

April 26th, 2023

# Water Supply Evaluation TM



**CONFLUENCE**  
ENGINEERING SOLUTIONS

# Presentation Overview

- Background
- Water Supply Model
- Scenario Results and Conclusions
- Recommendations

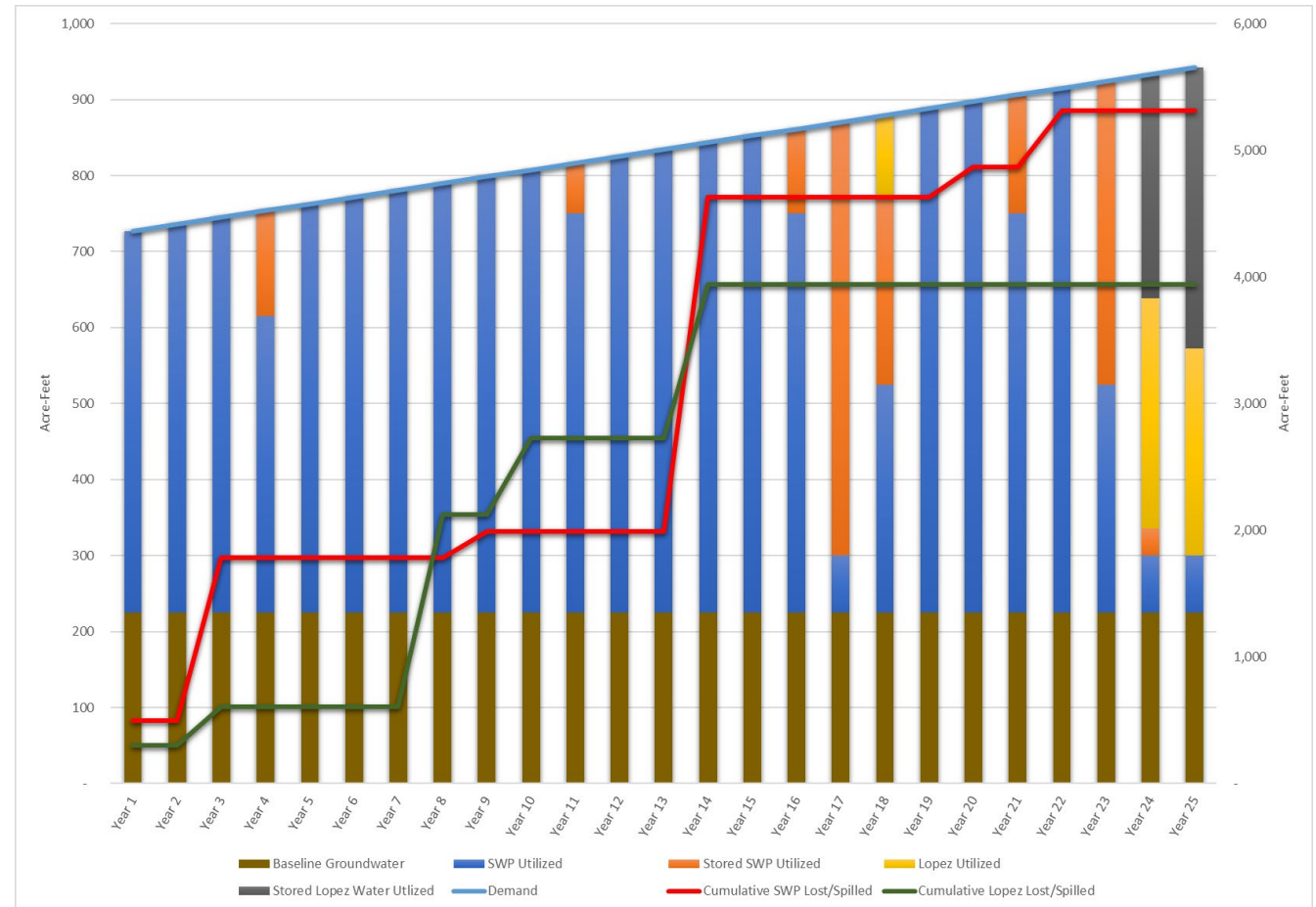


# Background

- Robust Water Supply Portfolio
  - State Water Project (SWP)
    - Water Service Amount
    - Drought Buffer
  - Lopez Reservoir
  - Santa Maria Groundwater Basin
- Water Supply Management Changes
  - Water Management Tools Amendment
  - Zone 3 Contract Changes
  - SLOCFCWCD “Unsubscribed Allocation”

# Water Supply Operations Model

- Computation model to analyze a water supply portfolio under predicted future conditions
  - Incorporates historic hydrology and predicted climate change impacts
- Ability to analyze operational strategies:
  - Water supply reliability
  - Water system operation costs
  - Cost recovery opportunities



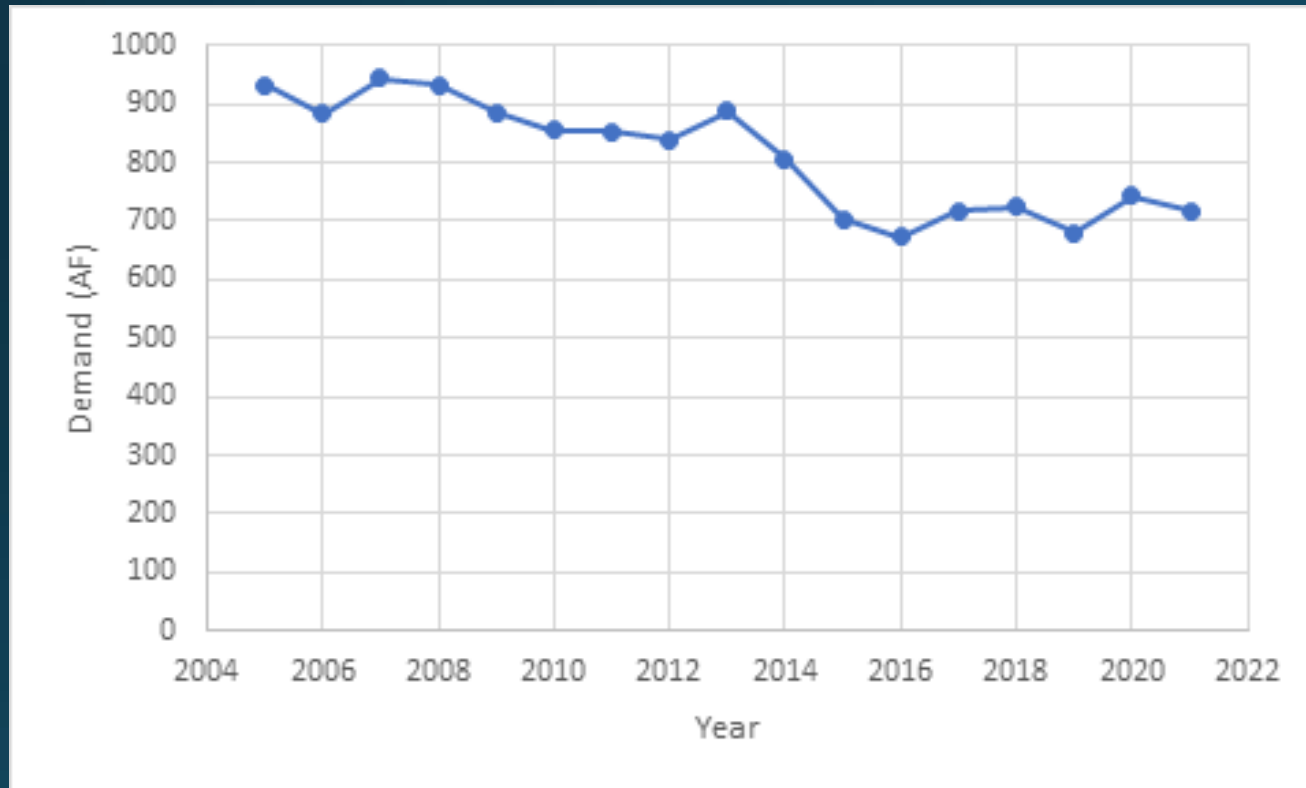
# Water Supply Portfolio

- State Water Project
  - Water Service Amount: 750 AFY
  - Drought Buffer: 750 AFY
- Groundwater Allocation: 900 AFY<sup>1</sup>
- Lopez Allocation: 303 AFY

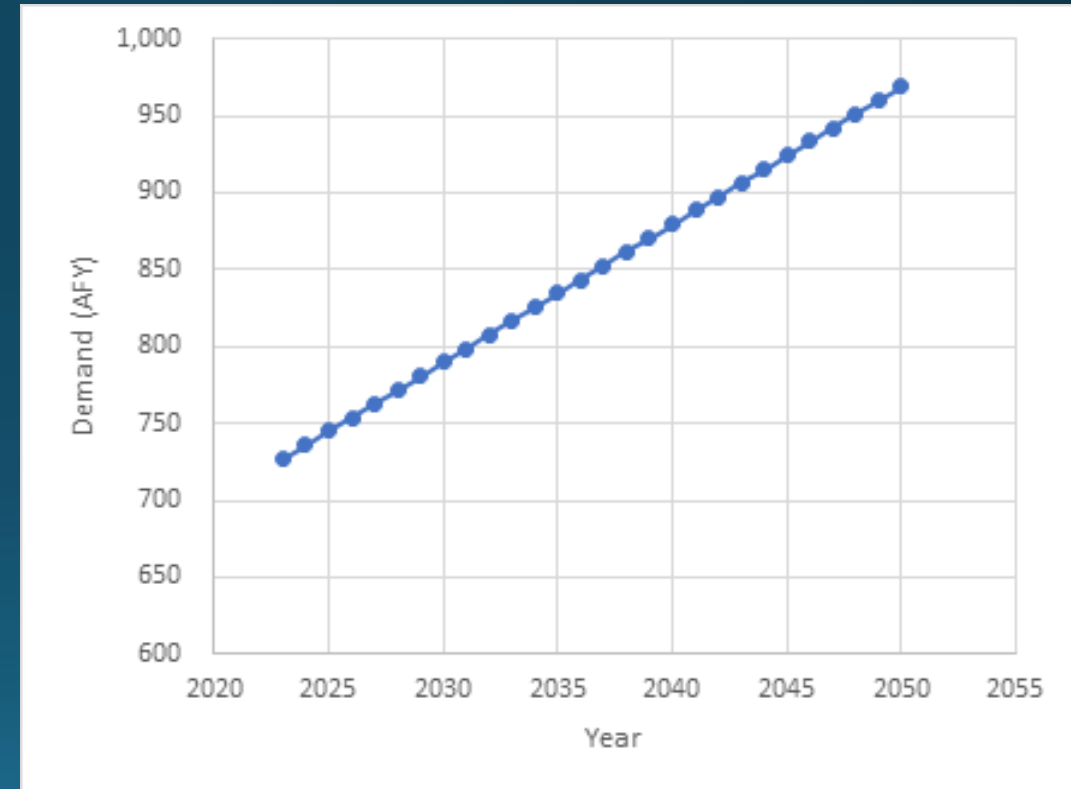
<sup>1</sup>To be consistent with recent groundwater pumping rates and to avoid inducing seawater intrusion, the amount of groundwater the District can currently pump each year in the Supply Model is limited to 225 AFY or 25% of 900 AFY for planning purposes.

# Water Demand Assumptions

Historic



Predicted



# Water Supply Portfolio Assumptions

## Current Water Supply

Supply	Allocation Assumptions (AFY)	Drought Buffer (AFY)
SWP WSA	750	
SWP Drought Buffer		750
Lopez Reservoir	303	
Groundwater	225	
<b>Total</b>	<b>1,278</b>	

## Additional Drought Buffer

Supply	Allocation Assumptions (AFY)	Drought Buffer (AFY)
SWP WSA	750	
SWP Drought Buffer		1,125
Lopez Reservoir	303	
Groundwater	225	
<b>Total</b>	<b>1,278</b>	

# Water Supply Model Cost/Value Assumptions

## Cost Assumptions

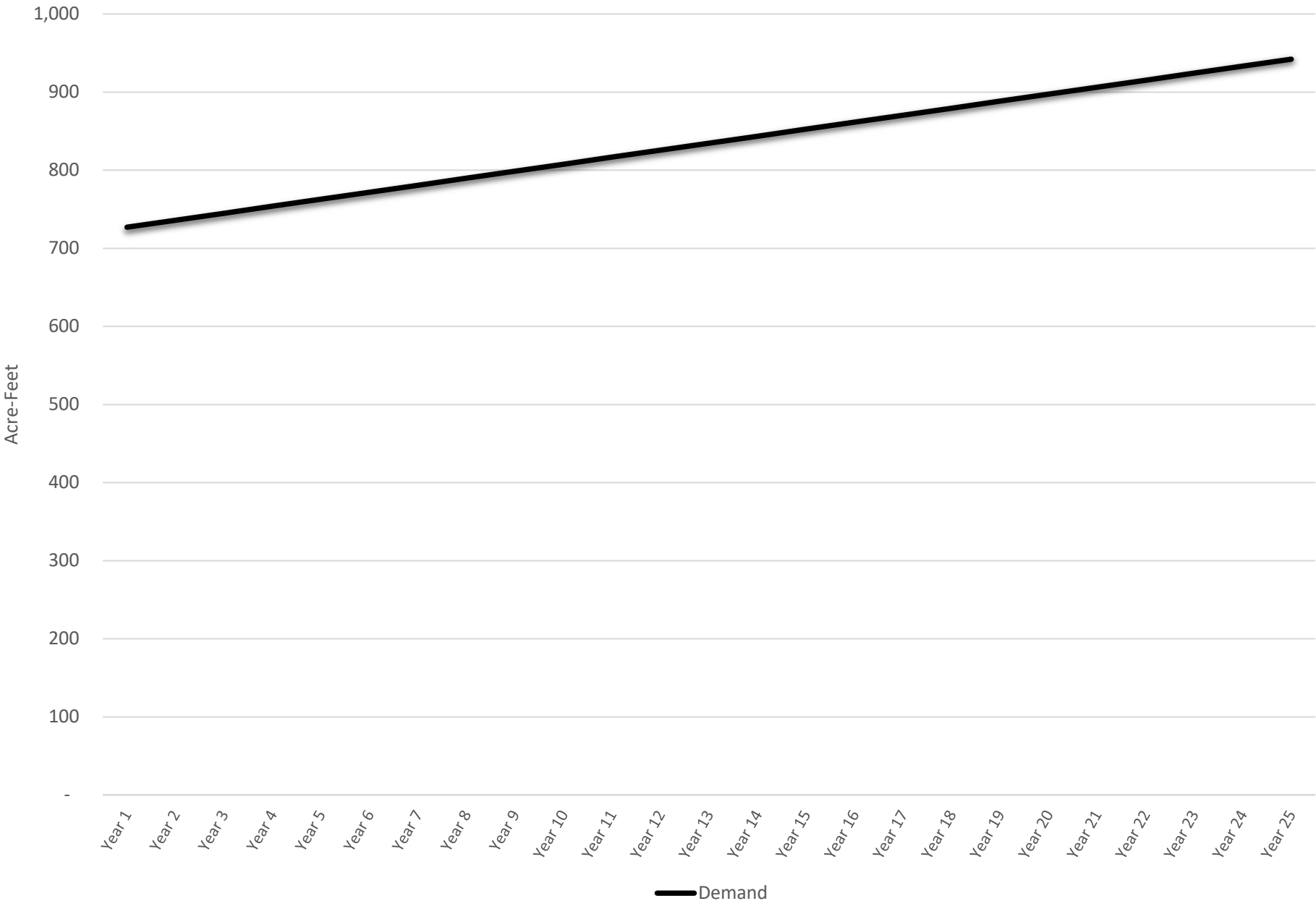
<b>Water Type</b>	<b>Fixed Costs (\$/AF)</b>	<b>Variable Costs (\$/AF)</b>
Water Service Amount (WSA)	\$1,100	\$300
Drought Buffer	\$205	\$300
Lopez Allocation	\$1,650	\$180
Groundwater	N/A	\$180

## Value Assumptions

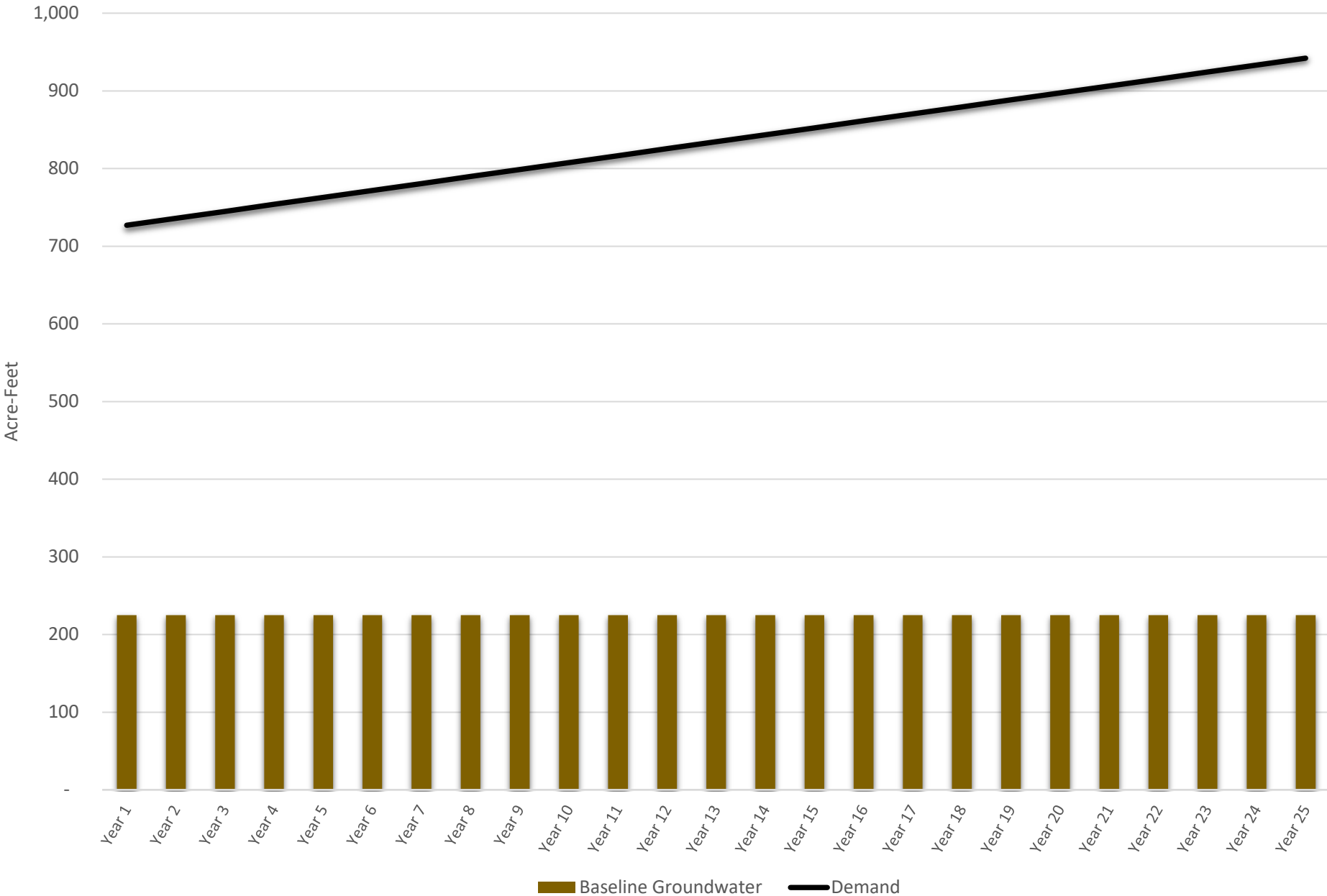
<b>Year Type</b>	<b>Estimated Value (\$/AF)</b>
Wet year	\$200
Normal Year	\$500
Below Normal Year	\$1,000
Dry Year	\$1,500
Critical Year	\$2,000



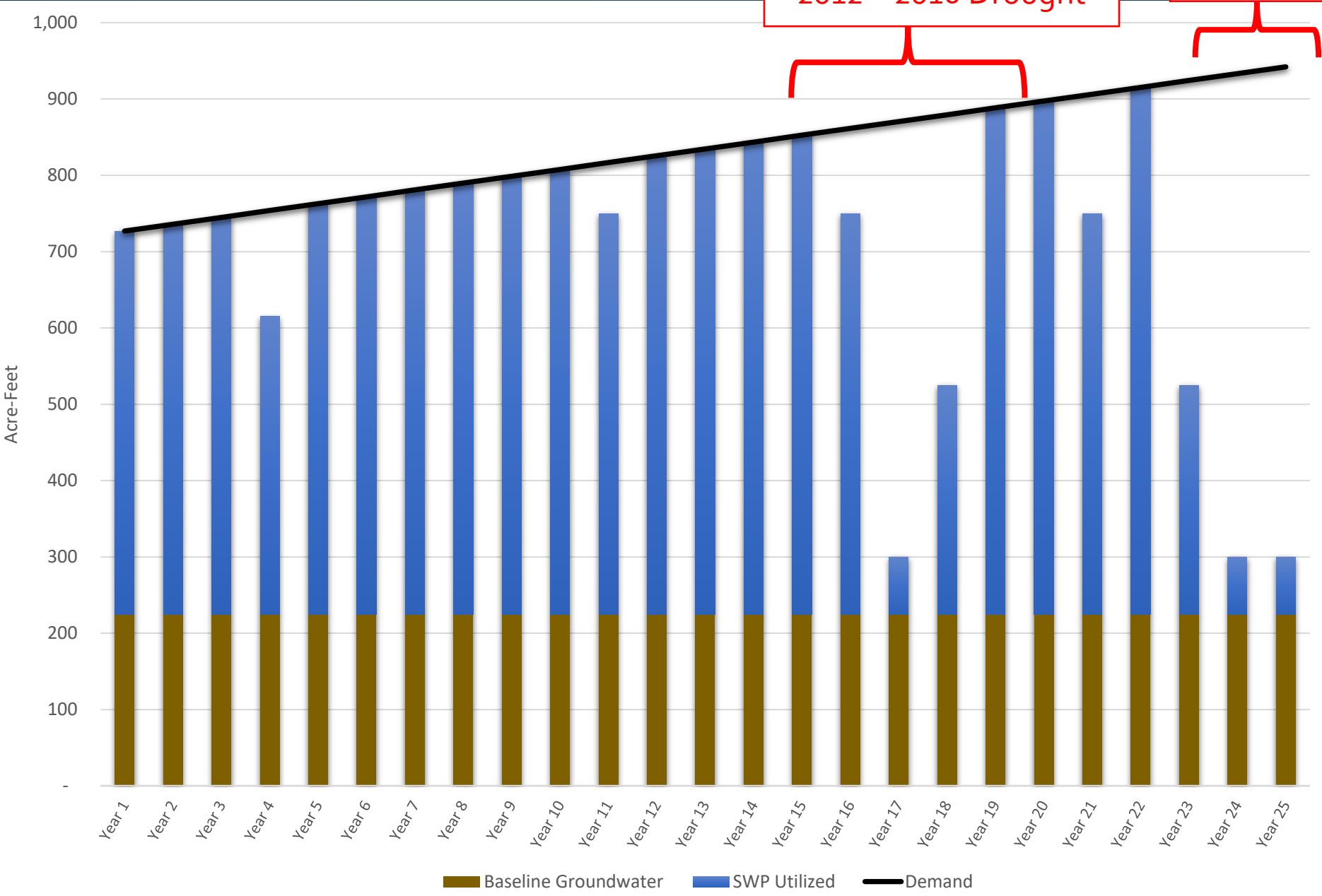
# Current Scenario



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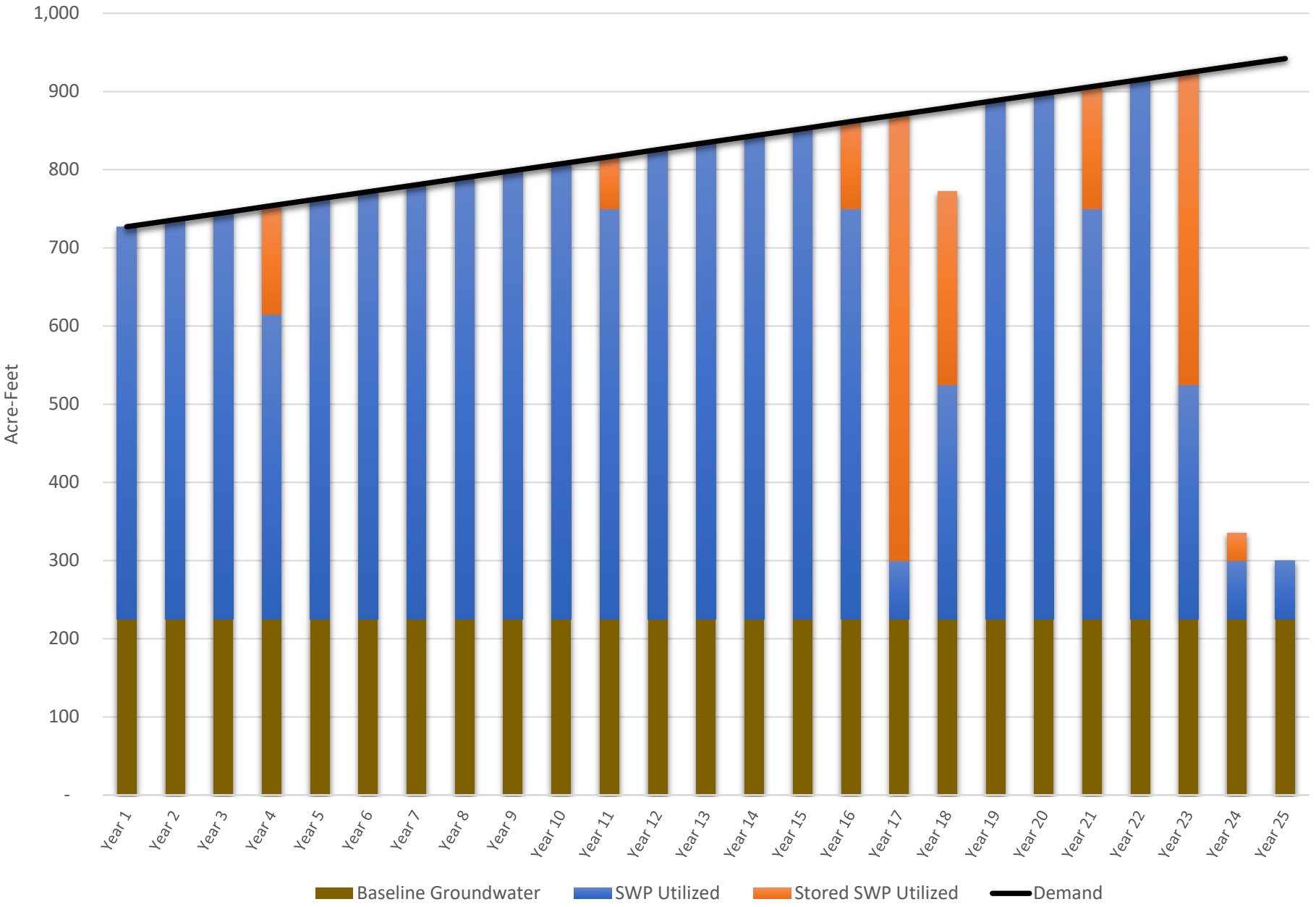


2012 - 2016 Drought

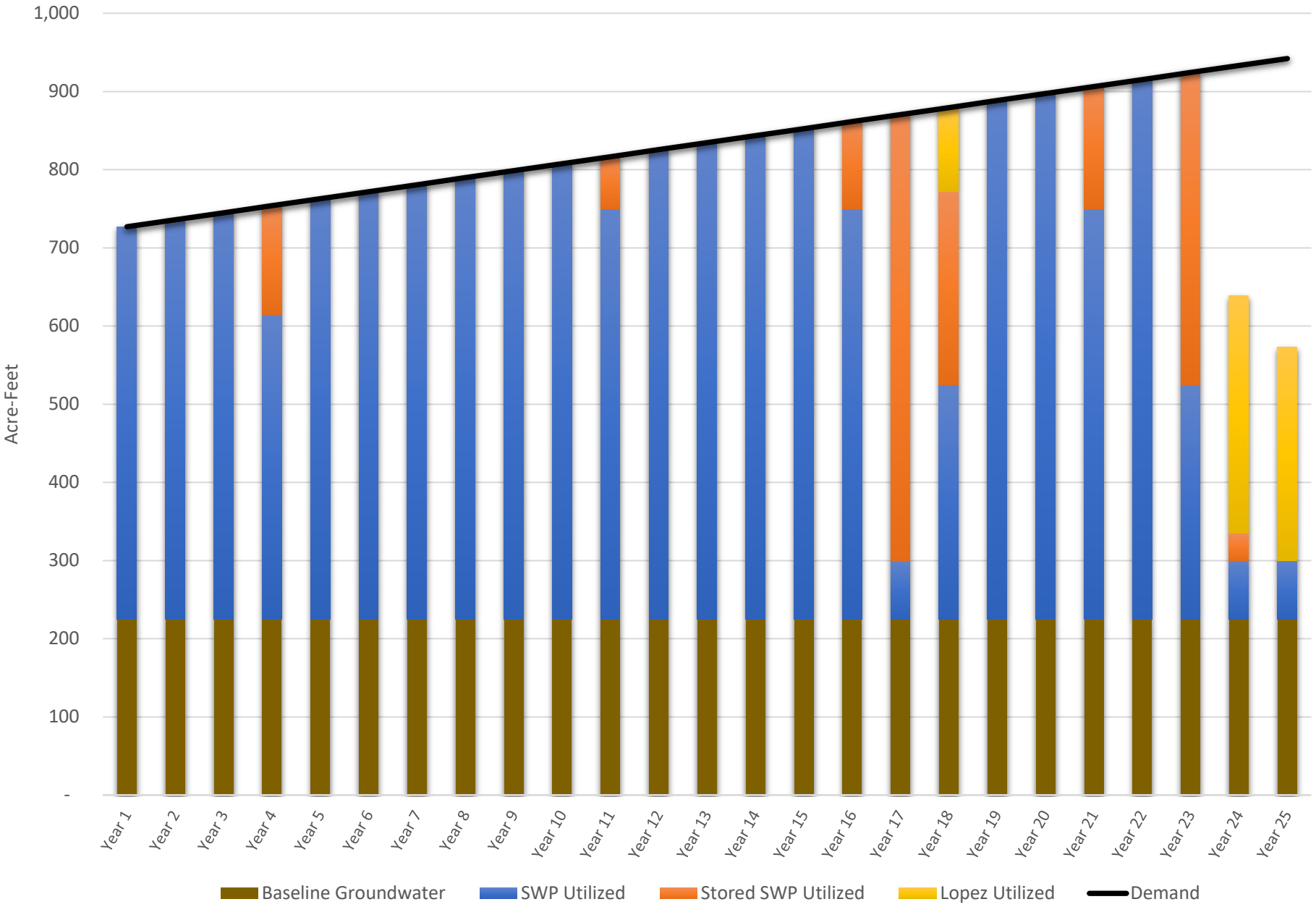
2020 - 2022 Drought

Baseline Groundwater SWP Utilized Demand

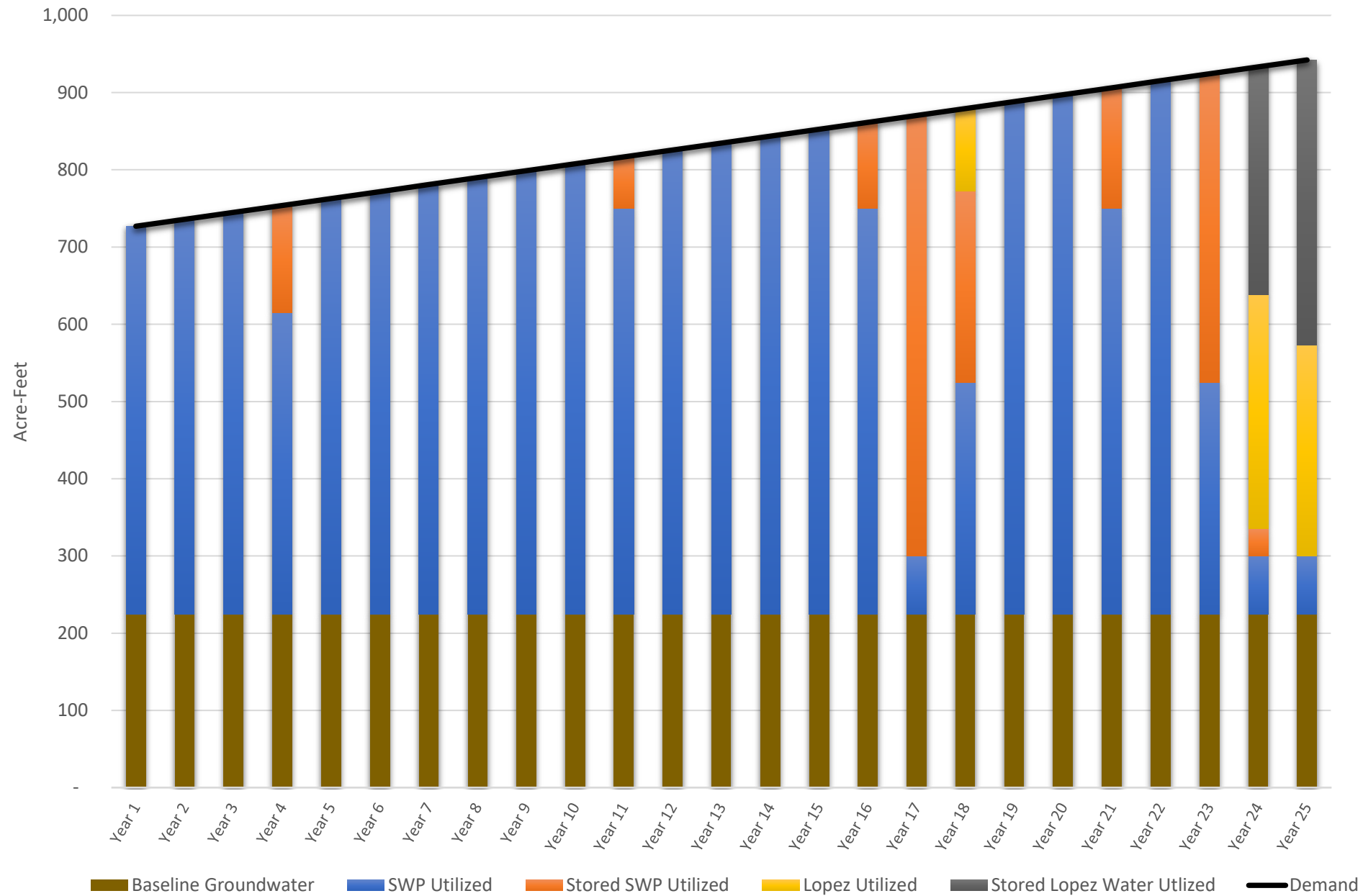
# Current Scenario



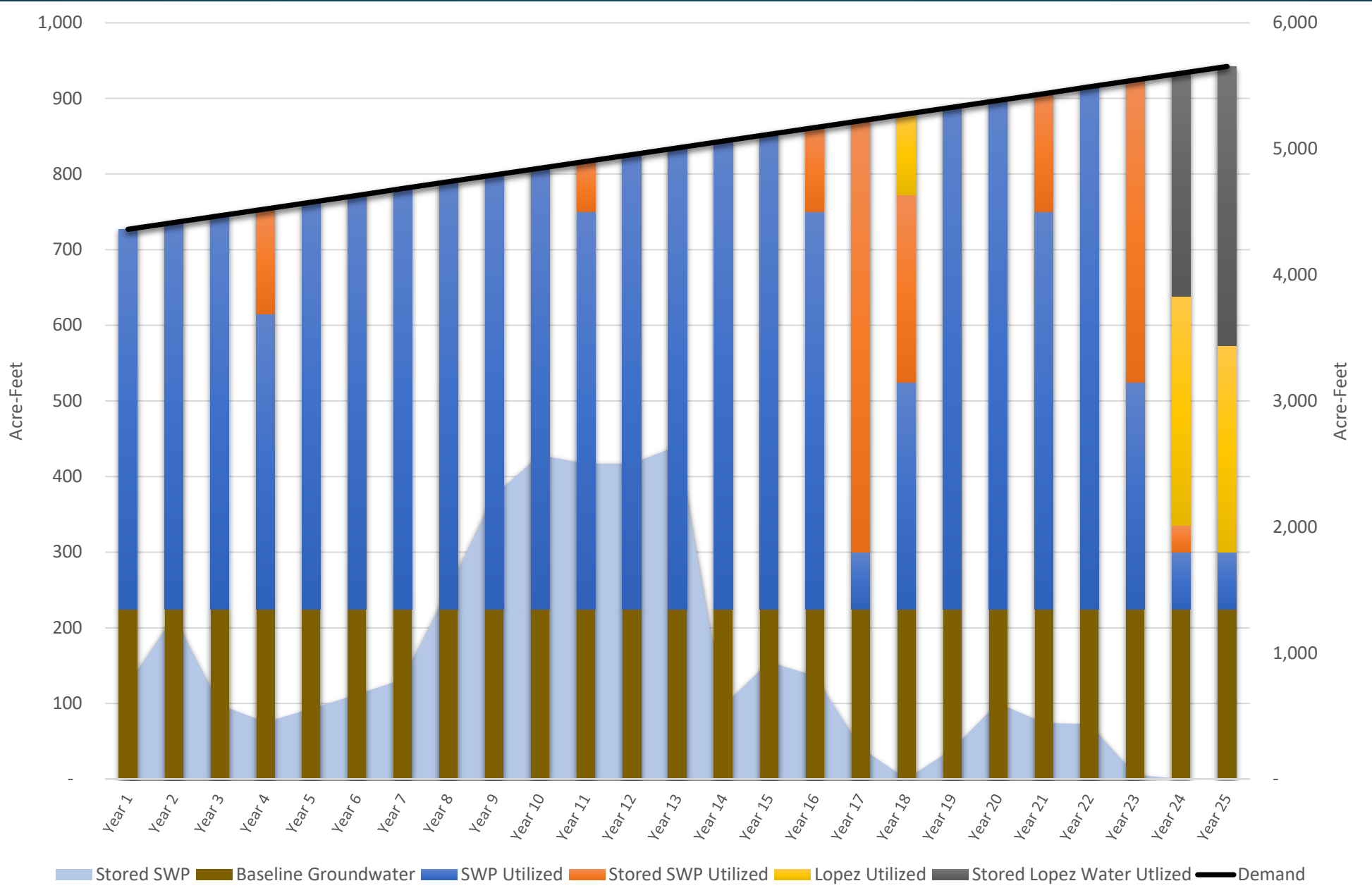
# Current Scenario



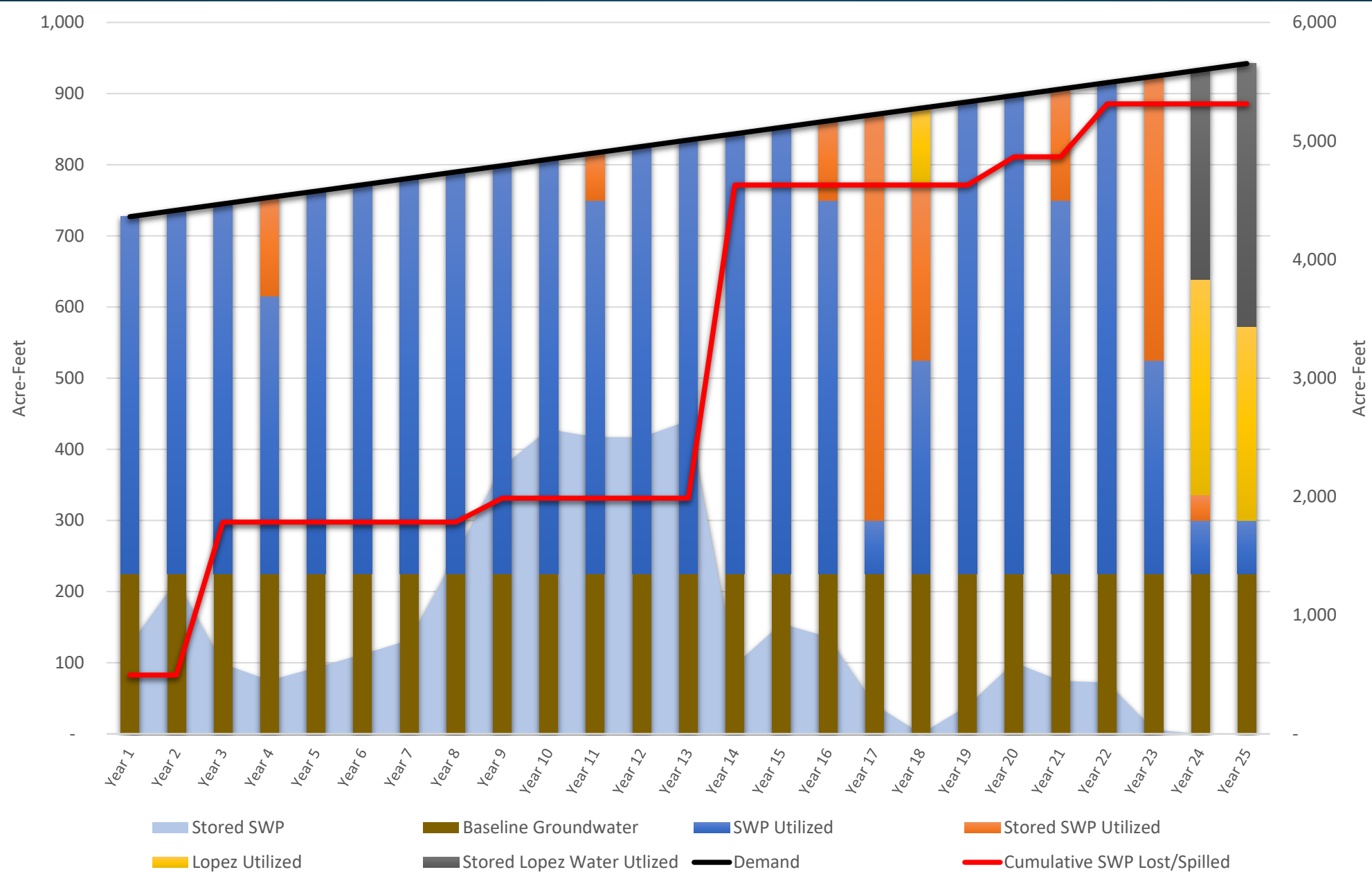
# Current Water Supply Scenario



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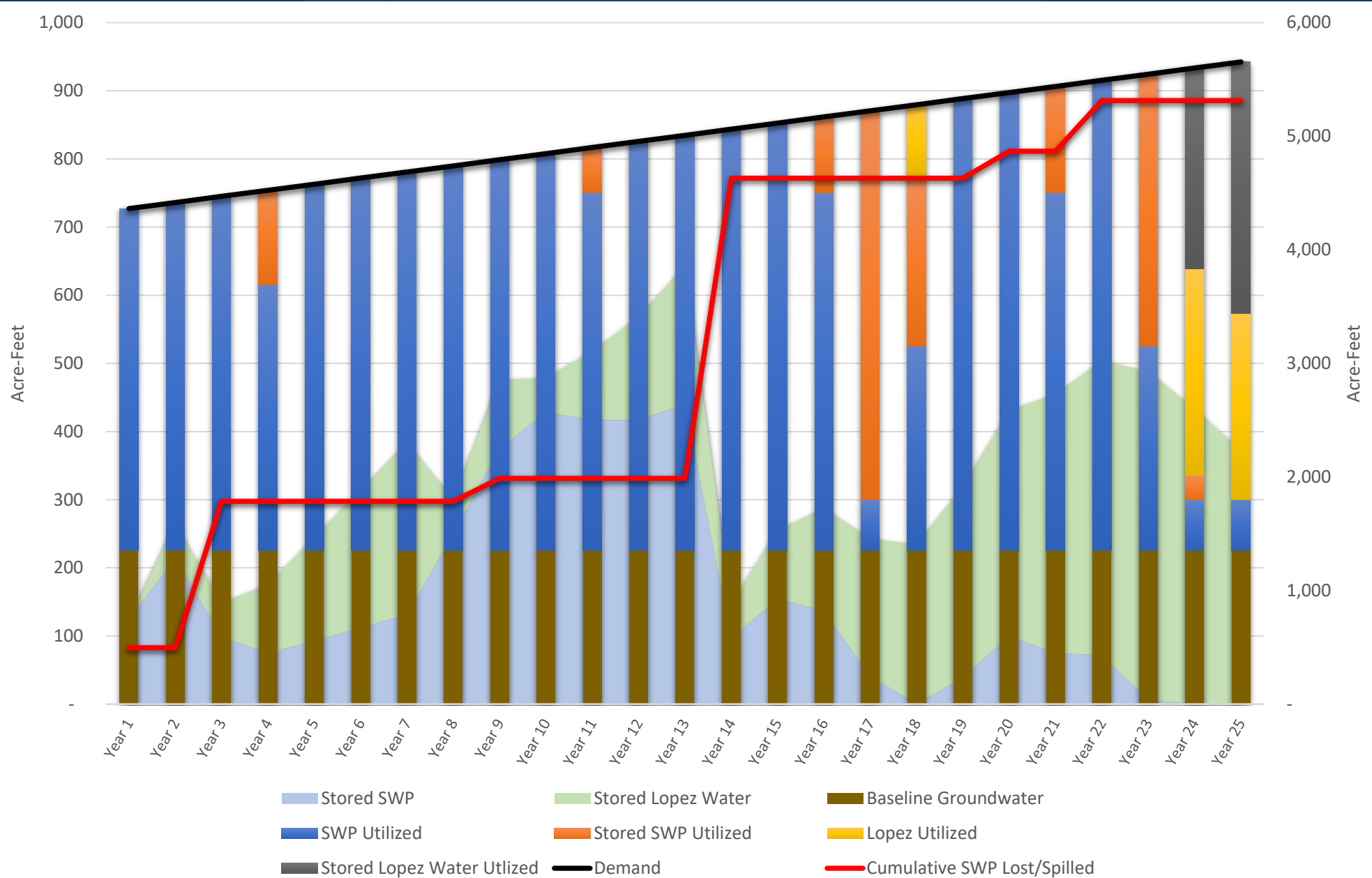


# Current Water Supply Scenario





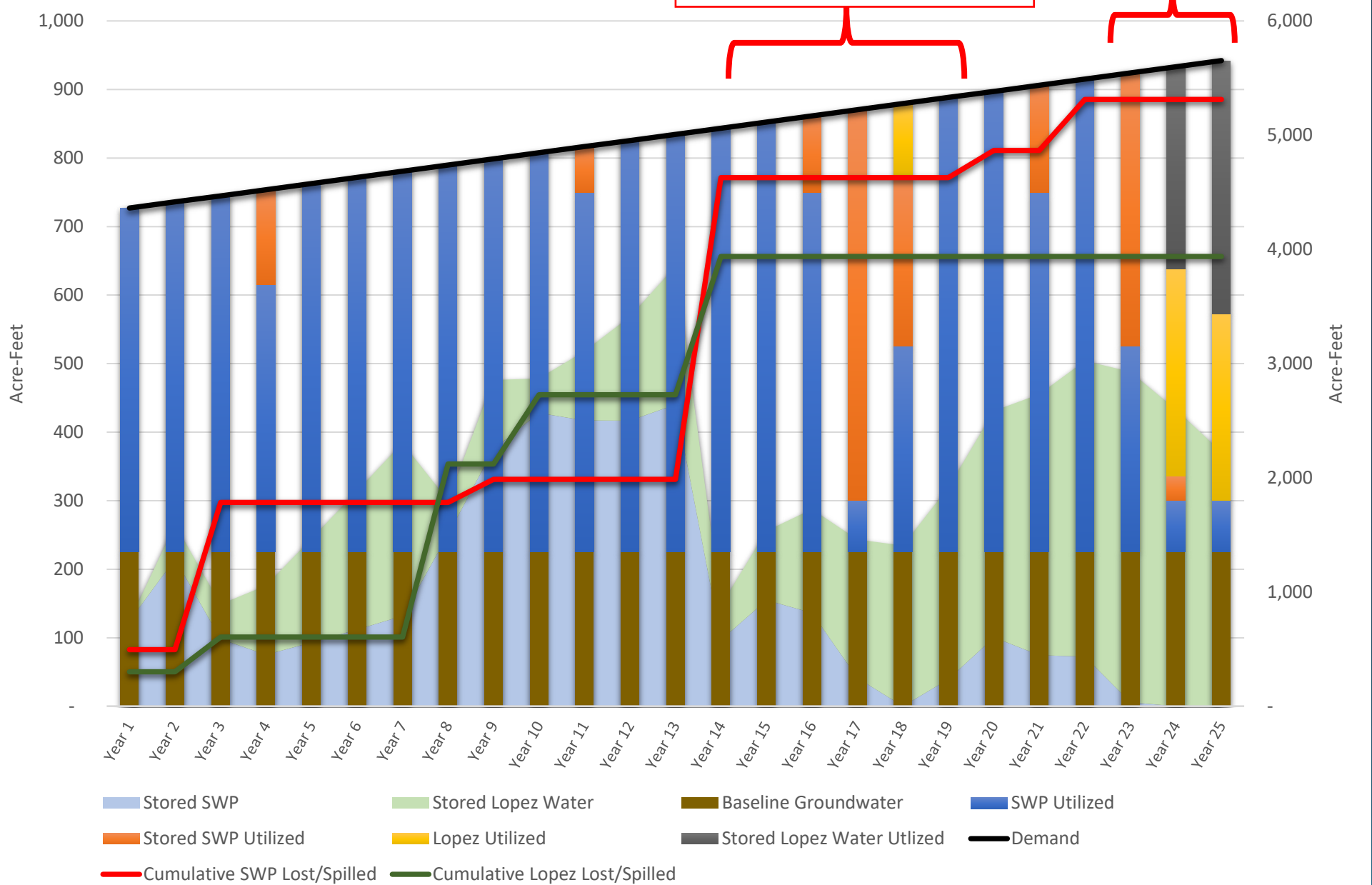
# Current Water Supply Scenario



# Current Water Supply Scenario

2012 – 2016 Drought

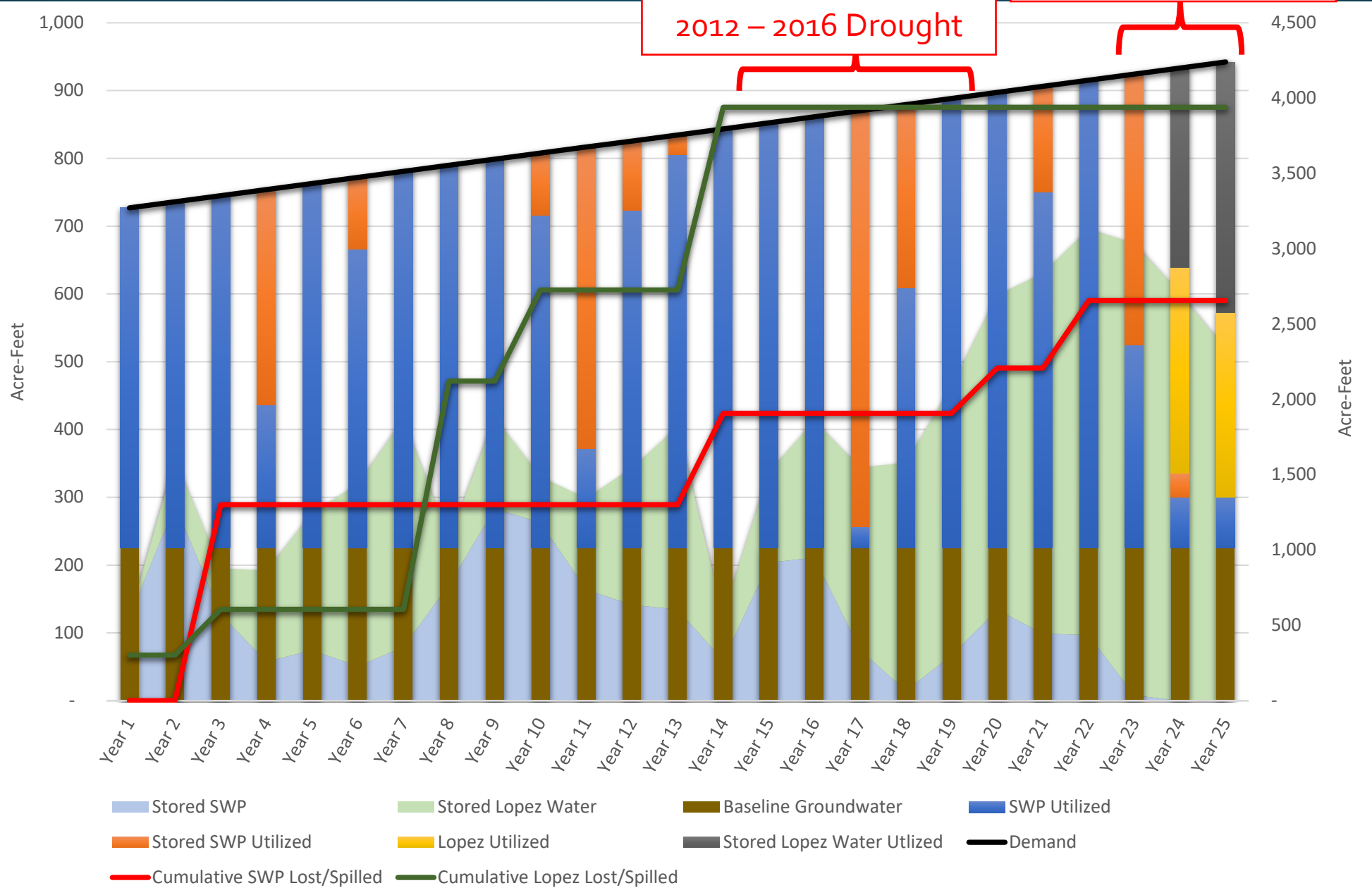
2020 – 2022 Drought



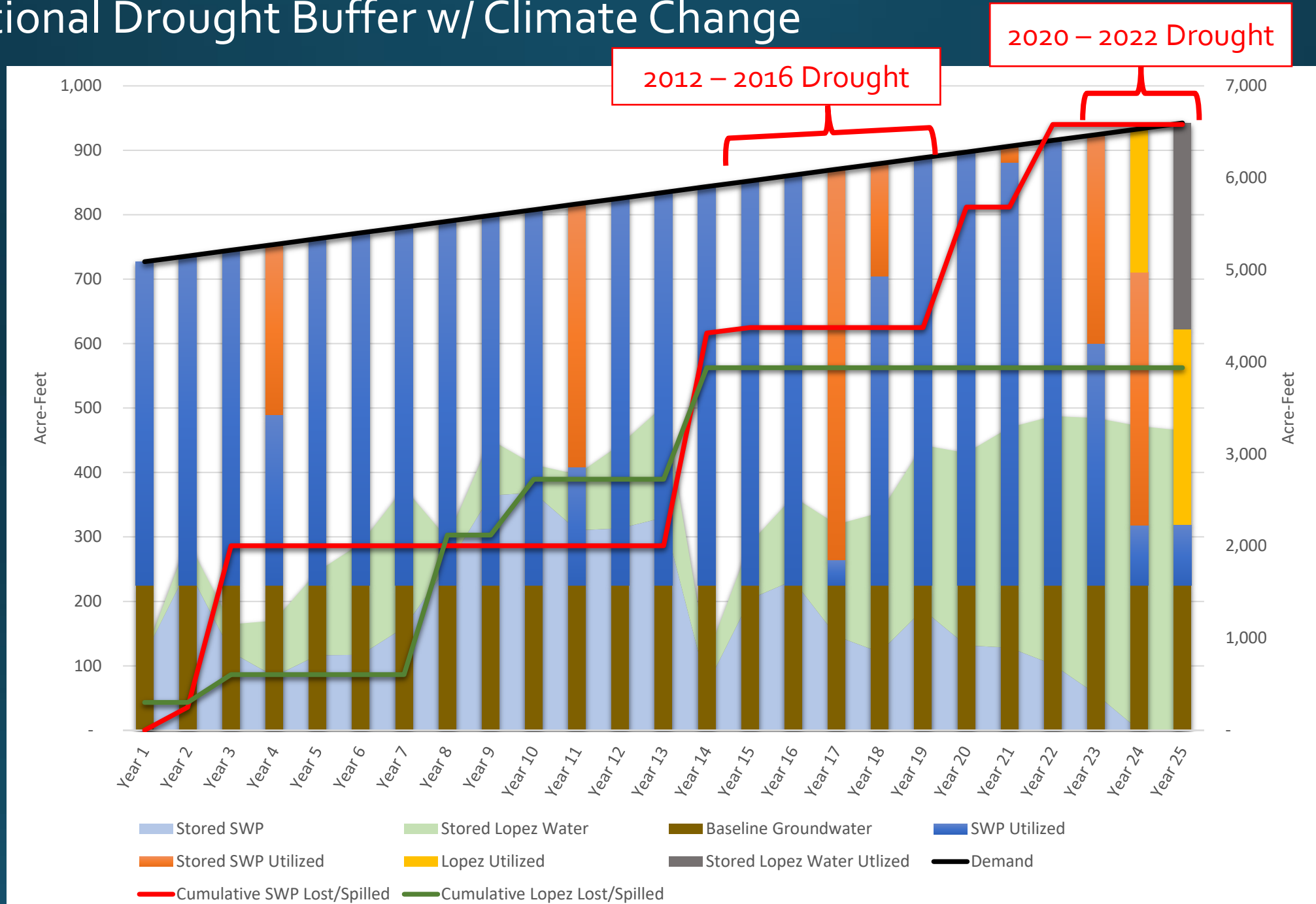
# Current Scenario w/ Climate Change

2020 – 2022 Drought

2012 – 2016 Drought



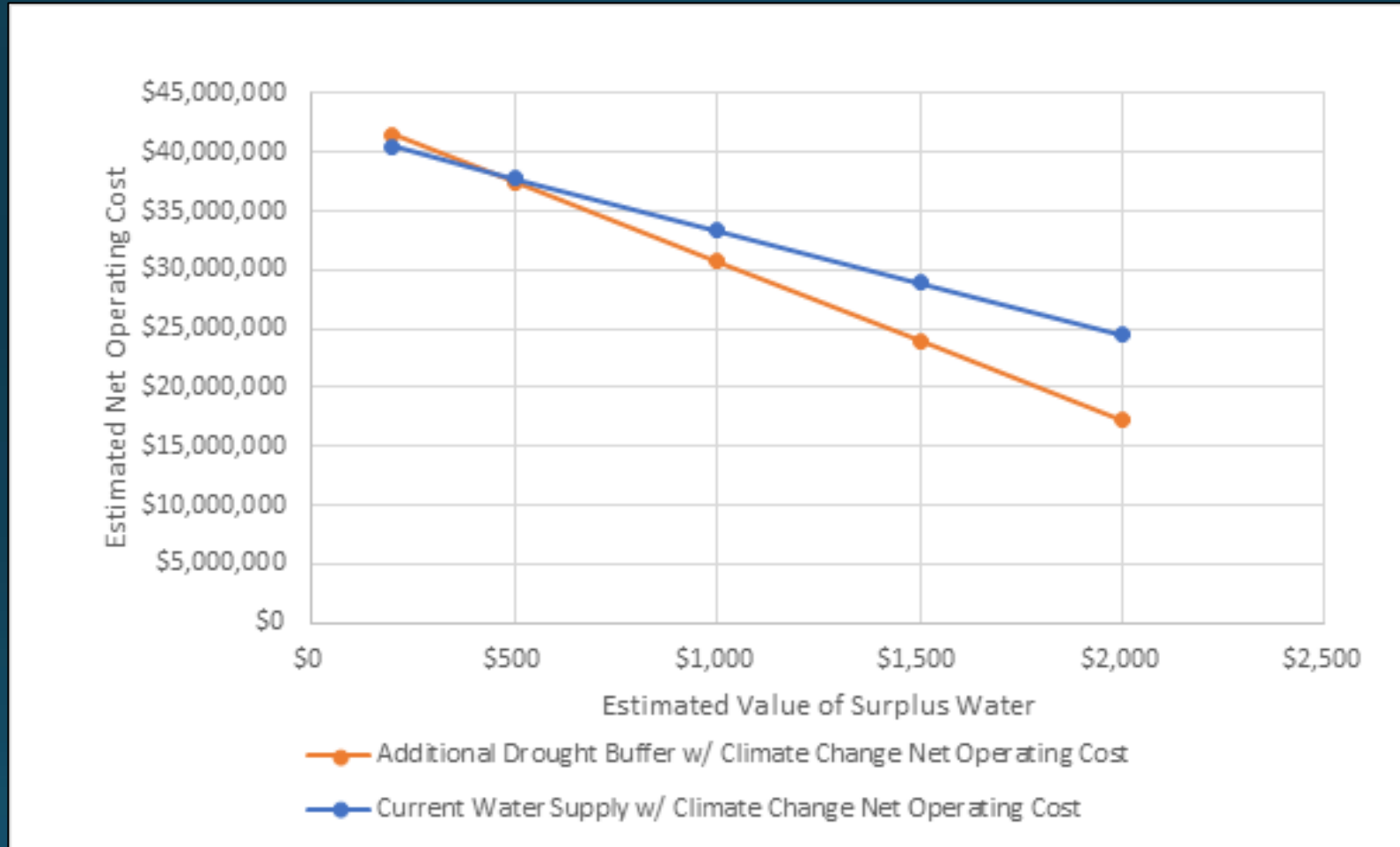
# Additional Drought Buffer w/ Climate Change



# Conclusions

<b>Scenario</b>	<b>Total Operating Cost (\$)</b>	<b>Amount of Water Lost/Spilled/ Stored (AF)</b>	<b>Estimated Value of Water (\$/AF)</b>	<b>Value of Water Lost/Spilled/ Stored (\$)</b>	<b>Potential Net Operating Cost (\$)</b>
Current Water Supply Portfolio	\$42,270,467	11,131	\$500	\$5,565,305	\$36,705,162
Current Water Supply Portfolio w/ Climate Change	\$42,283,336	8,930	\$500	\$4,465,116	\$37,818,220
Additional Drought Buffer w/ Climate Change	\$44,314,321	13,620	\$500	\$6,809,753	\$37,504,568

# Conclusions



# Conclusions

<b>Drought Buffer (AF)</b>	<b>Reliability (%)</b>	<b>Increase in Drought Buffer Cost (\$)</b>	<b>Cumulative SWP Spills (AF)</b>	<b>Water Value to Break Even (\$/AF)</b>
750	50%	\$0	606	\$0
1,125	40%	\$1,921,875	4,690	\$410
1,750	30%	\$5,125,000	11,293	\$454
3,000	20%	\$11,531,250	24,982	\$462

# Recommendations

1. Consider potential purchase of additional Drought Buffer and appropriate quantity for increased reliability and potential cost recovery opportunities
2. Initiate discussions with SLOCFCWCD and other SWP Subcontractors about amending existing SWP subcontractor contracts to allow for cost recovery and other water resource management strategies
3. Evaluate potential groundwater water storage strategies to reduce the loss of water caused by spills at San Luis and Lopez Reservoirs





Questions