The meeting teleconference will begin shortly

Listen to the meeting by using your computer or tablet speakers
or by calling (877) 853 5247 using meeting ID 979 215 700

View the live meeting presentation at https://sbvmwd.zoom.us/j/979215700
PASSCODE: 3802020

Public comments, suggestions or questions regarding technical issues may be emailed to comments@sbvmwd.com

Please use the chat feature in the Zoom toolbar to let the moderator know that you would like to make a comment during the meeting or use the digital "raise hand" function in Zoom.

Please mute your microphone during the meeting to reduce background noise. Click on the microphone icon to unmute your microphone if needed.

Call to Order

Board of Directors Workshop - Resources
Thursday, July 7, 2022

Chairperson – Director Hayes
Vice-Chair – Director Harrison

Introductions

Following the introduction of Directors and District staff, participants may use this time to state their name and agency/affiliation in order to be included in the formal record of attendees.

Public Comment

Any person may address the Board on matters within its jurisdiction.

- *Please use the chat feature on the Zoom toolbar or digitally raise your hand to let the moderator know you would like to make a comment.*

Discussion Item 3.1 (Pg. 3)

Bob Tincher, PE, MS – Chief Water Resources Officer
Adekunle Ojo, MPA – Water Resources Manager

Consider Estimating the Plausible Maximum Water Demand in the Valley District Service Area

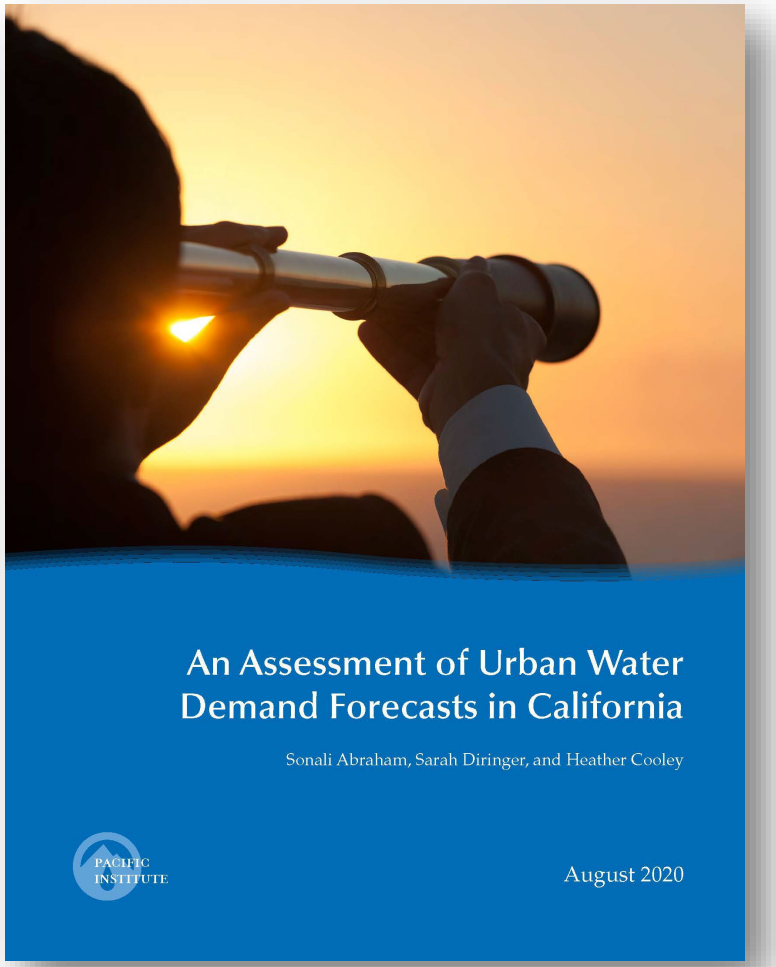
Staff Recommendation

Staff is recommending that the Board consider hiring the RAND Corporation to enhance their previous water supply and demand analysis to include an estimate of the plausible maximum water demand in the Valley District service area which can be used to help evaluate the region's long-term water supply strategies. The proposed project cost is $132,639.

Comments Incorporated from Engineering Workshop, 9/14/21

1. Review demand projections and approach
   a) Prior RAND study uses demands from 2015 San Bernardino Valley Regional Urban Water Management Plan
   b) 2020 IRUWMP uses a much more robust demand projection approach
   c) Demand projections from 2020 IRUWMP will be incorporated into the RAND analysis
   d) RAND will also review the IRUWP demand estimation method
   e) RAND will also consider any additional, plausible demand reductions based on proposed legislation
   f) RAND will contact the Pacific Institute for their thoughts on demand projections
2. Concerns about the validity of the landuse planning data
   a) RAND will evaluate the landuse planning data
   b) The RAND model will be updated to include landuse fields that can be changed to match the latest landuse planning values
3. Present concept to BTAC

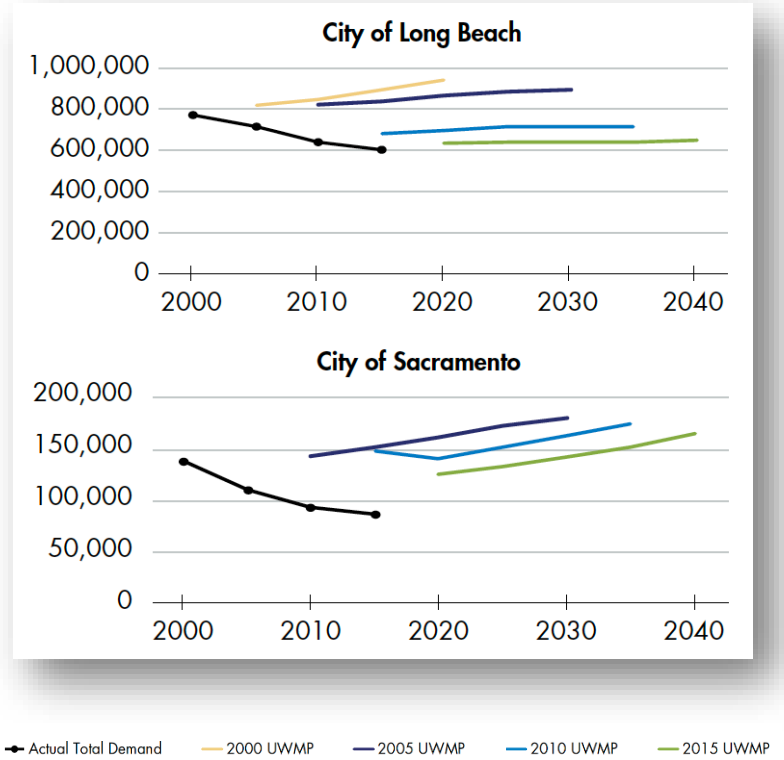
Why estimate plausible maximum demand?



"Overestimates of future water demands have important implications for local communities and the state. Specifically, they can result in unneeded water supply and treatment infrastructure, higher costs to ratepayers, and unnecessary adverse environmental impacts"

"Rather than simply updating input data, forecasters should examine the underlying trends, assumptions within the models, and accuracy of past projections."

"…incorporate efficiency improvements, denser developments, economic changes, and uncertainty into forecasts."



The Policy Question:

How much insurance do we need?

Progress, to date

Identifying Vulnerabilities in San Bernardino Valley Municipal Water District's Demand and Water Supply Plans

2018 and 2021

Michelle E. Miro, David Groves, David Catt, James Syme, Stephanie Tanverakul

RAND CORPORATION

San Bernardino Valley Municipal Water District

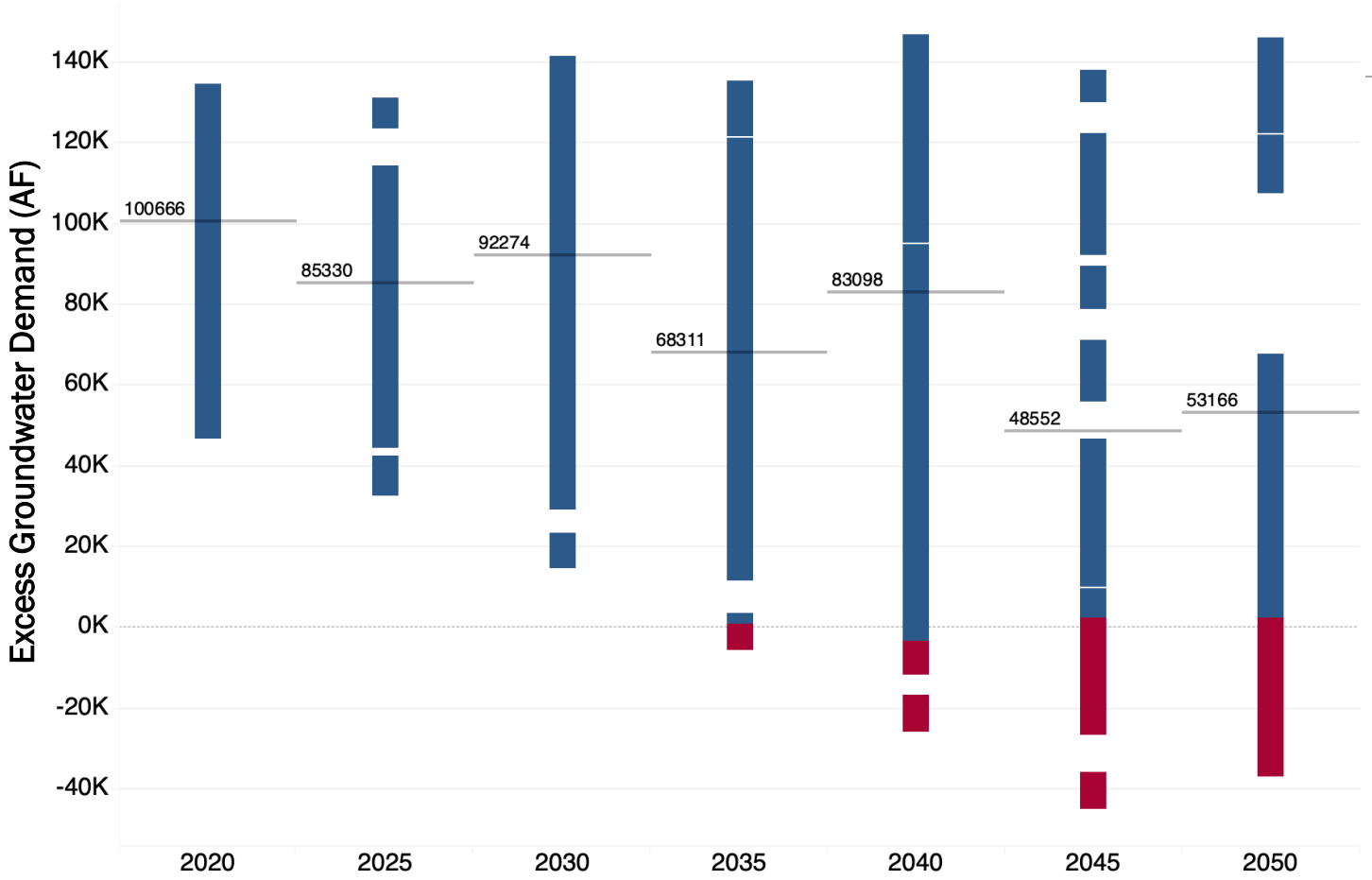
RAND stress tested Valley District's 2015 UWMP Demands and Supplies against a wide range of future uncertainties

Category	Uncertainty Factors	Demand Model	Supply Model
Demographics	Population growth Per capita water use Temperature sensitivity of demand	X X X	
Climate	Future change in precipitation Future variability in precipitation Future change in temperature	 X	X X X
State Water Project imports	Infrastructure configurations Environmental regulations		X X
Local water supplies	Surface water availability		X

Resulting in 1,872 future scenarios

RAND found that in the majority of future scenarios, Valley District has sufficient supply to meet demands

Interpreting the figure
Each square represents the gap between supply and demand under one of the 1,872 future scenarios. Positive values (blue squares) mean there is additional supply above demand. Negative values (red squares) mean there is more demand than available supply.

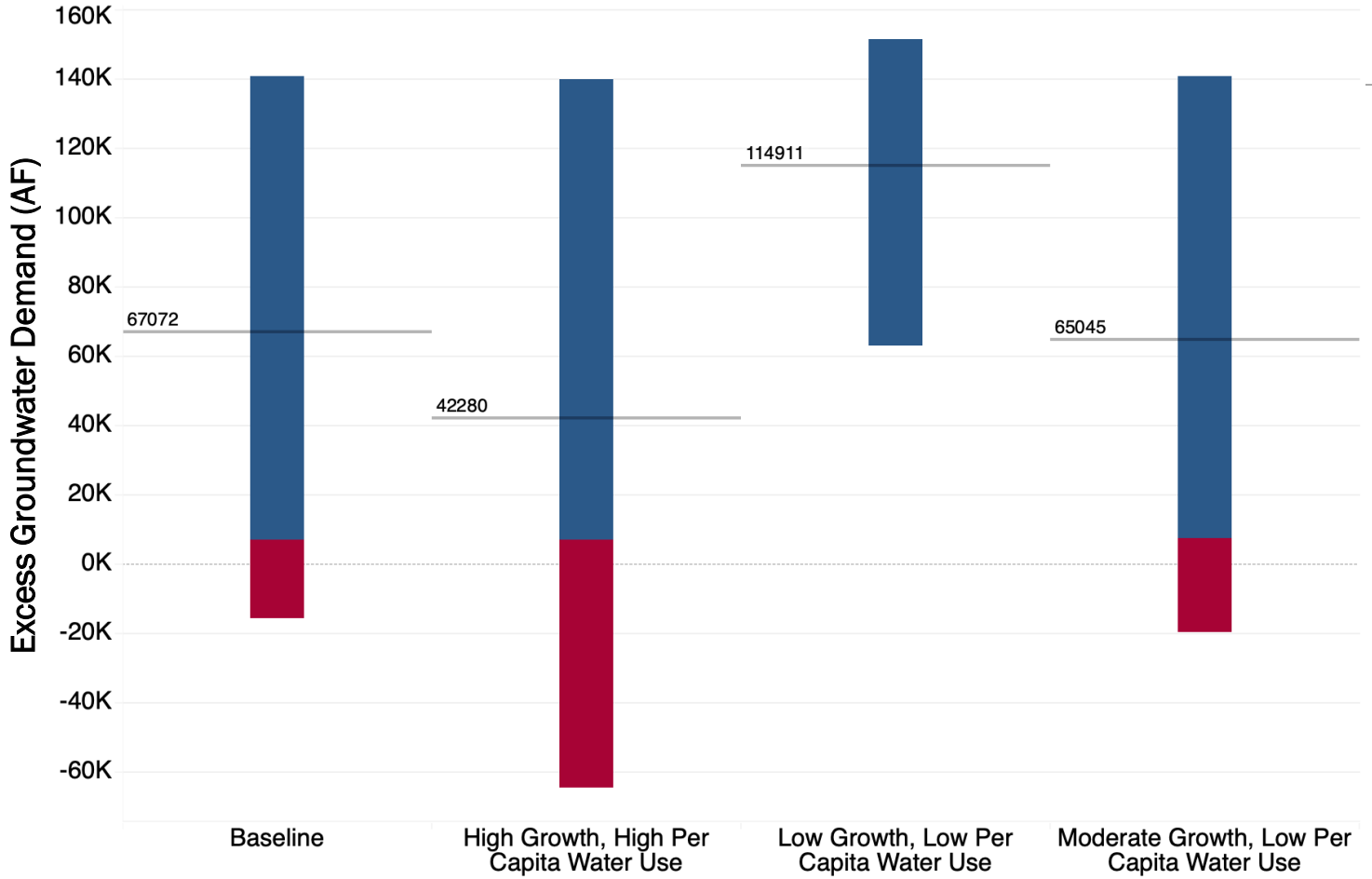


Futures with sufficient supply

Futures where demand exceeds available supply

- *Demand that would need to be met with alternative supply(s)*

Higher future demand projections result in more futures where demand may exceed supplies



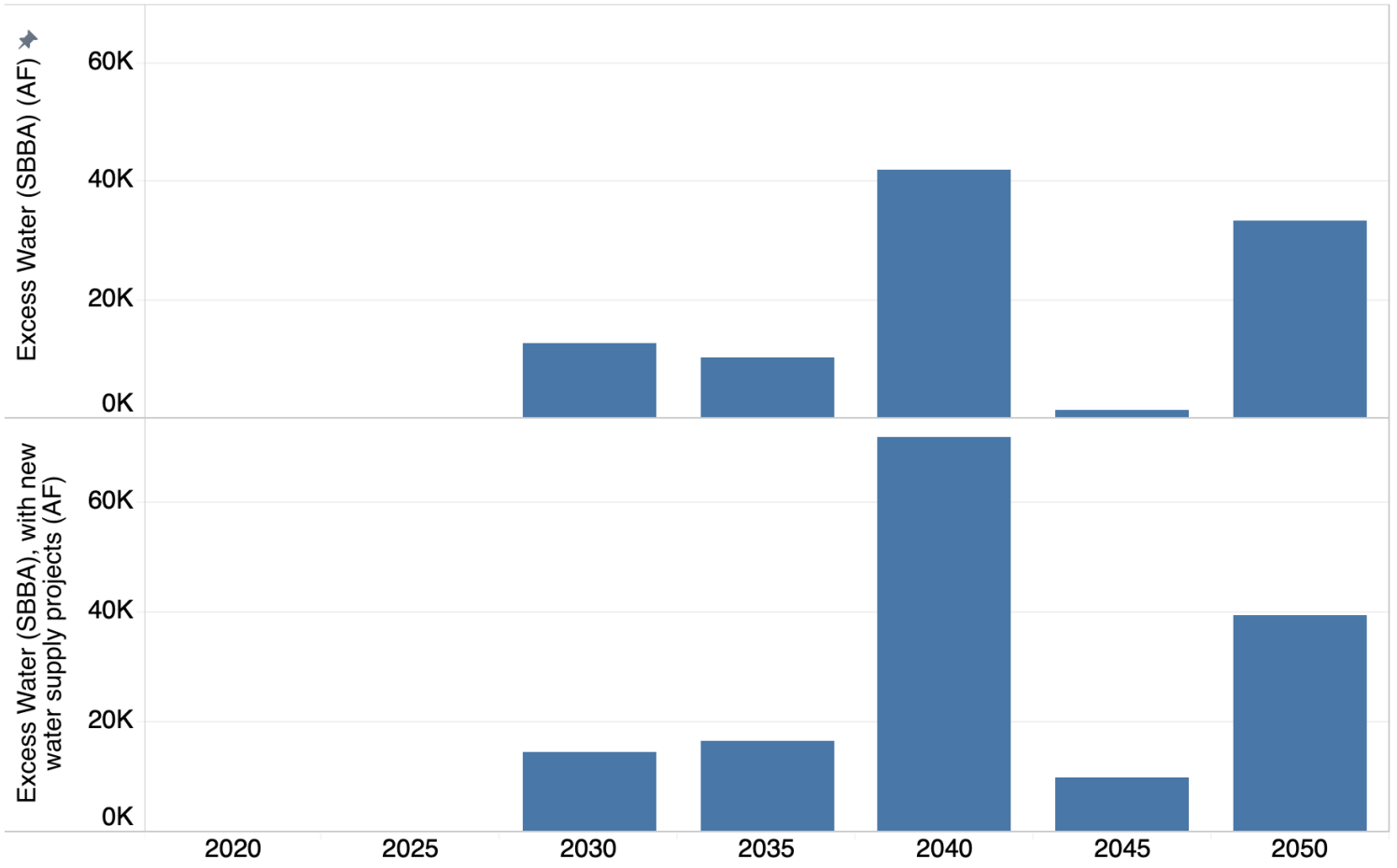
Futures with sufficient supply

Futures where demand exceeds available supply

Demand Scenario

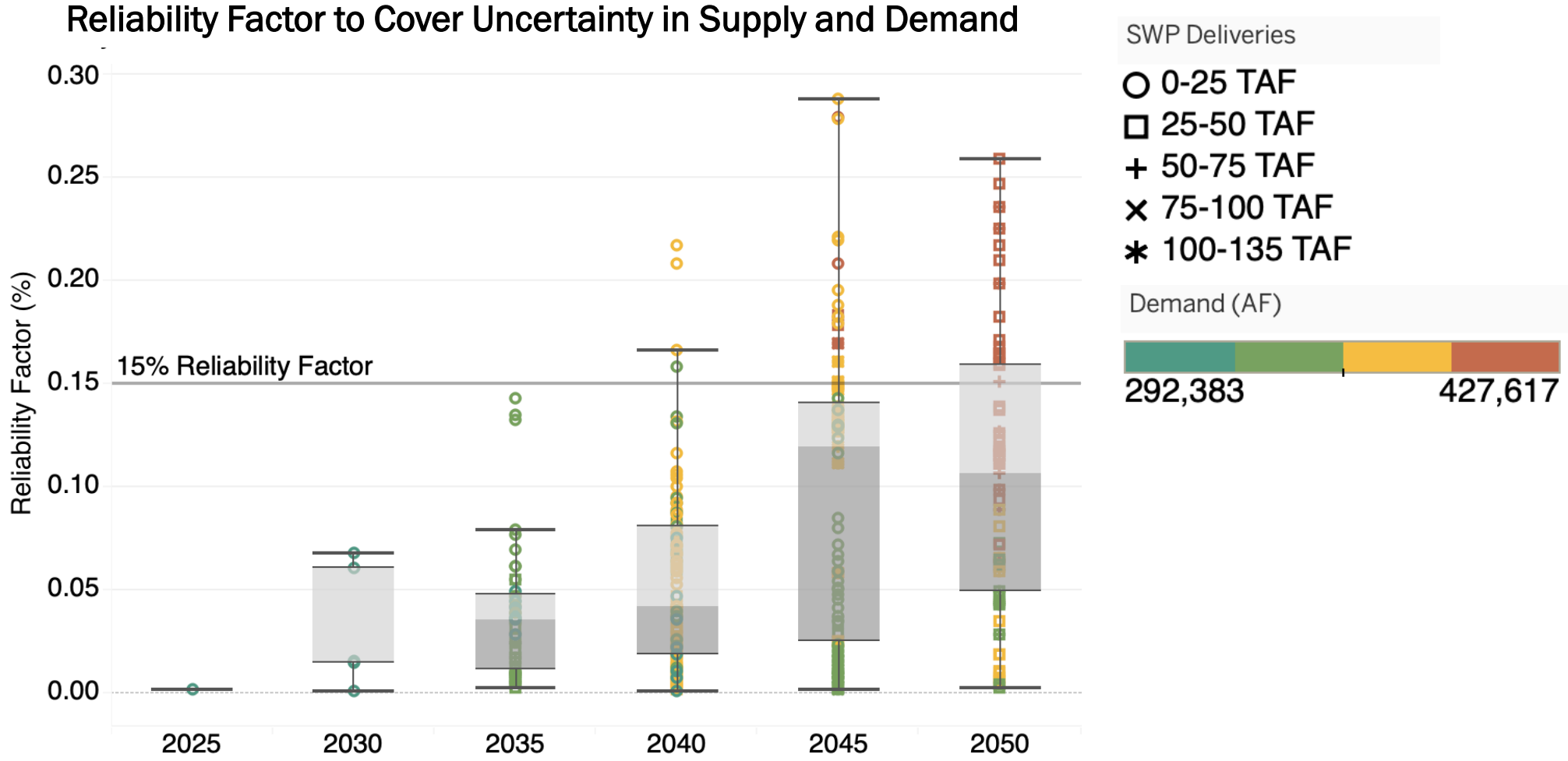
Results also showed that new supply projects may lead to **surplus** water supply when groundwater basins are full

The Valley District could explore options that would provide more freeboard and lower the amount of excess water

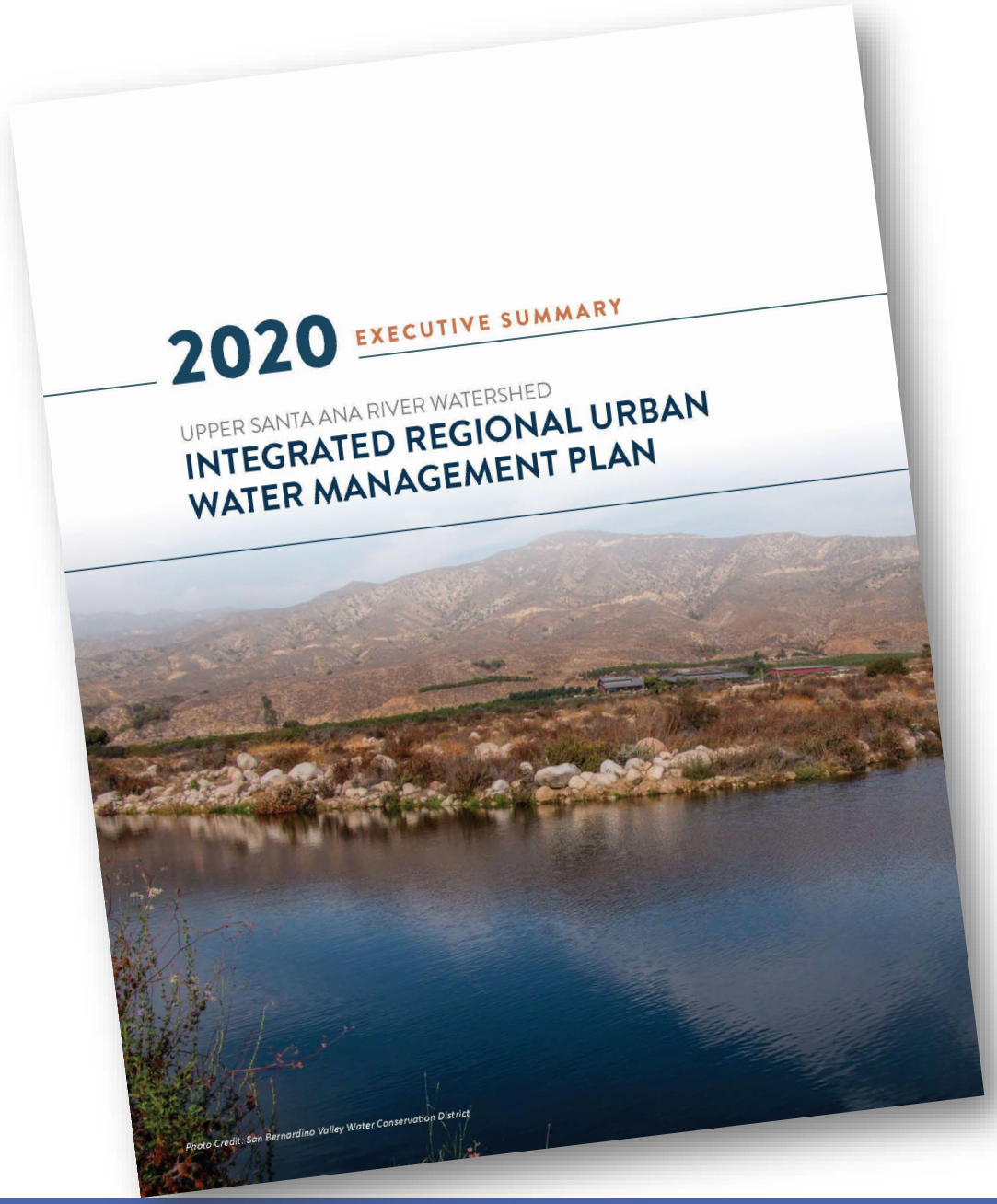


New water supply projects lead to additional excess supply

RAND recommended an adaptable Reliability Factor, starting at 15%, to cover uncertainty in supply and demand



If total demand is at or above 360 TAF, the Reliability Factor may need to be increased



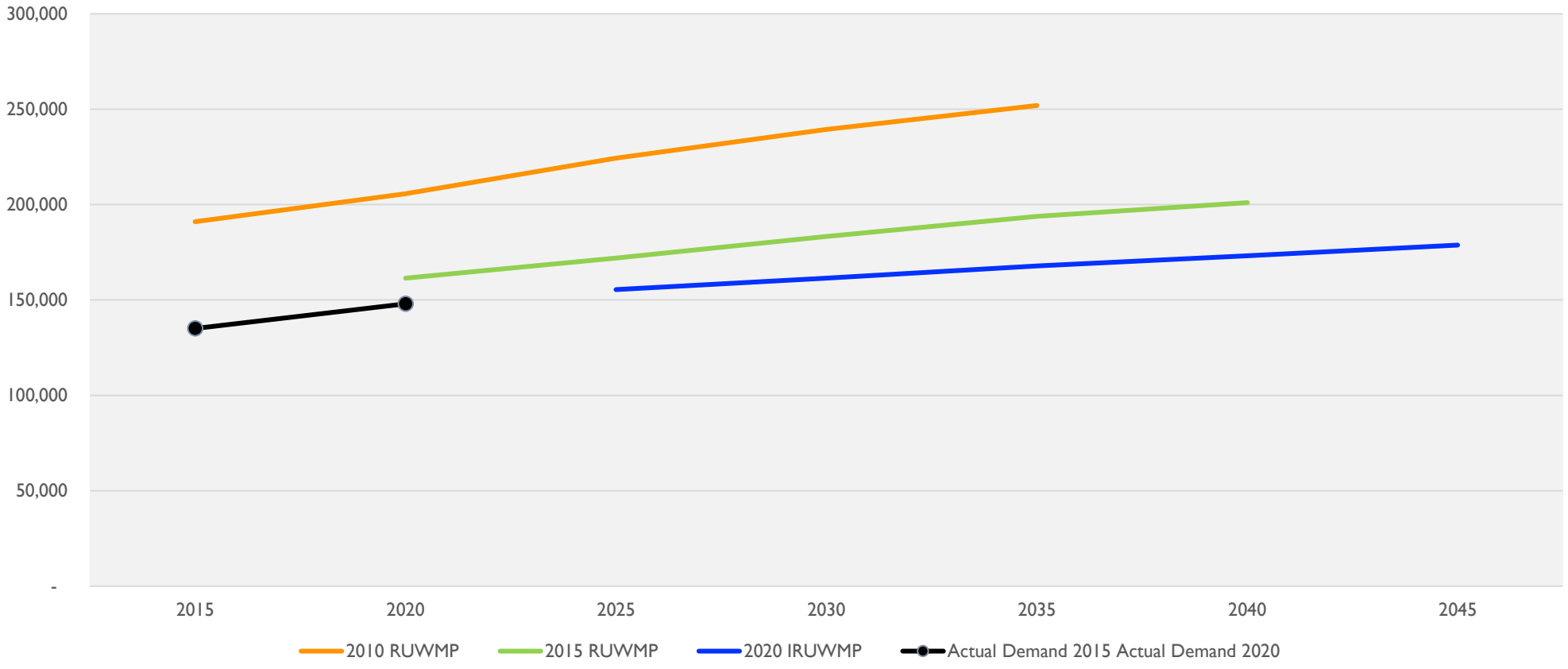
RAND Reliabilty Factor of 15% used in 2020 IRUWMP

RAND's previous supply/demand analysis was based on the 2015 UWMP

The 2020 IRUWMP enhanced its demand projection method

This work will incorporate the 2020 IRUWMP data and review demand forecasting method

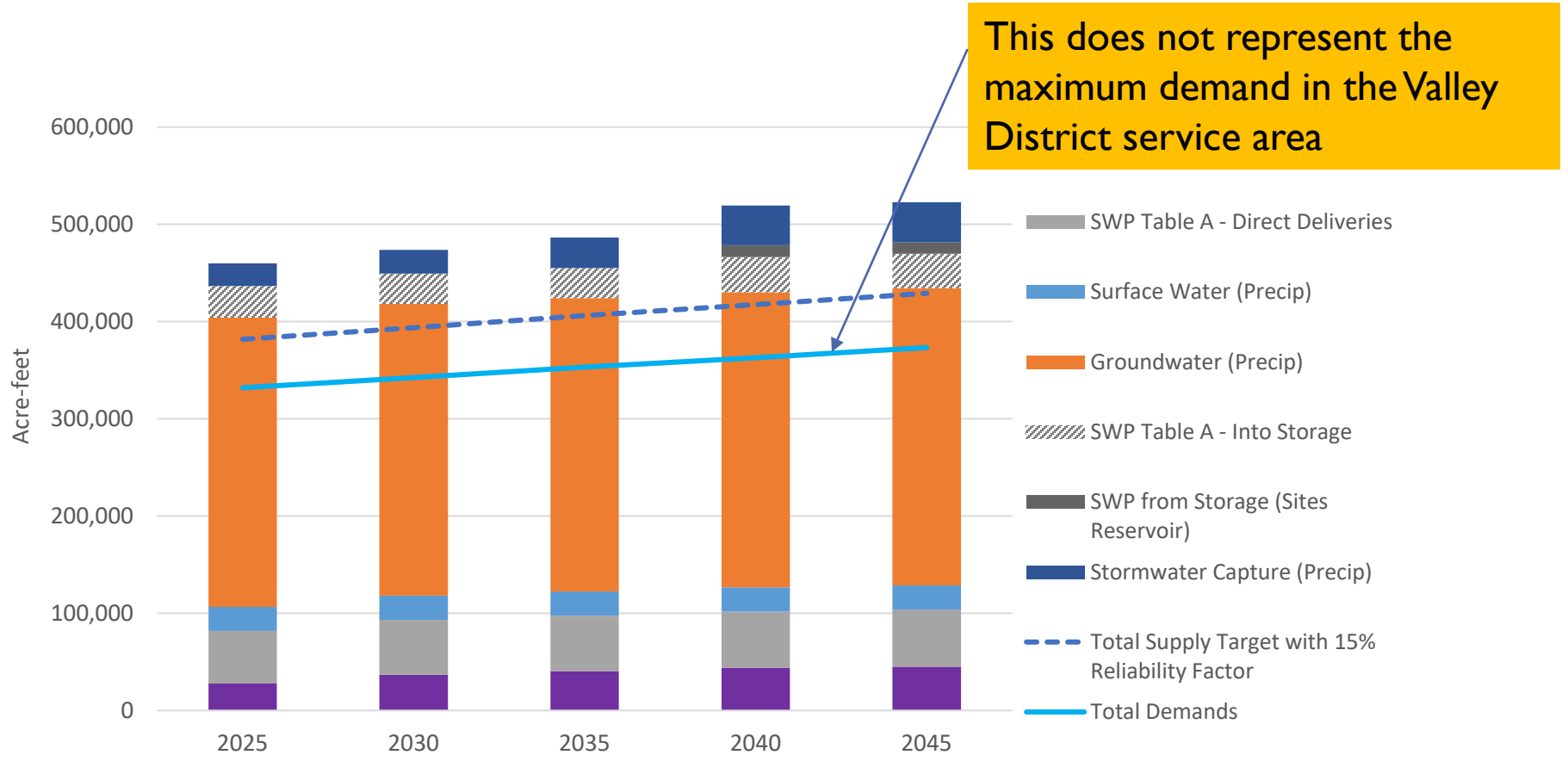
Our Region's Demand Projections Continue to Improve



IRUWMP Sample Demand Projection

	2025	2030	2035	2040	2045
Residential	11,211	11,589	11,966	12,316	12,667
Multi-Family	3,497	3,618	3,738	3,850	3,962
Commercial	1,939	2,006	2,073	2,135	2,197
Irrigation Commercial	1,787	1,848	1,910	1,967	2,024
Fire Service	3	3	3	4	4
Bulk Water	148	153	158	163	168
Nonrevenue	1,115	1,153	1,191	1,226	1,261
Recycled Water	-	-	-	-	-
Total	19,702	20,371	21,040	21,661	22,283

2020 IRUWMP Results



Proposed enhancement of the RAND work to include plausible maximum demand

Maximum, or "Build-out", demand would provide a plausible upper limit on the amount of water the Valley District would need into the future

- Build-out demand is based upon planned future land uses in general or master plans
- Consideration of build-out demand aligns with best practices in forecasting urban water demand
  - Relies on planned rather than historical per capita water use
  - Incorporates plausible upper bounds on growth within an administrative unit

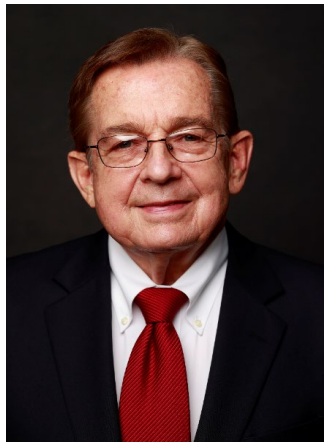
Proposed Evaluation of Maximum Demand

- Evaluate the IRUWMP demand projection methodology and make any recommendations
- Evaluate maximum demand in the Valley District service area based on planned land use and estimates of water demands in the future
  - Obtain land use plans and/or water master plan
  - Validate land use plan data
- Estimate and validate maximum demand
    - Two plausible scenarios for maximum demand will be generated:
      - Current building codes and efficiency standards
      - Plausible building codes and efficiency standards
    - Validate findings with planning departments
- Update RAND model that will be used to recalculate the Reliability Factor so that it includes the variables to update maximum demand

Director Comments and Discussion

Paul Kielhold
President

June Hayes
Vice President



T. Milford Harrison
Treasurer

Gil J. Botello
Director

Susan Longville
Director

Staff Recommendation

Staff is recommending that the Board consider hiring the RAND Corporation to enhance their previous water supply and demand analysis to include an estimate of the plausible maximum water demand in the Valley District service area which can be used to help evaluate the region's long-term water supply strategies. The proposed project cost is $132,639.

Discussion Item 3.2 (Pg. 11)

Bob Tincher, PE, MS – Chief Water Resources Officer
Adekunle Ojo, MPA – Water Resources Manager

Consider the Proposal to Update the Estimate of New Conservation Water Made Possible by Seven Oaks Dam

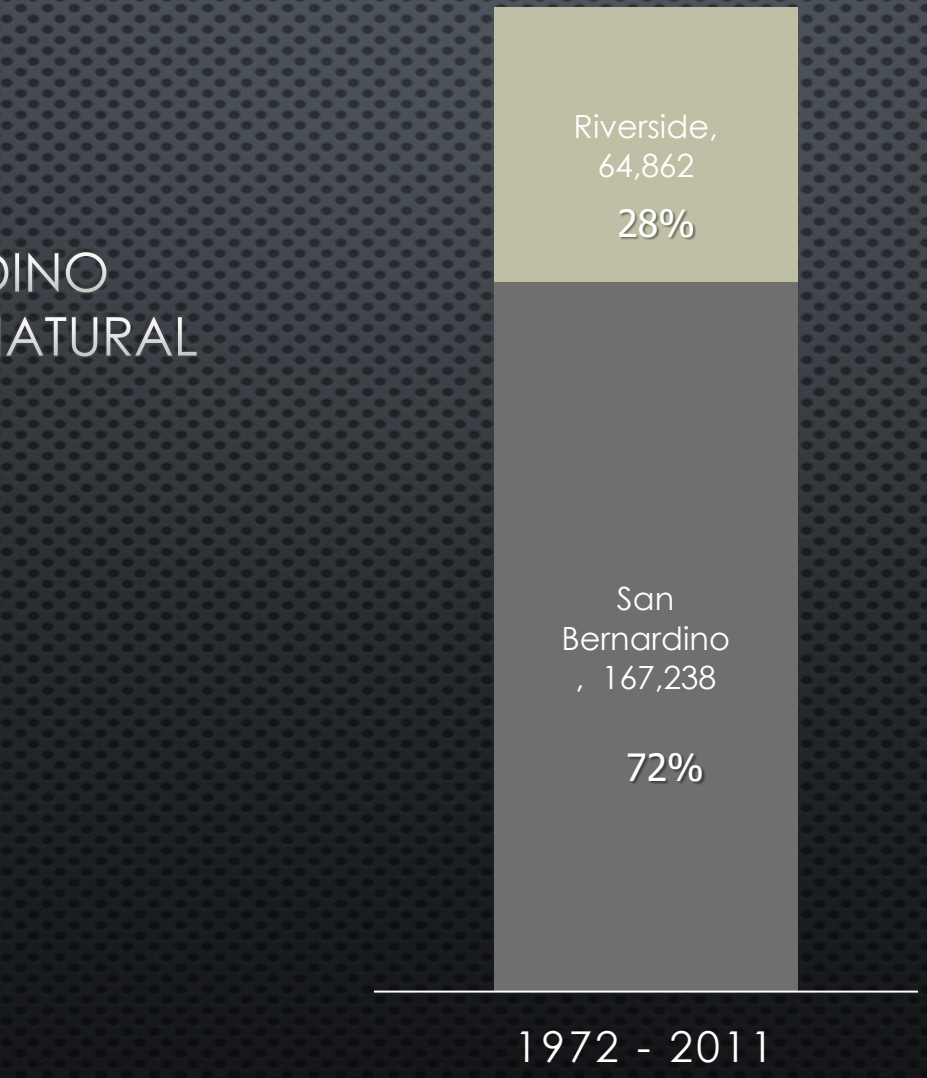
Staff Recommendation

Staff is recommending that the Board place this item on a future regular Board of Directors meeting agenda for consideration.

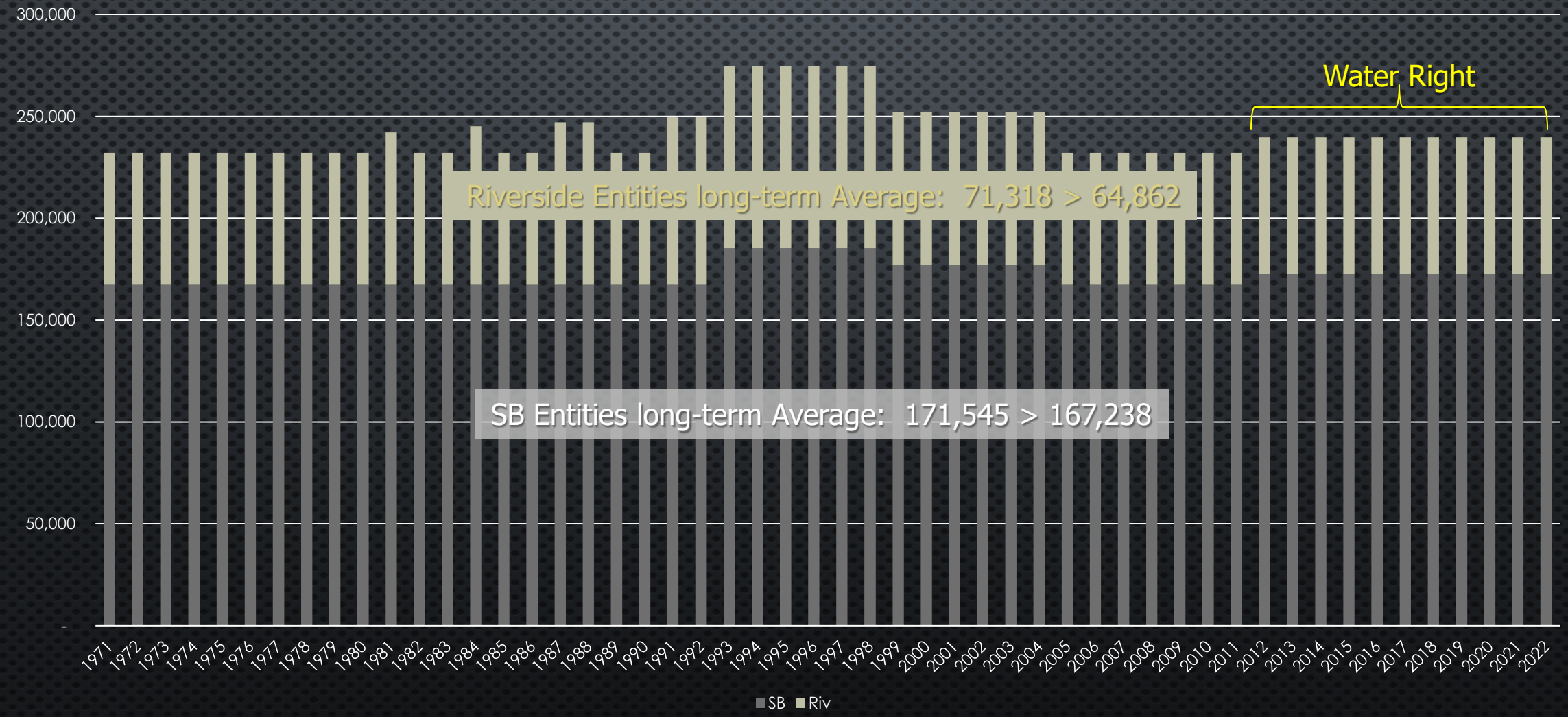
VALLEY DISTRICT/WMWD WATER RIGHT

BEFORE VALLEY DISTRICT/WMWD WATER RIGHT

SAN BERNARDINO BASIN AREA NATURAL SAFE YIELD



THE WATERMASTER CAN "ADJUST" THE NATURAL SAFE YIELD

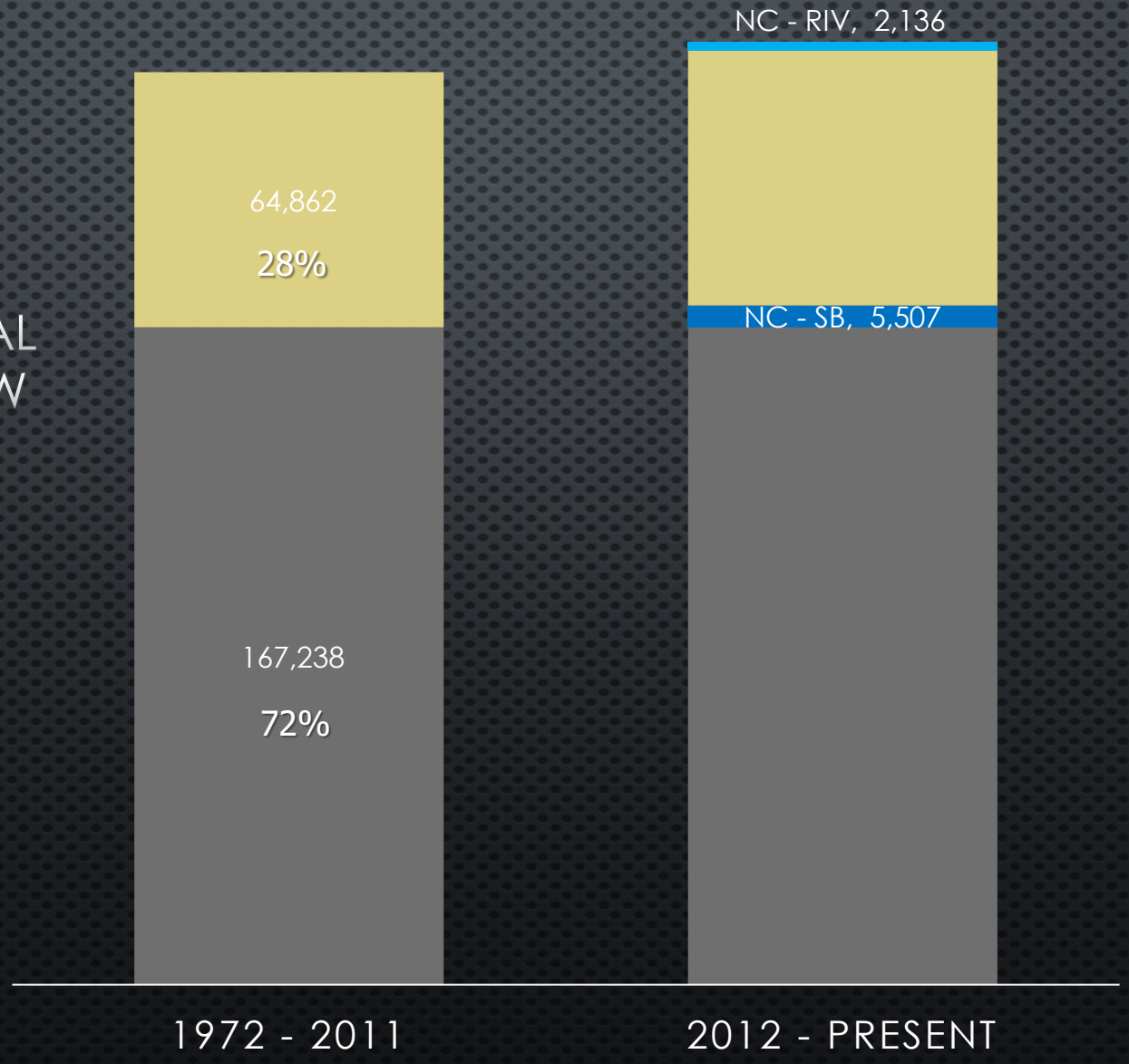


2013 Agreement for Additional Extractions Due to Valley District/WMWD Water Right

- Increases the natural safe yield by the amount of **new conservation** made possible by Seven Oaks Dam
  - Total **new conservation** amount from 1998 – 2012, 42,840 AF
    - Riverside 11,974 AF
    - San Bernardino, 30,866 AF
  - **New conservation** provided by Increasing natural safe yield
    - Riverside, +2,136 AFY
    - San Bernardino, +5,507 AFY
- Goal: Provide the actual new conservation to the San Bernardino and Riverside Entities
- Update no less than 5 years, but no longer than 10 years

ADJUSTMENT DUE TO NEW CONSERVATION FROM VALLEY DISTRICT/WMWD WATER RIGHT

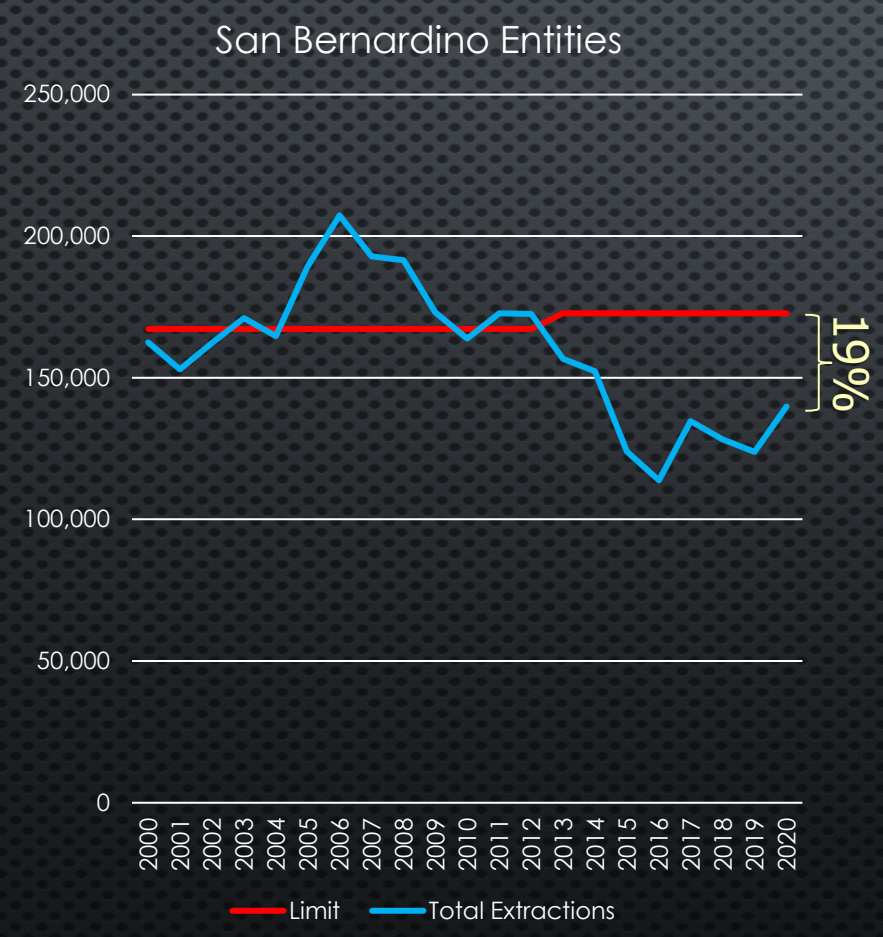
SAN BERNARDINO BASIN AREA NATURAL SAFE YIELD PLUS NEW CONSERVATION

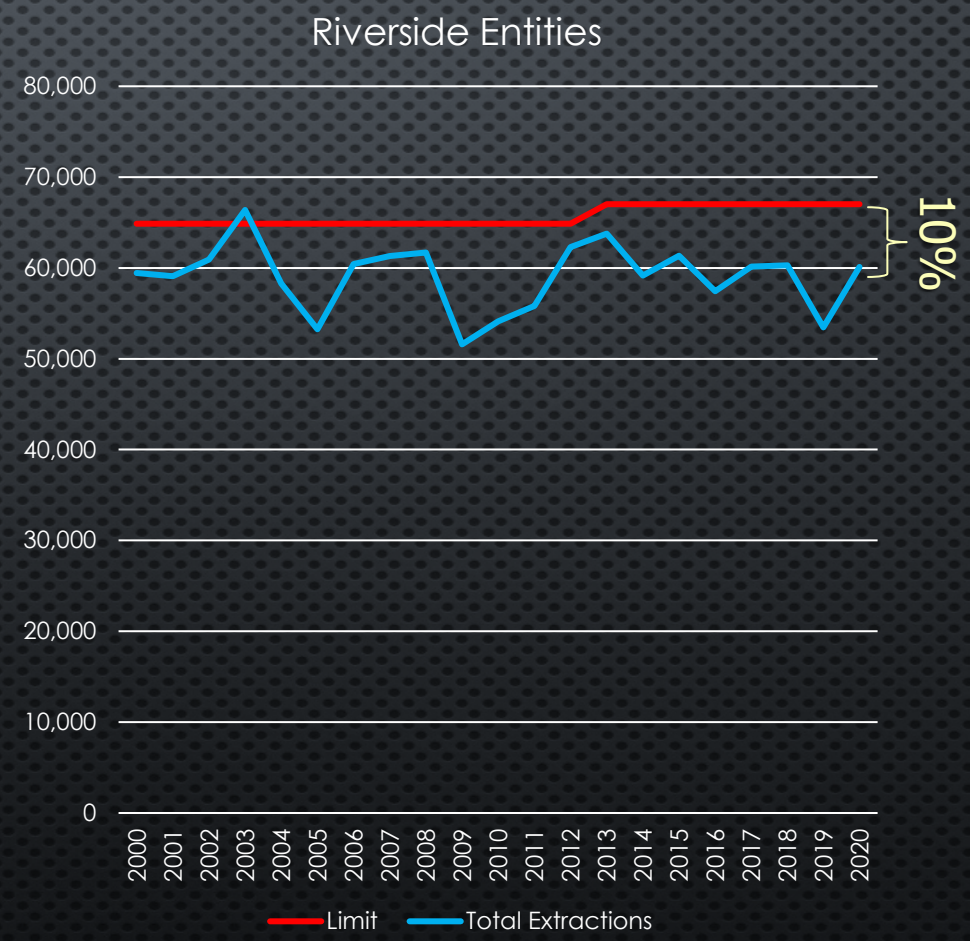


Practical Benefits of New Conservation Water to San Bernardino Entities

- Judgment: Offsets extractions, could increase "credit" that Could prevent San Bernardino Entities recharge obligation
  - Groundwater Council does not use this "trigger" in its decision-making process for purchasing recharge water
- Groundwater Council
  - More local water to help re-fill the basin, reduces GC SWP costs
  - More water in their individual water budgets which could reduce their costs

NEITHER RIVERSIDE NOR SAN BERNARDINO HAVE USED THE ADDITIONAL EXTRACTIONS





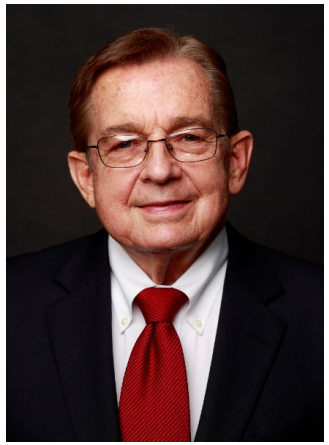
Proposed Update of the New Conservation Calculation

- Required by July 17, 2023
- Tasks
  - Calculate actual new conservation from 2013 – 2021
    - Compare actual new conservation to Projected new conservation to determine "true-up" amount, if any
  - Model/project new conservation from 2022 – 2060
    - Adjust new conservation based upon any true-up
  - Present New conservation amount for Review/approval
    - San Bernardino and Riverside Entities
    - Watermaster Boards (Valley District and Western)
  - New conservation amount will last from 2023 – 2028 or no later than 2033

Director Comments and Discussion

Paul Kielhold
President

June Hayes
Vice President



T. Milford Harrison
Treasurer

Gil J. Botello
Director

Susan Longville
Director

Staff Recommendation

Staff is recommending that the Board place this item on a future regular Board of Directors meeting agenda for consideration.

Future Business

Adjournment