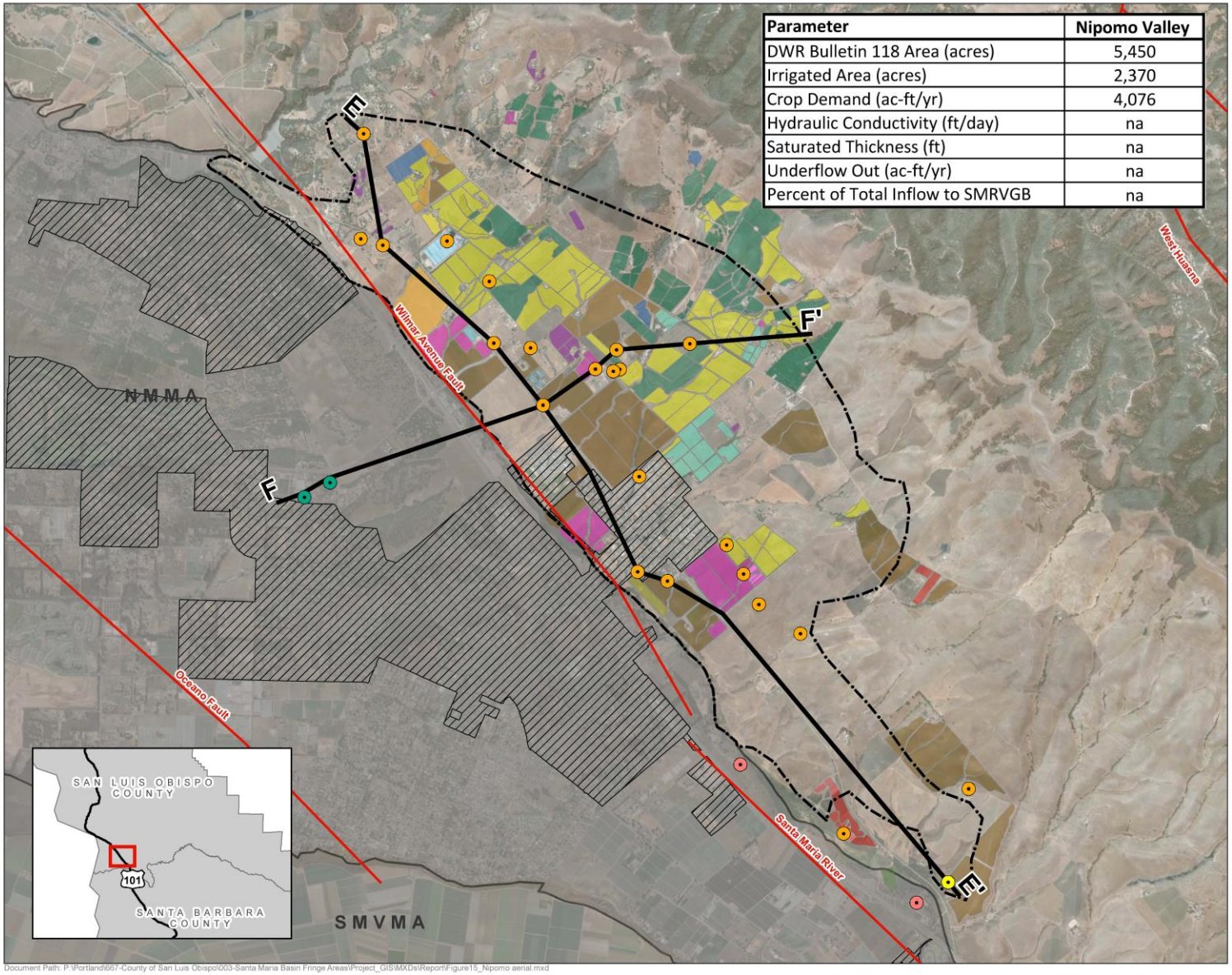
# Nipomo Valley




| Parameter | Nipomo Valley |
|---|---|
| DWR Bulletin 118 Area (acres) | 5,450 |
| Irrigated Area (acres) | 2,370 |
| Crop Demand (ac-ft/yr) | 4,076 |
| Hydraulic Conductivity (ft/day) | na |
| Saturated Thickness (ft) | na |
| Underflow Out (ac-ft/yr) | na |
| Percent of Total Inflow to SMRVGB | na |

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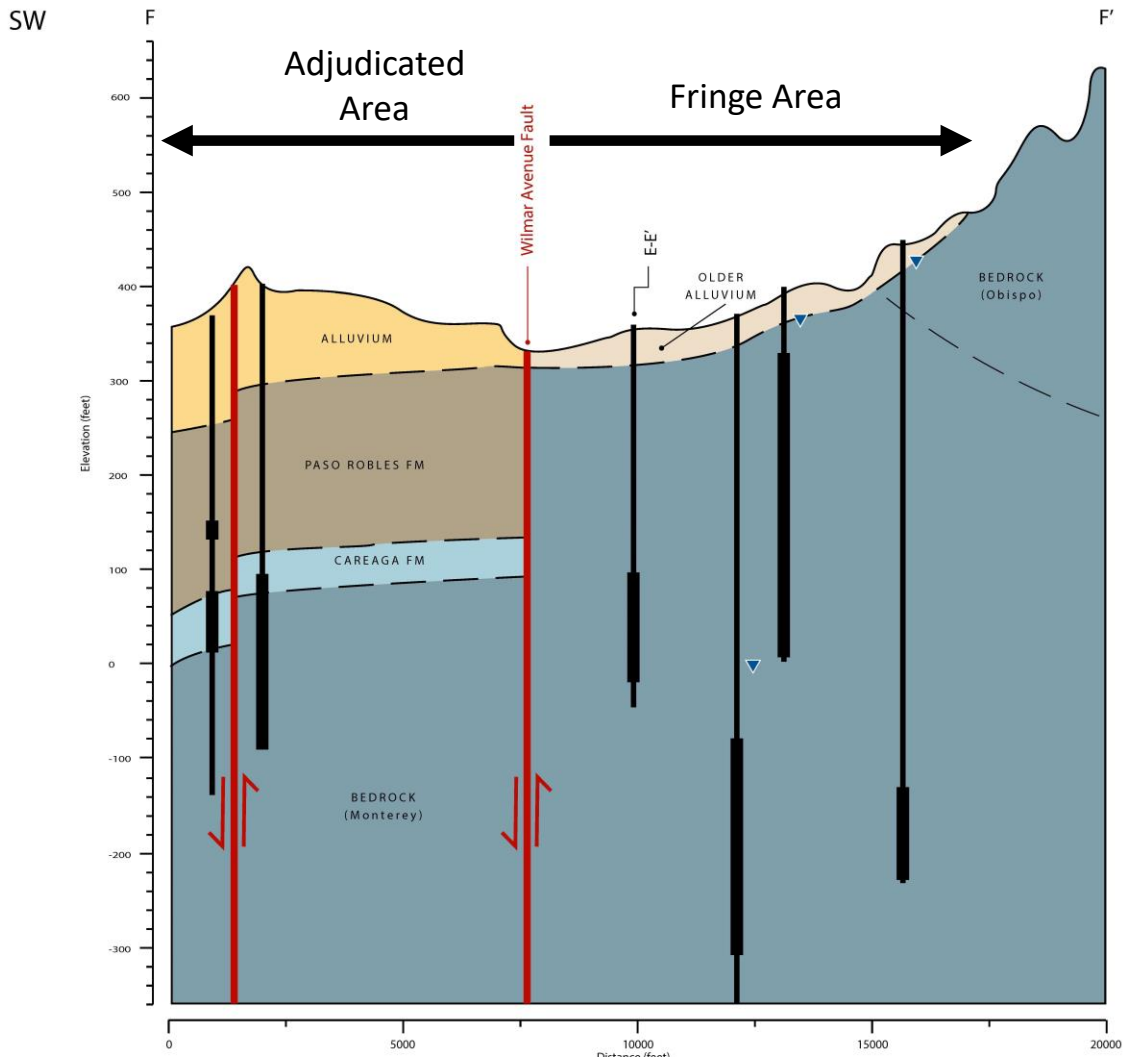
# Nipomo Valley Cross Section F-F’

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# Nipomo Valley Fringe Area Summary

- Older Alluvium is not an aquifer
- Groundwater use is from bedrock formations
- Wilmar Avenue Fault places bedrock against the sediments of the SMRVGB

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# Nipomo Valley

- BBMR Proposed Alternative
  - Exclude area from SMRVGB, designate area as “non-basin”

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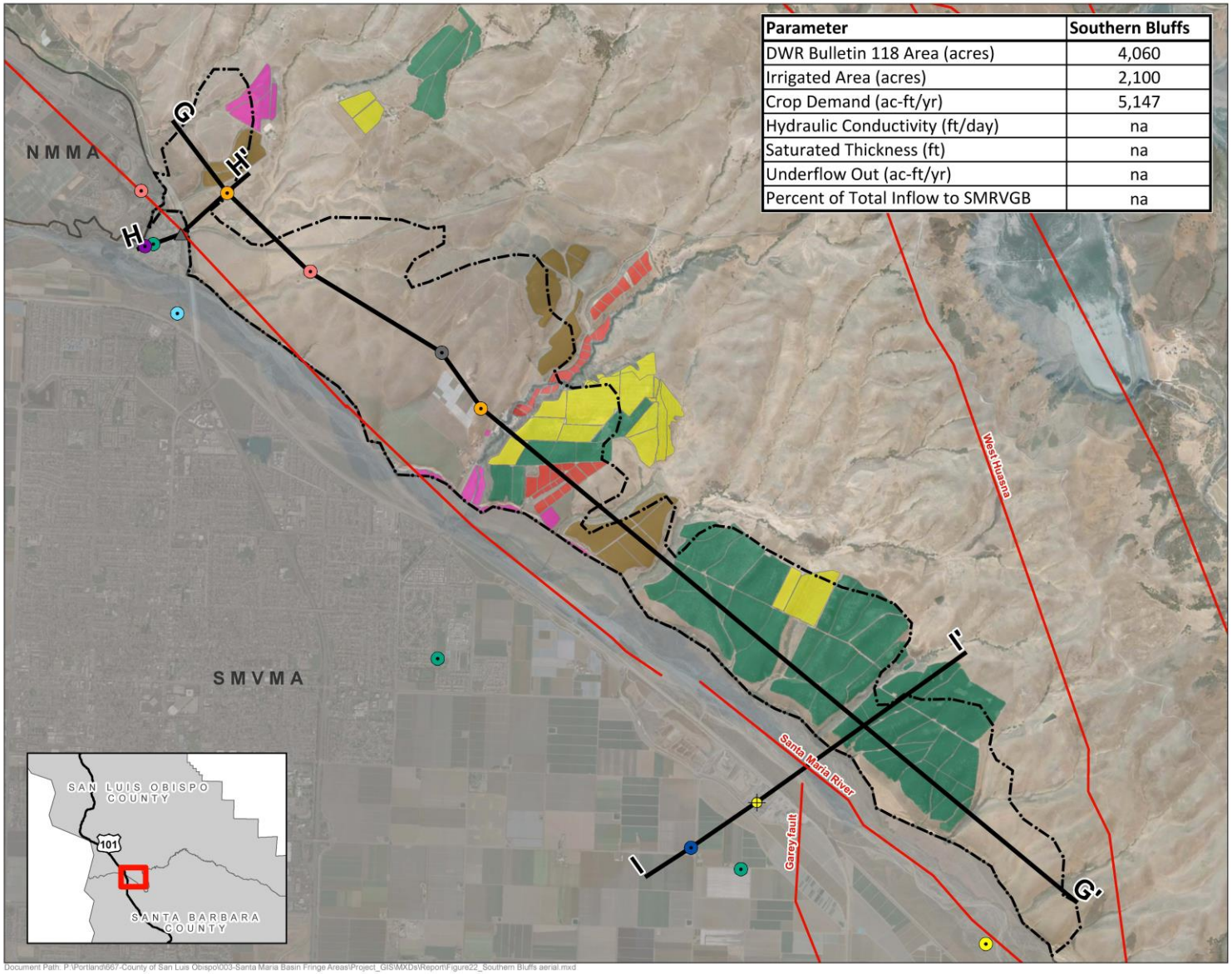
# Southern Bluffs




| Parameter | Southern Bluffs |
|---|---|
| DWR Bulletin 118 Area (acres) | 4,060 |
| Irrigated Area (acres) | 2,100 |
| Crop Demand (ac-ft/yr) | 5,147 |
| Hydraulic Conductivity (ft/day) | na |
| Saturated Thickness (ft) | na |
| Underflow Out (ac-ft/yr) | na |
| Percent of Total Inflow to SMRVGB | na |

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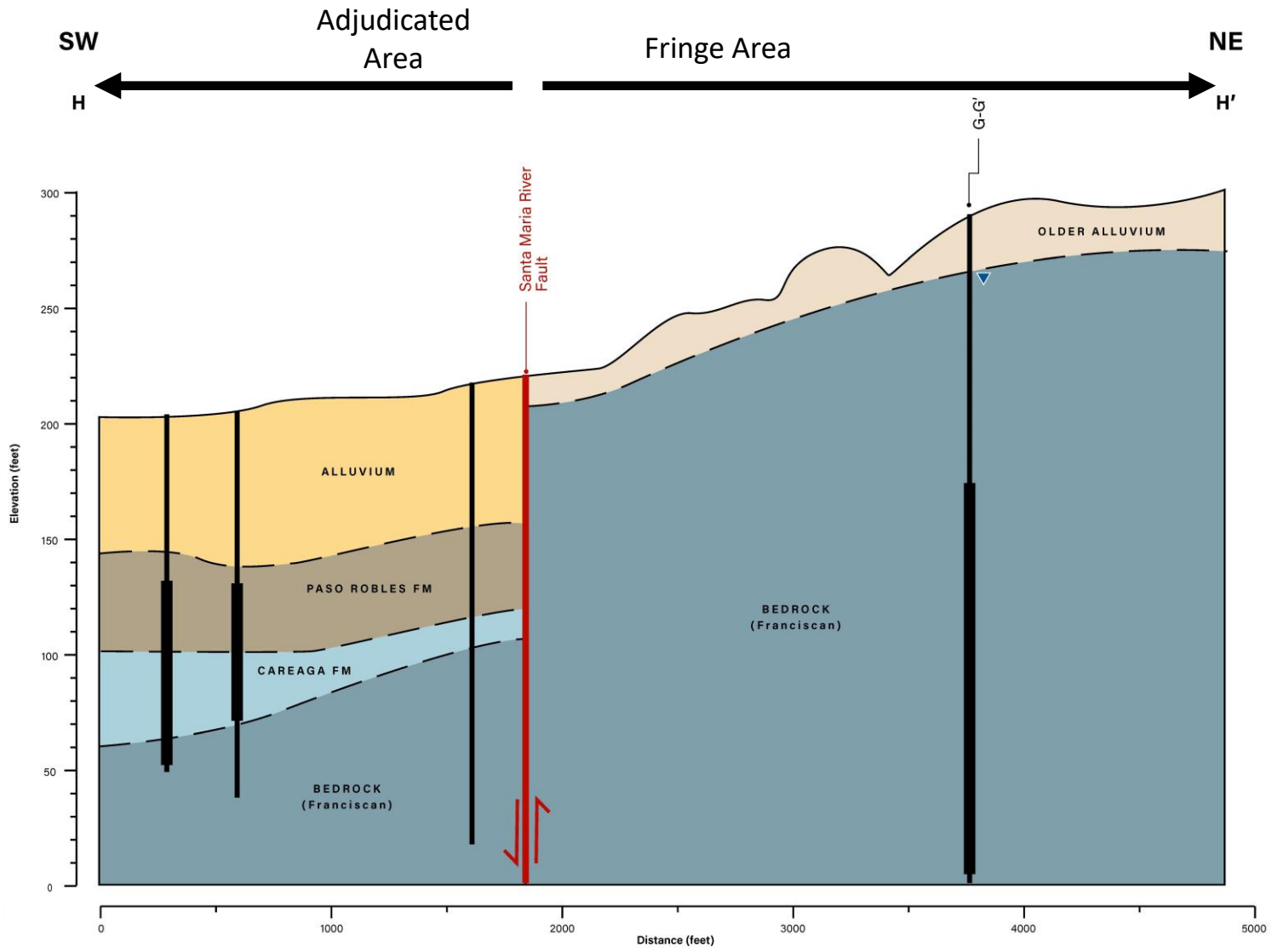
# Southern Bluffs Cross Section H-H’

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# Southern Bluffs Fringe Area Summary

- Orcutt Formation (like Older Alluvium in Nipomo Valley) is not an aquifer
- Groundwater use draws from bedrock formations
- Wilmar Avenue Fault/Santa Maria River Fault places bedrock against the sediments of the SMRVGB

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# Southern Bluffs

- Proposed BBMR Alternative
  - Exclude area from SMRVGB, designate area as “non-basin”

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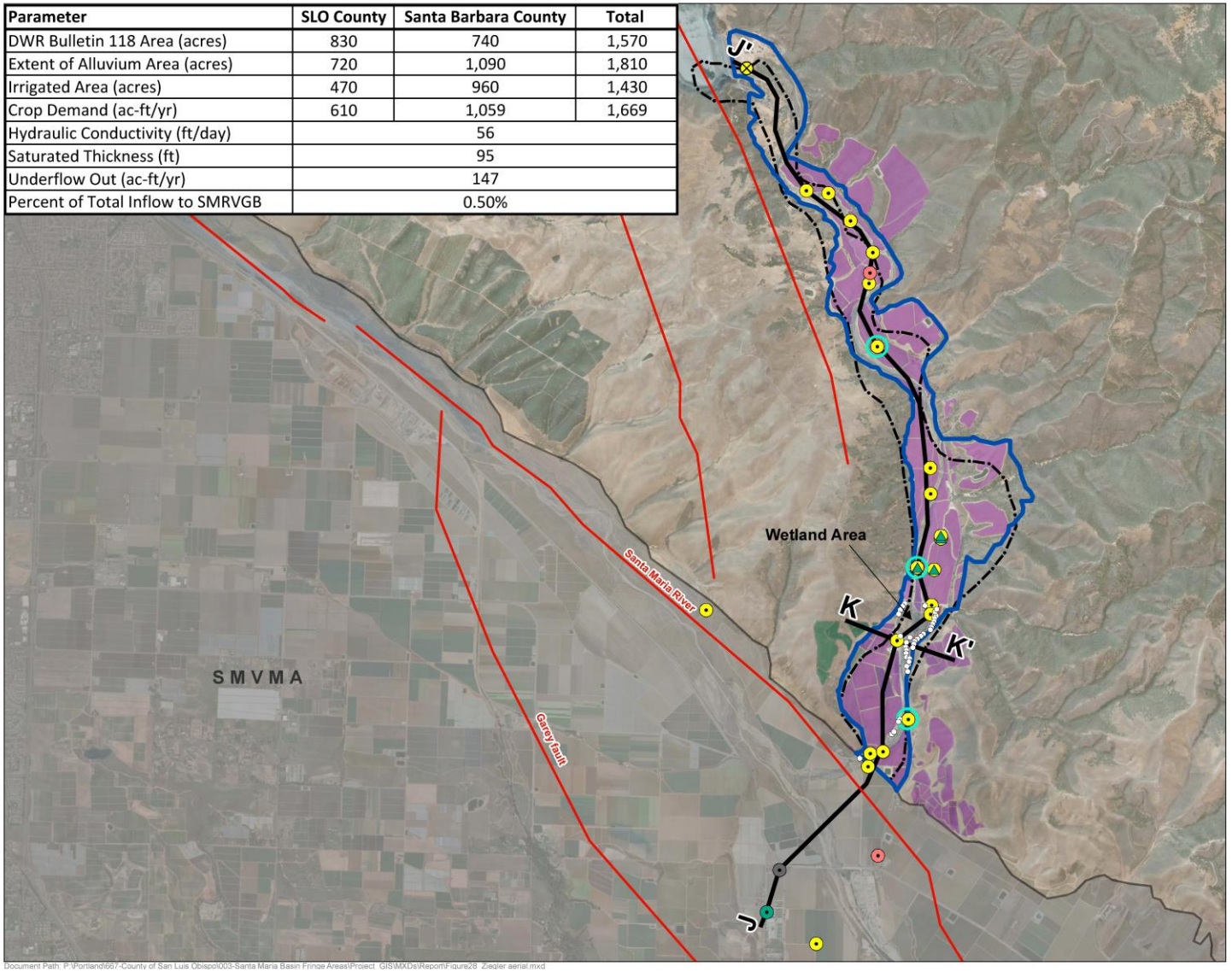
# Ziegler Canyon

| Parameter | SLO County | Santa Barbara County | Total |
|---|---|---|---|
| DWR Bulletin 118 Area (acres) | 830 | 740 | 1,570 |
| Extent of Alluvium Area (acres) | 720 | 1,090 | 1,810 |
| Irrigated Area (acres) | 470 | 960 | 1,430 |
| Crop Demand (ac-ft/yr) | 610 | 1,059 | 1,669 |
| Hydraulic Conductivity (ft/day) | 56 | | |
| Saturated Thickness (ft) | 95 | | |
| Underflow Out (ac-ft/yr) | 147 | | |
| Percent of Total Inflow to SMRVGB | 0.50% | | |

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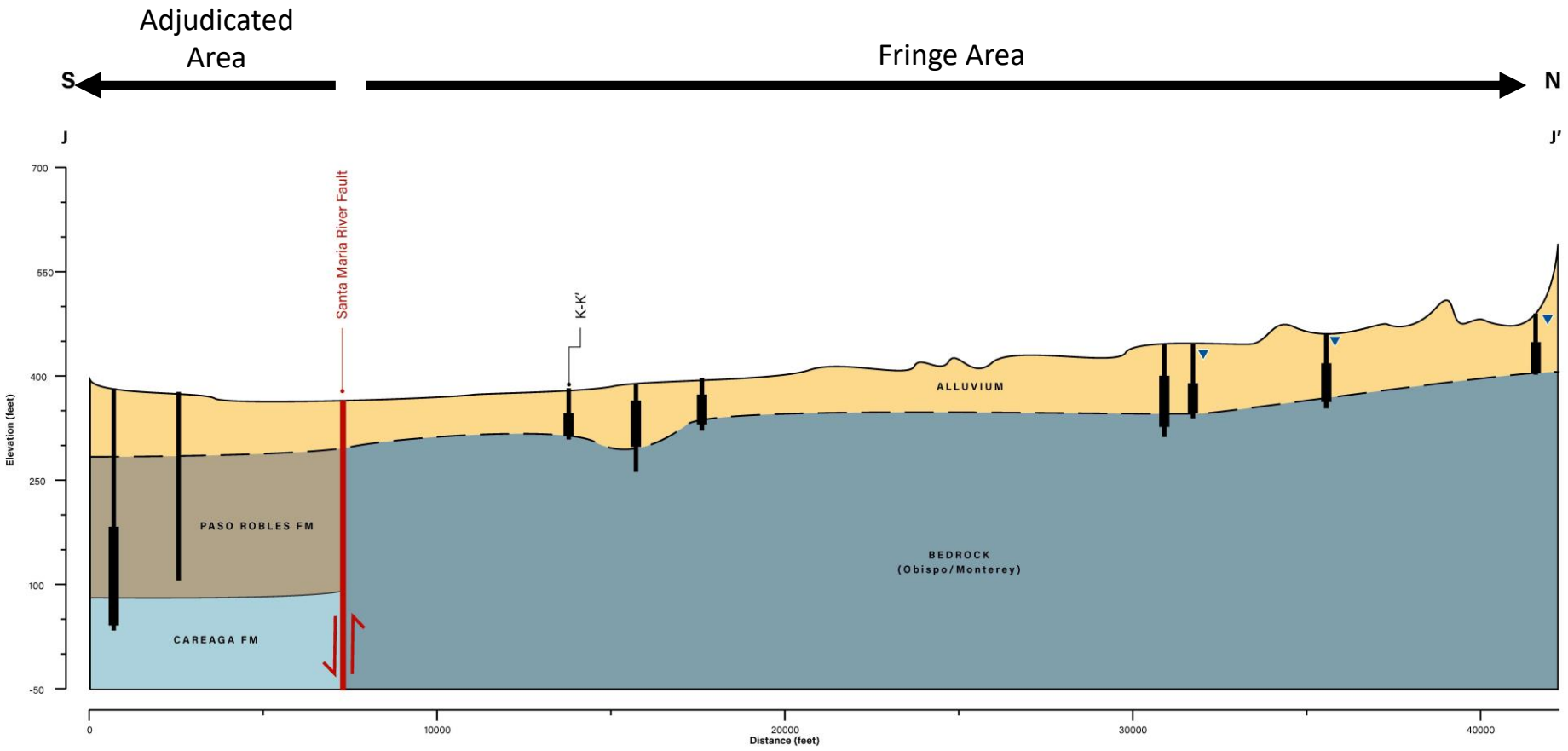
# Ziegler Canyon Cross Section J-J’

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# Ziegler Canyon Fringe Area Summary

- Significant irrigation use
- Fault places bedrock against SMRVGB sediments
- Groundwater levels return to pre-drought levels with Twitchell downstream releases
- Underflow to SMRVGB estimated at 0.5% total recharge
- Groundwater boundary isolates upper 75% of valley from SMRVGB

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# Ziegler Canyon (Cuyama River Valley)

- BBMR Alternatives
  - Request to be designated a separate subbasin of SMRVGB, with refined alluvial boundary
  - Request to exclude area from SMRVGB, designate area as “non-basin”

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# Preliminary Proposed BBMR Requests

- Nipomo Valley and Southern Bluffs
  - Exclude area from SMRVGB, designate area as “non-basin”
- Pismo Creek and Ziegler Canyon
  - Exclude area from SMRVGB, designate area as “non-basin”
- Arroyo Grande Creek
  - Separate subbasin of SMRVGB
  - Refine basin boundary consistent with mapped alluvium

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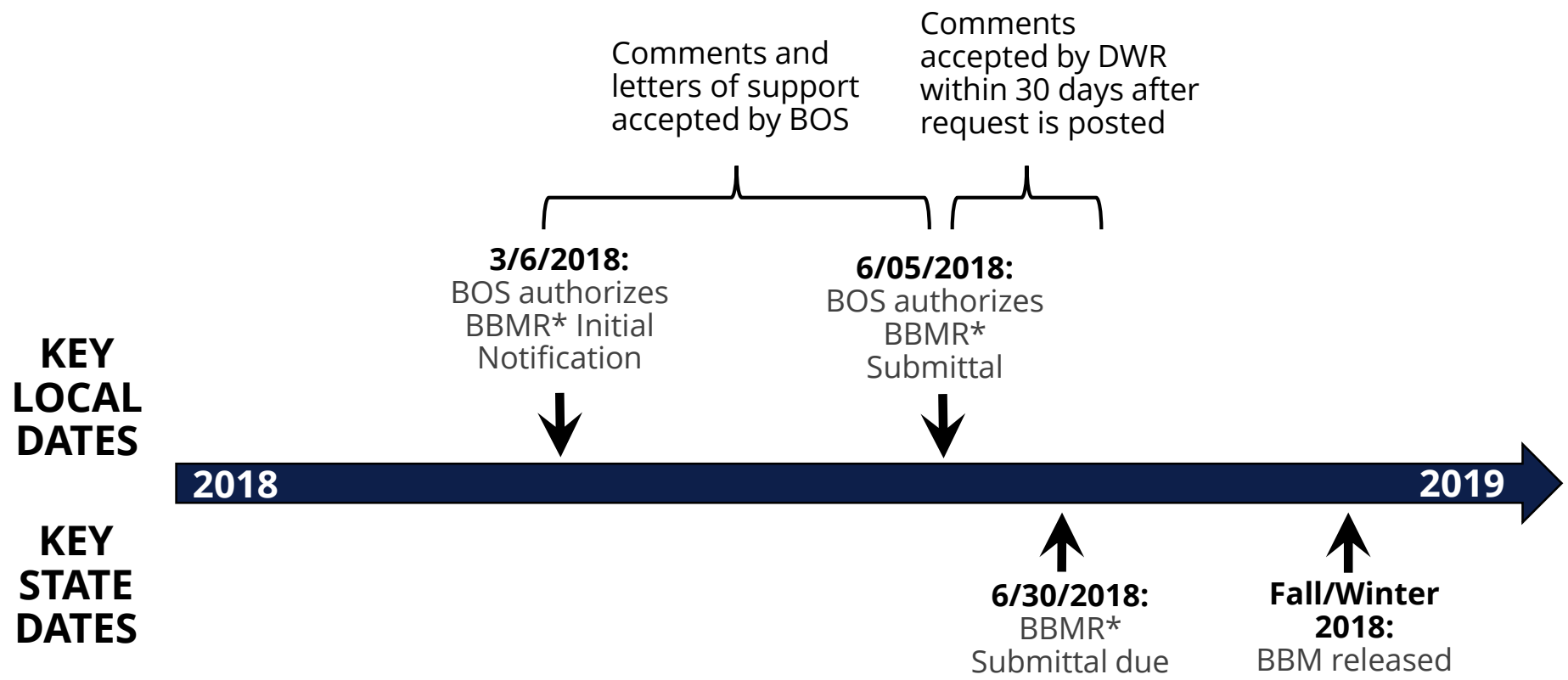
# Thank You

# **Key Dates** (Santa Maria Basin)




*BBMR = Basin Boundary Modification Request

# Future Items

## Public Comments

- Due date for all written comments to staff: **4/13/2018**
  - Draft report for Santa Maria Basin Fringe Area Characterization Study (currently available online)
  - Draft Technical Report for BBMR submittal (available online 3/23/2018)
- Draft reports may be viewed online at: https://slocountywater.org/sgma/
- All comments may be submitted to dtzou@co.slo.ca.us

# Questions and Feedback


# Thank you!

For more information, join our email list:
**www.slocountywater.org/sgma**