

Development of 2020 Storage Management Plan

Workshop No. 1
June 20, 2019





Workshop agenda

- Introductions
- Current Storage Management Plan
- Technical requirements
- Proposed next steps

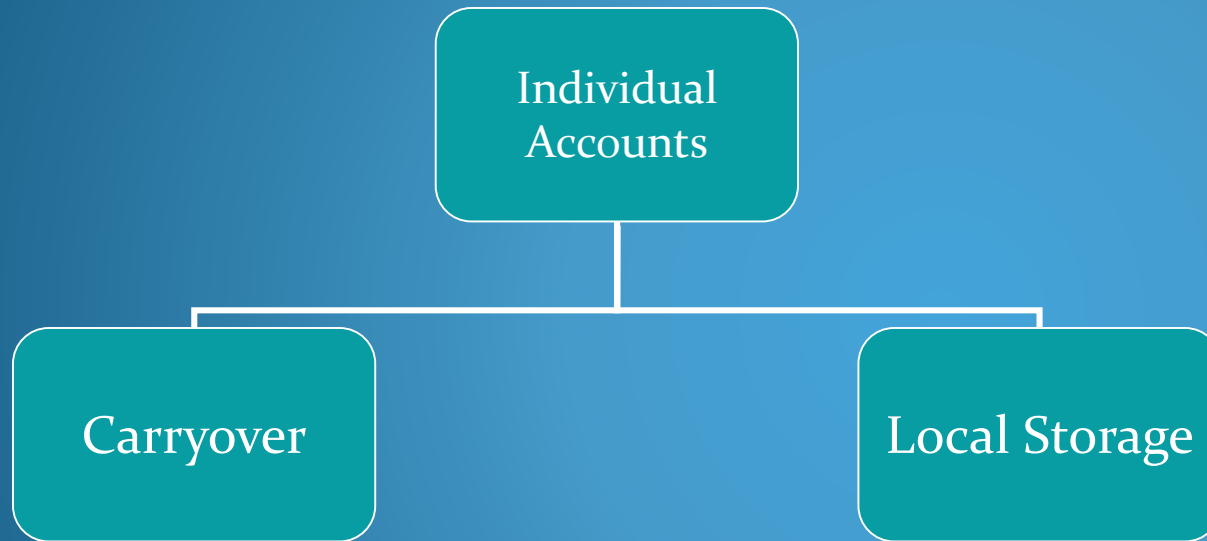


Current Storage Management Plan

- Pre – Peace I / OBMP Implementation Plan
- Peace I and Peace II Amendments
- Current status:
 - Non – Agricultural Pool Storage
 - Appropriative Pool Storage
 - Storage and Recovery
- Allocation of storage among the classes of storage (excess carry-over; local supplemental; storage and recovery) and the parties pursuant to guidance documents



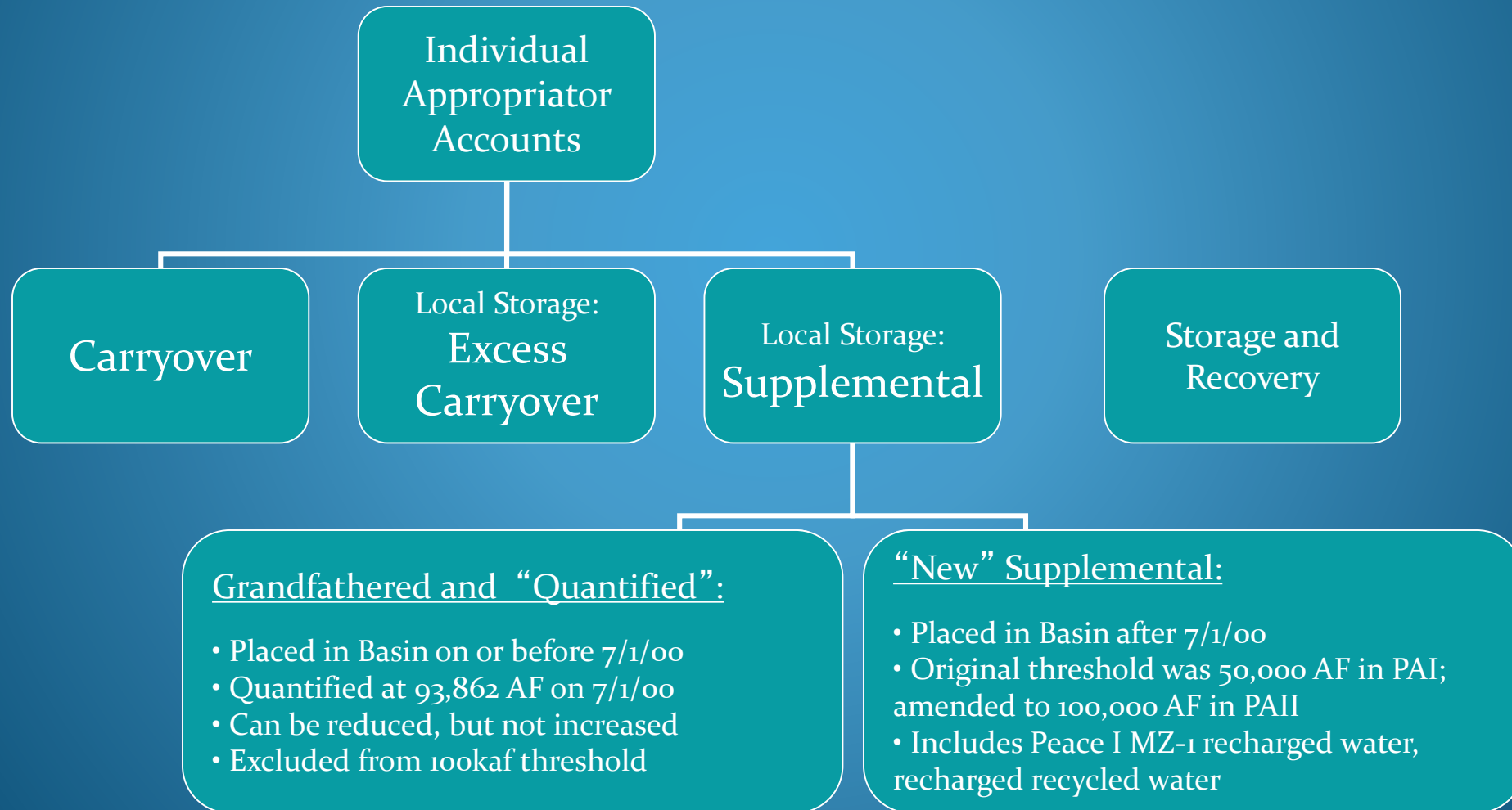
PRE-PEACE I AGREEMENT



Peace Agreements I and II implemented changes to storage rules.



PEACE I / PEACE II CALLED FOR:





LOCAL STORAGE MANAGEMENT

- Watermaster shall approve Local Storage agreements so long as:
 - The total quantity of Supplemental Water to be held in Local Storage under all agreements does not exceed 100,000 AF;
 - The requesting party provides its own recharge facilities; and
 - The agreement will not result in Material Physical Injury to any Party or to the Basin (an agreement may contain mitigation measures to satisfy this criterion).

(Peace Agreement, § 5.2(b)(iv) (as modified by Peace II, Attachment “L”); Rules and Regs, § 8.2(d).)



LOCAL STORAGE PRIORITIES

- If more than one Party requests a Local Storage agreement, priority is to be given to the first Party to file a bona fide written request. (Peace Agreement, § 5.2(b)(vii); Rules and Regs, § 8.2(f).)
- “Priorities among the parties to the Judgment shall be on the basis that the completed Applications filed first in time under the provisions of Article X shall have a priority in right up to the amount of the quantity approved by Watermaster.” (Rules and Regs, § 8.2(f).)



ALLOCATION OF LOCAL STORAGE

- The Watermaster Board may designate criteria for the application of the priority for Local Storage applications based on the time of their filing, through the Watermaster approval process (Pools, Advisory Committee, Board)
- Any change to the terms of the Peace Agreements will require the agreement of each of the parties to the Agreements.



MANAGEMENT OF STORAGE AND RECOVERY PROGRAMS

- Watermaster shall be guided by the following criteria in evaluating any Storage and Recovery program:
 - The initial target for the cumulative quantity of water held in storage is 500,000 AF in addition to storage accounts existing at the time of the Peace Agreement; and
 - Potential or threatened Material Physical Injury to any Party or to the Basin shall be mitigated as a condition of approval.
- Watermaster 's evaluation of Storage and Recovery Programs shall prioritize the mutual benefit of the parties to the Judgment and give first priority to Storage and Recovery Programs that provide broad mutual benefits.

(Peace Agreement, § 5.2(c)(iv), (xiii); Rules and Regs, § 8.3(d), (g).)



Storage agreement status

- Local – Excess Carryover (Current)
- Local – Supplemental:
 - Recharged recycled water (Current)
 - Pre – 2000 supplemental (Current)
 - Post – 2000 supplemental (Current)



Storage-related thresholds

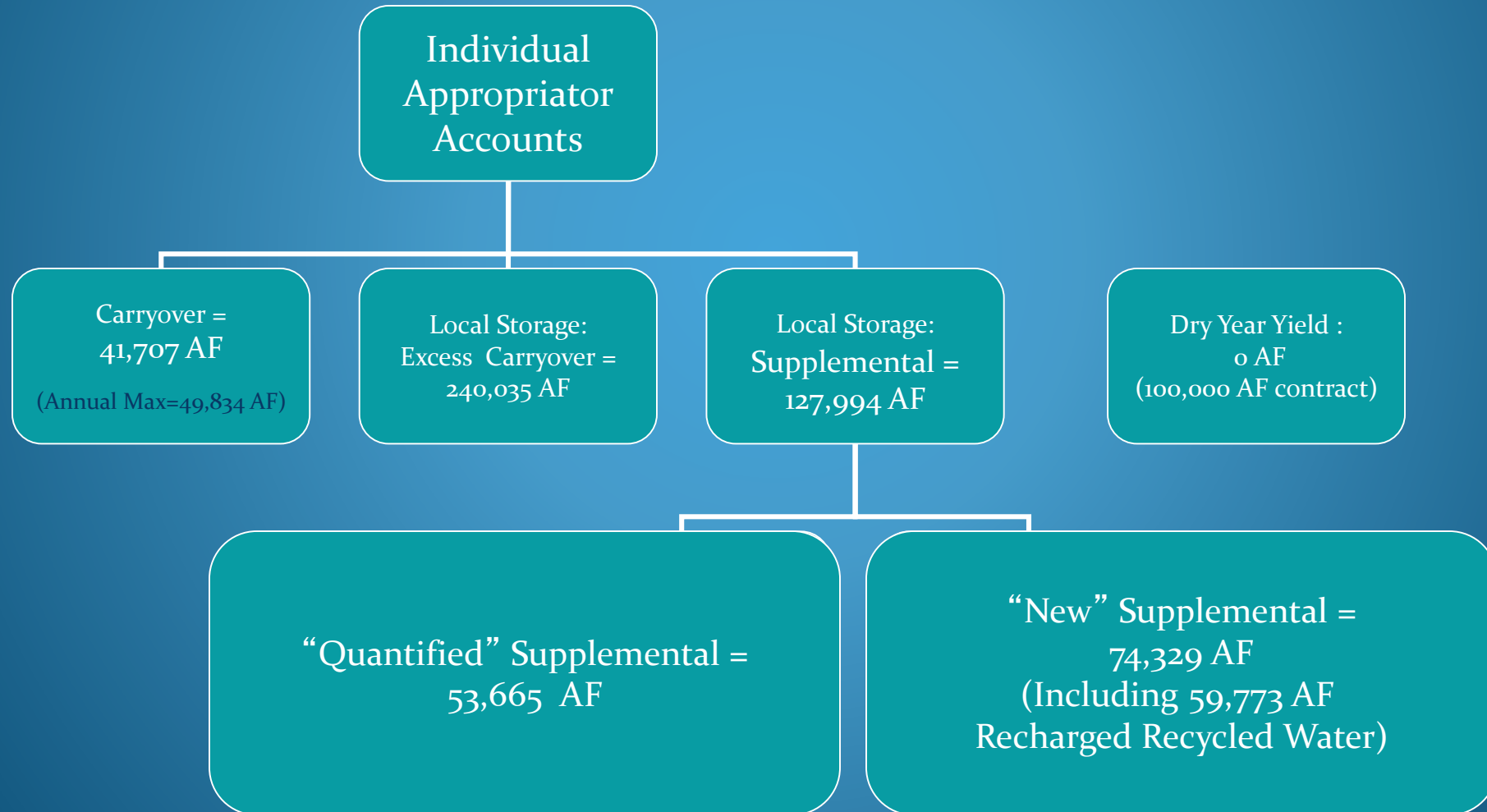
- 500,000 ac-ft as that quantity that may be stored and recovered pursuant to the Programmatic Environmental Impact Report for the OBMP Implementation Plan.*
- 100,000 ac-ft as that quantity of local storage of supplemental water that shall be approved by Watermaster provided that there is no Material Physical Injury.

*As per the Addendum to the SEIR adopted in 2017, this number has increased to 600,000 ac-ft until June 30, 2021.



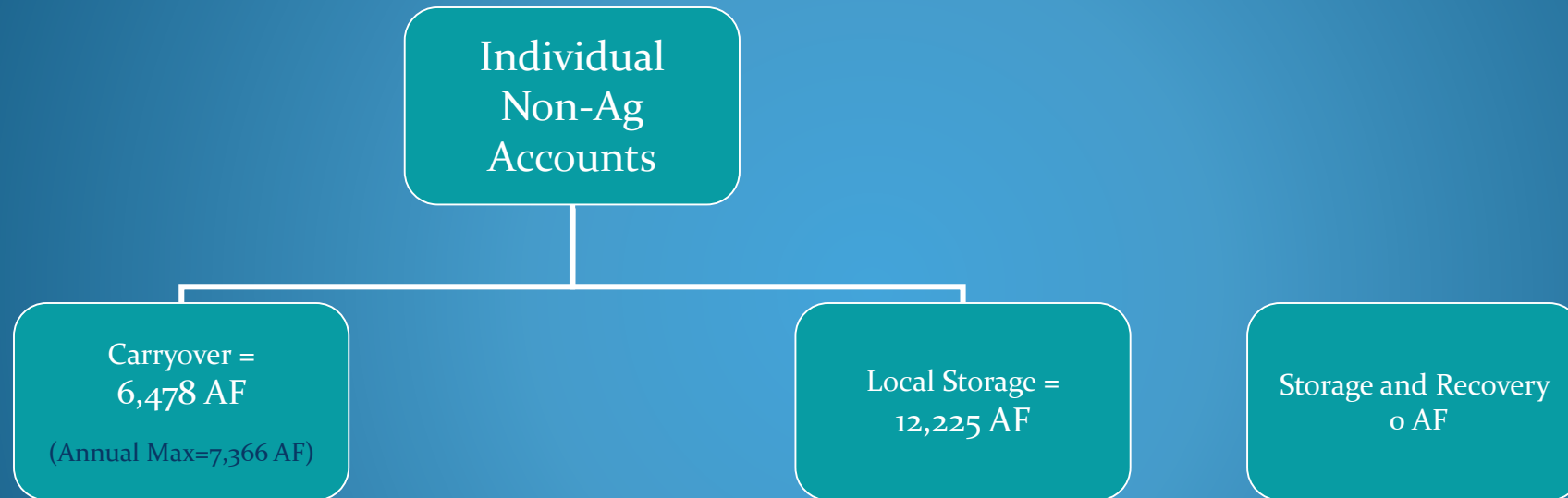
CURRENT ACCOUNT BALANCES

(As of 6/30/2015 – Revised Assessment Package 2015/16)





ONAP



- Storage rules in Peace Agreements I and II also apply to Non-Ag Parties.



2020 Storage Management Plan

- White Paper
- Proposed Table of Contents



Proposed table of contents

1. Introduction
 - 1.1. Legal Basis for Storage Management in the Chino Basin
 - 1.2. Required Content of the Storage Management Plan
2. Storage Management Plan
 - 2.1. Technical Specifications for Storage Management
 - 2.1.1. Allocation of Storage Space to the Parties Use of Managed Storage and Storage and Recovery Programs
 - 2.1.2. Reservation of Existing Spreading Basin Facilities to Satisfy Watermaster Recharge and Replenishment Obligations



Proposed table of contents

- 2.1.3. Storage Management Activities of the Parties
 - 2.1.3.1. Limitation of Transfers or Leases of Water Rights and Water Held in Managed Storage
 - 2.1.3.2. Mitigation of Reduced Net Recharge and Safe Yield
- 2.1.4. Storage and Recovery Programs
 - 2.1.4.1. Prioritization of Put and Take Operations in MZ2 and MZ3
 - 2.1.4.2. Evaluation of Storage and Recovery Program Impacts, MPI, and Mitigation
 - 2.1.4.3. Hydraulic Control Impacts Due to a Storage and Recovery Program Must Be Mitigated



Proposed table of contents

2.2. Storage Agreements

2.2.1. Application and Review Process for Storage by a Party

2.2.2. Application and Review Process for Storage and Recovery Programs

2.3 **Storage Management Plan Update**

References

Appendices

Other as required



Questions for discussion

1. What are your needs in regards to storage?
2. How should the storage space be allocated to parties and to Storage and Recovery Programs?
3. If there should be storage space allocated to parties, how should it be allocated to them?
4. If there should be storage space allocated to parties, how should the effects of that be accounted for?
5. How often should the Storage Management Plan be updated?



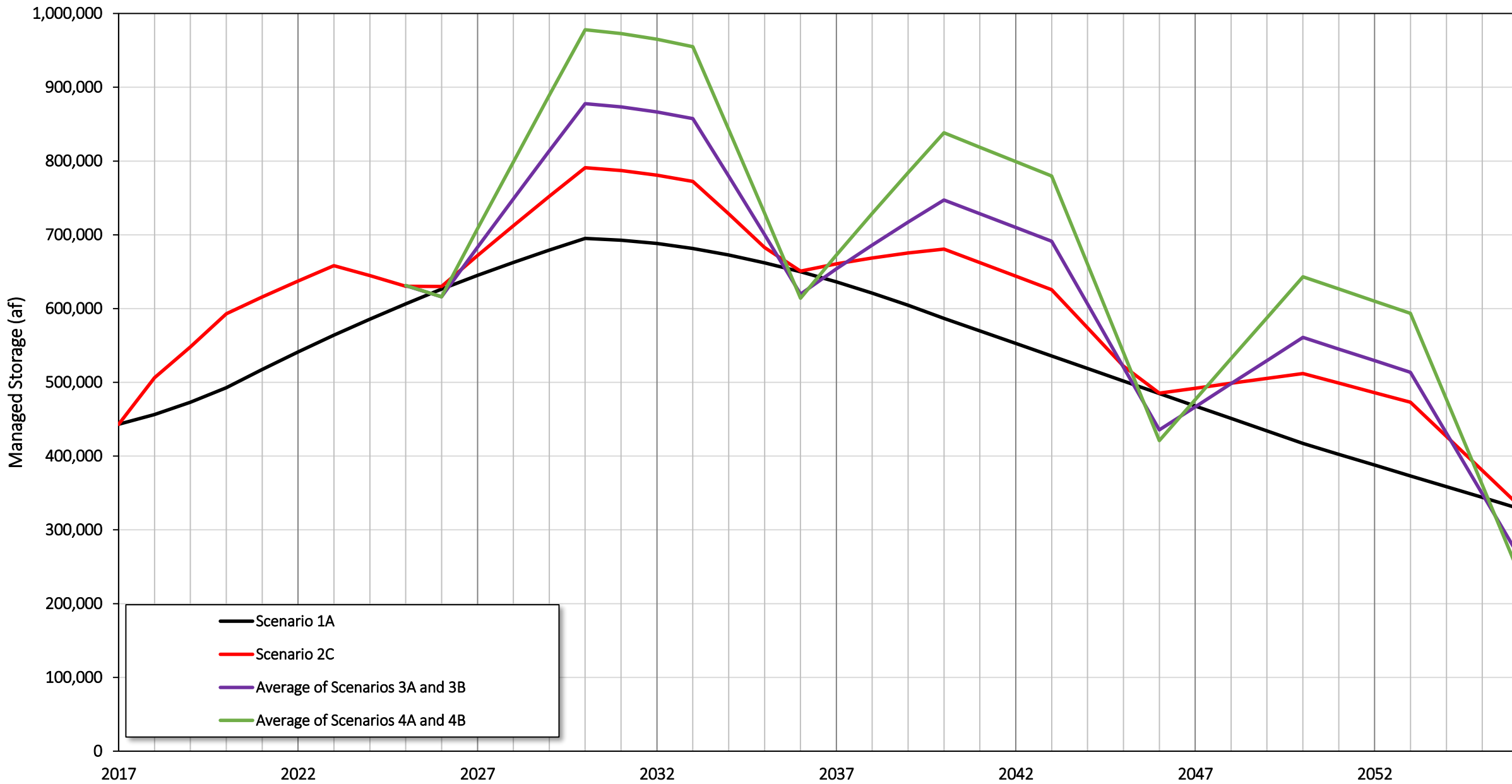
Technical requirements



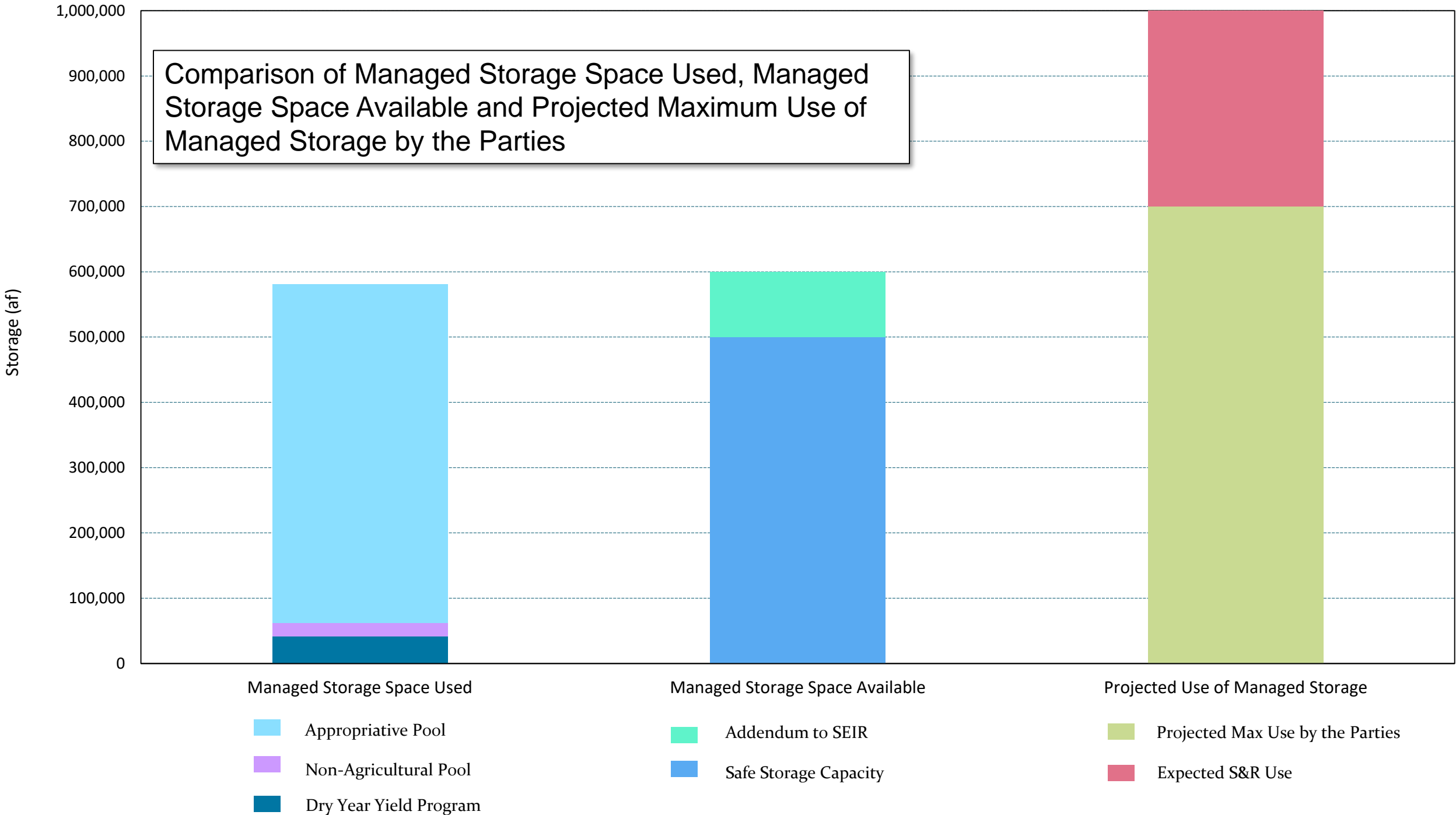
General Requirements

- Allocation of Storage Space to the Parties Use of Managed Storage and Storage and Recovery Programs

Figure 6-3 from the Storage Framework Investigation
Model-Projected End-of-Year Volume in Managed Storage for Scenarios 1A and 2C and Average End-of-Year Volume for Scenarios 3A and 3B and 4A and 4B



Comparison of Managed Storage Space Used, Managed Storage Space Available and Projected Maximum Use of Managed Storage by the Parties





General Requirements

- Reservation of Existing Spreading Basin Facilities to Satisfy Watermaster Recharge and Replenishment Obligations



Storage Management Activities of the Parties

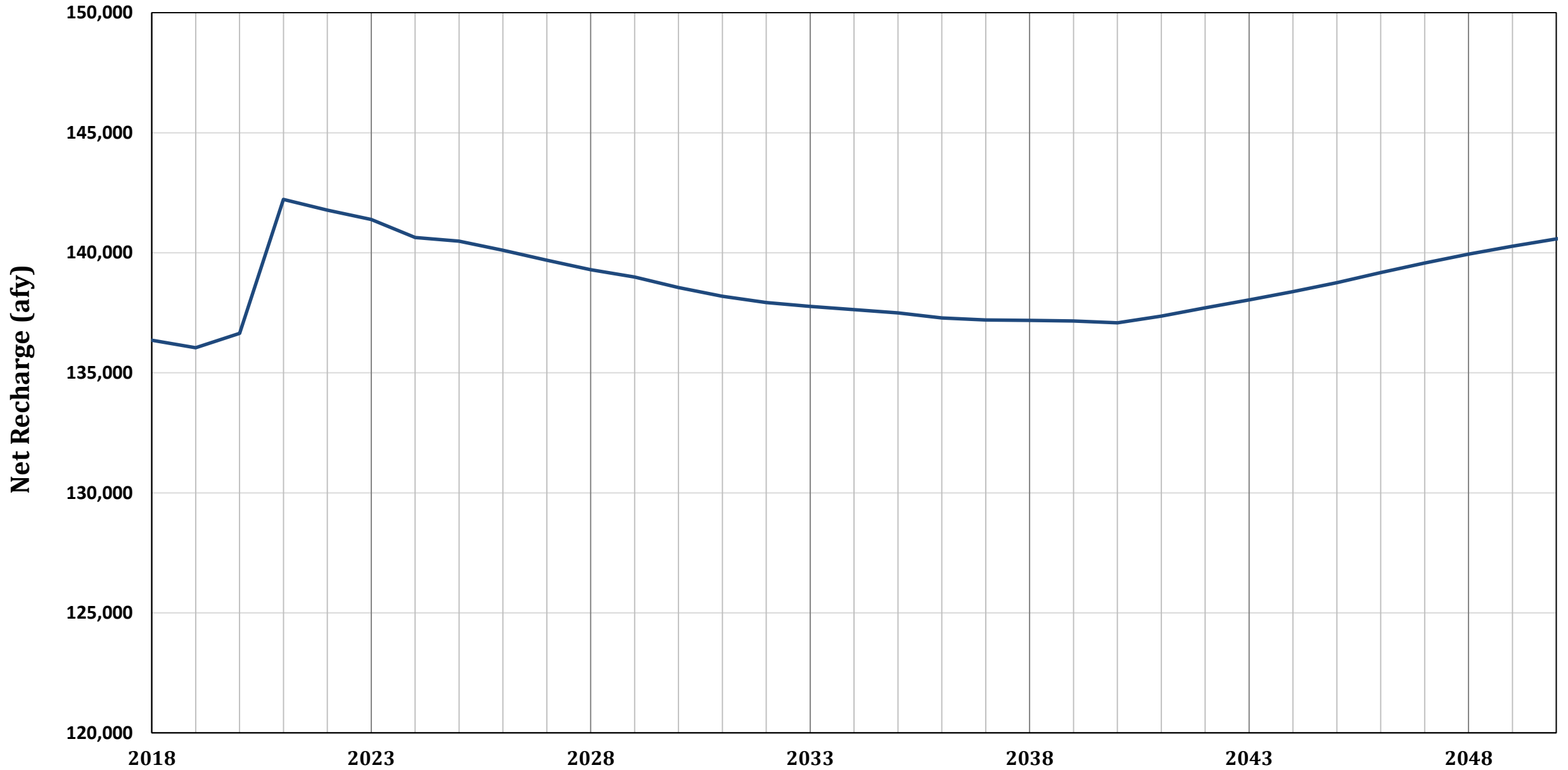
- Limitation of Transfers or Leases of Water Rights and Water Held in Managed Storage



Storage Management Activities of the Parties

- Mitigation of Reduced Net Recharge and Safe Yield
 - Range of options include:
 - Status quo – Allow the reduction net recharge to be embedded in Safe Yield, implicitly allocated to Appropriative Pool parties, based on their pro rata share of Operating Safe Yield.
 - Debit the reduction in net recharge from the storage accounts of the storing parties in the Appropriative and Overlying Non-agricultural pools.

Figure 5-7 from the Storage Framework Investigation
Projected Net Recharge for Baseline Scenario 1A

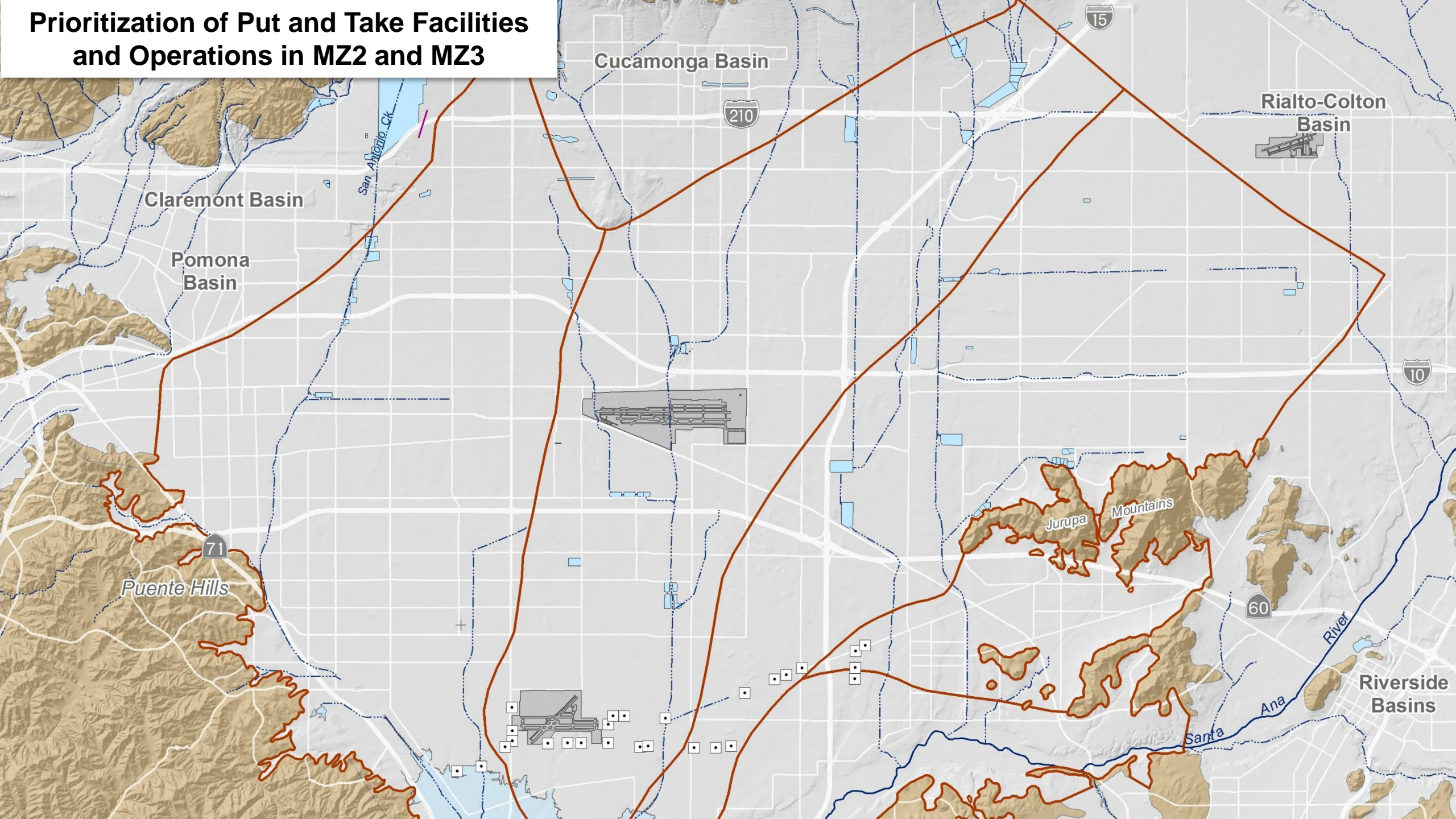




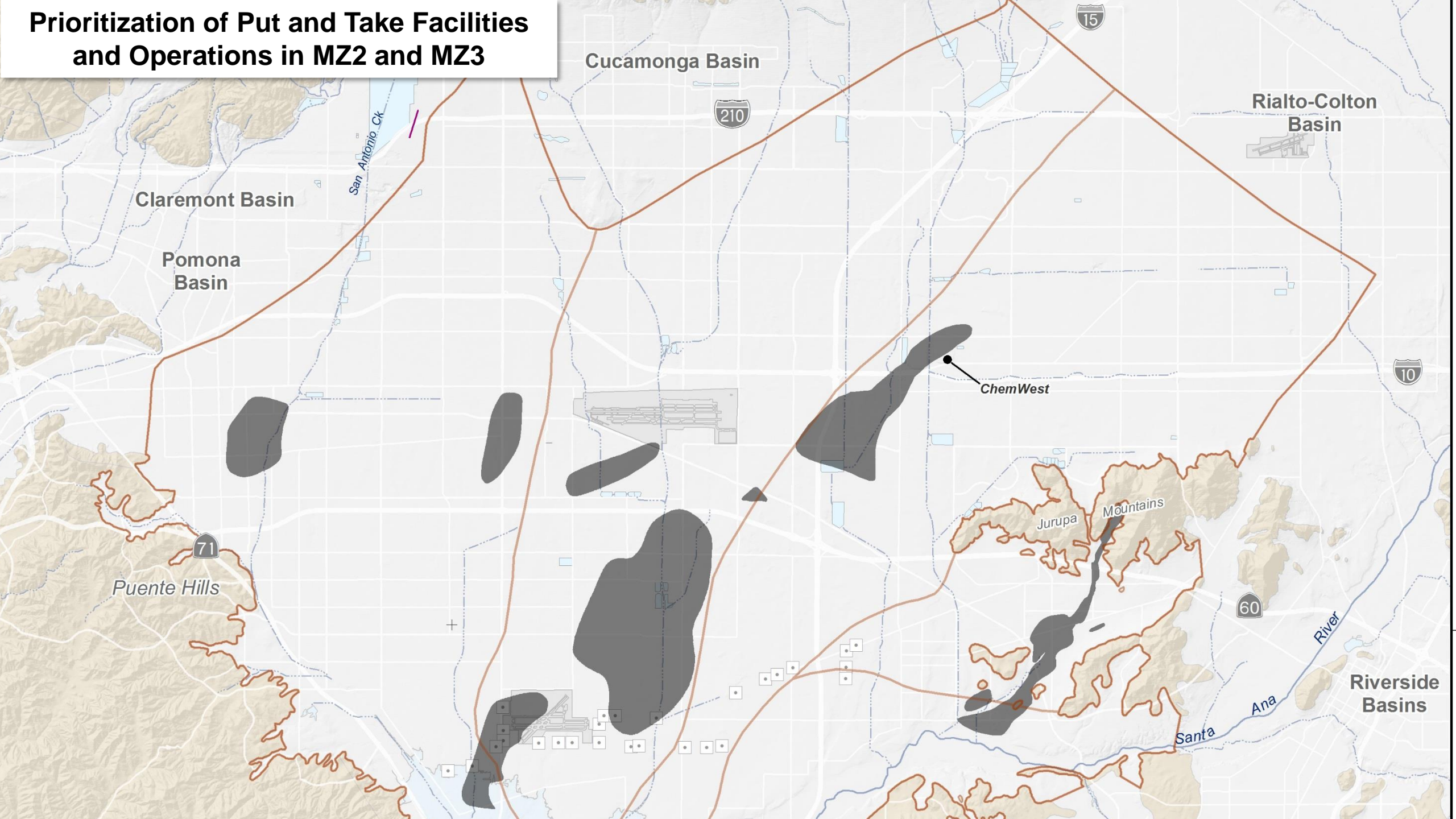
Storage and Recovery Programs

- Prioritization of Put and Take Operations in MZ₂ and MZ₃

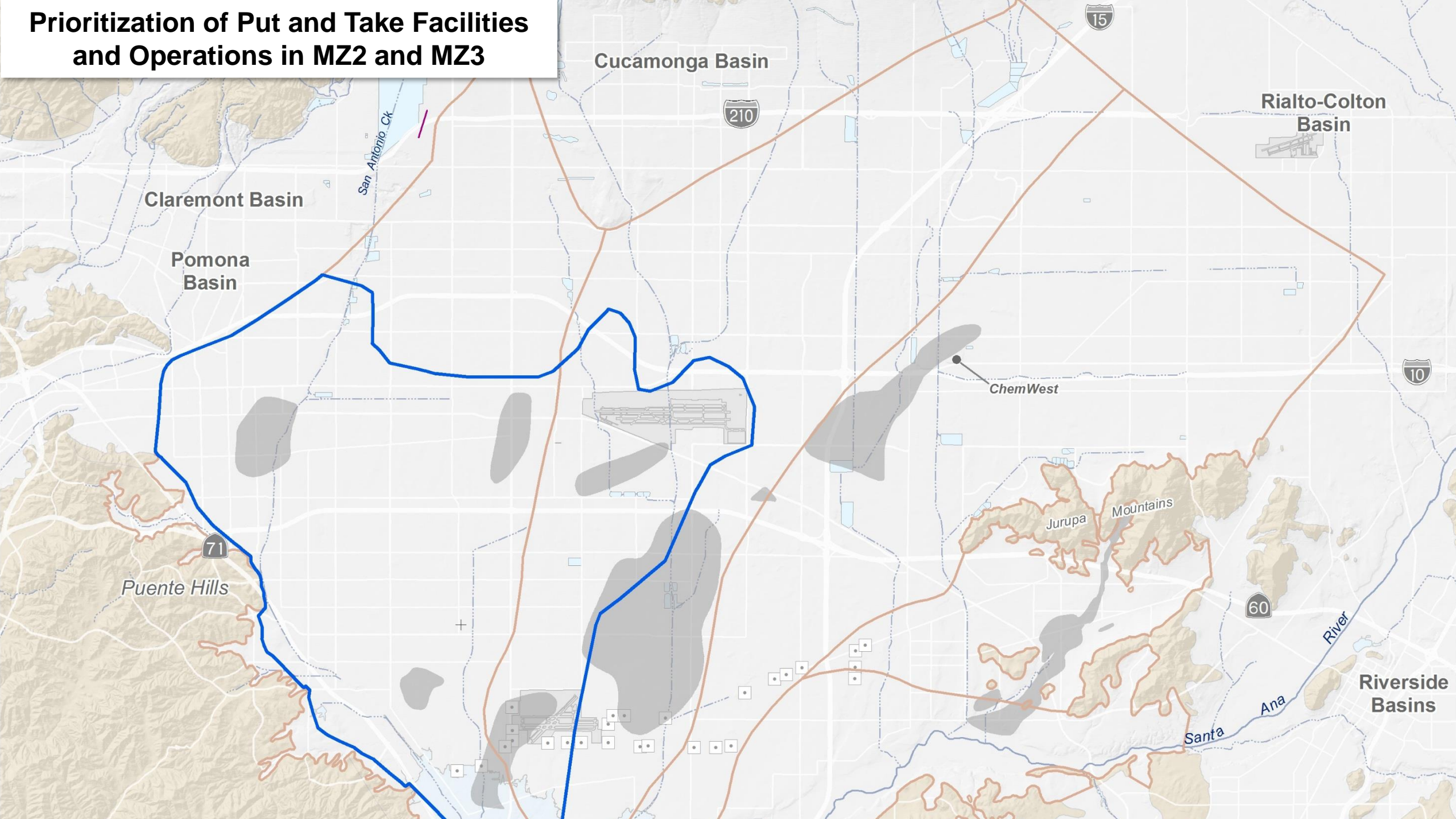
Prioritization of Put and Take Facilities and Operations in MZ2 and MZ3



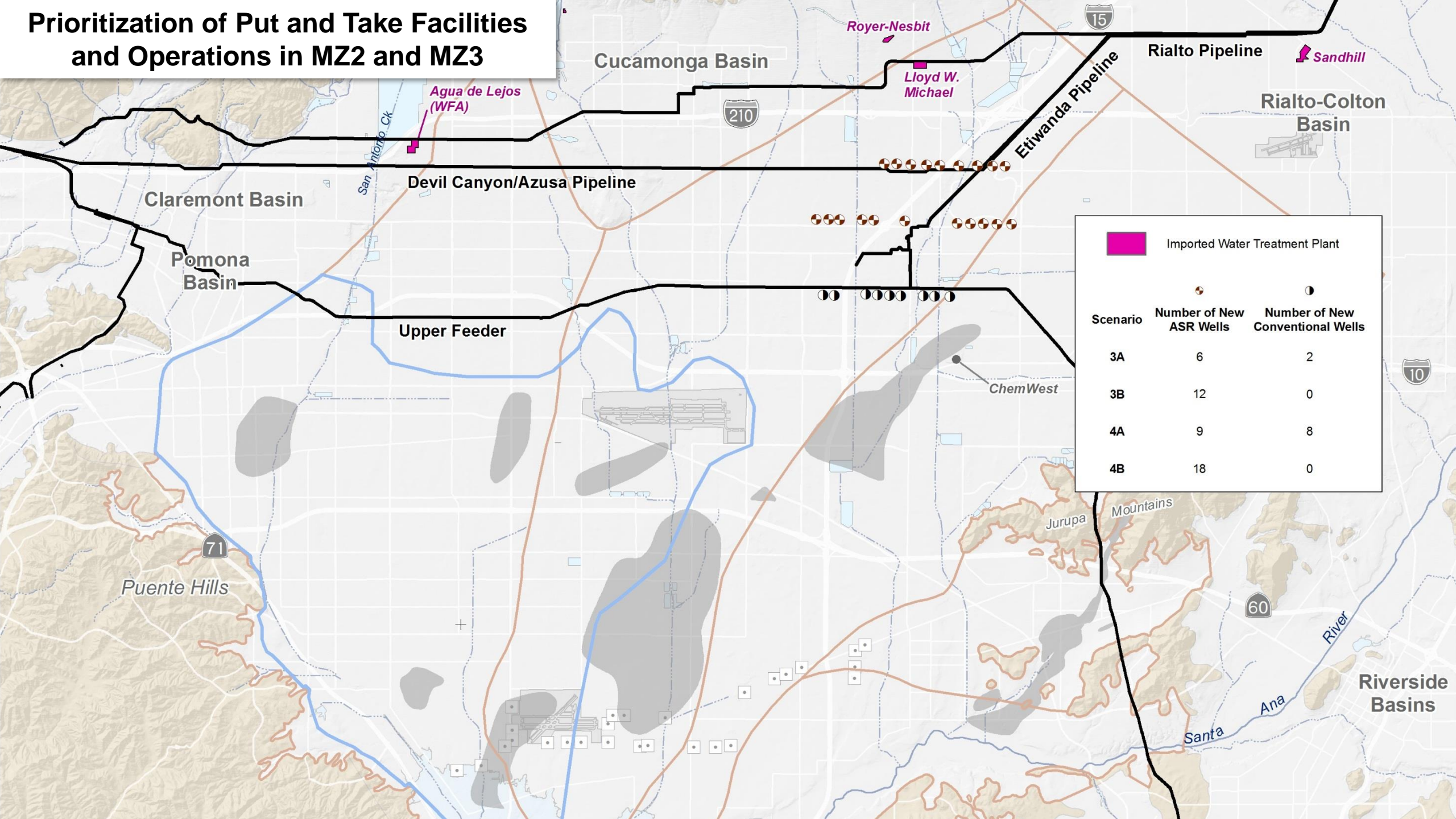
Prioritization of Put and Take Facilities and Operations in MZ2 and MZ3



Prioritization of Put and Take Facilities and Operations in MZ2 and MZ3



Prioritization of Put and Take Facilities and Operations in MZ2 and MZ3



Scenario	Number of New Wells	
	ASR Wells	Conventional Wells
3A	6	2
3B	12	0
4A	9	8
4B	18	0



Storage and Recovery Programs

- Evaluation of Storage and Recovery Program Impacts, MPI, and Mitigation



Summary of conclusions for Op Bands 2, 3 and 4 through 2050

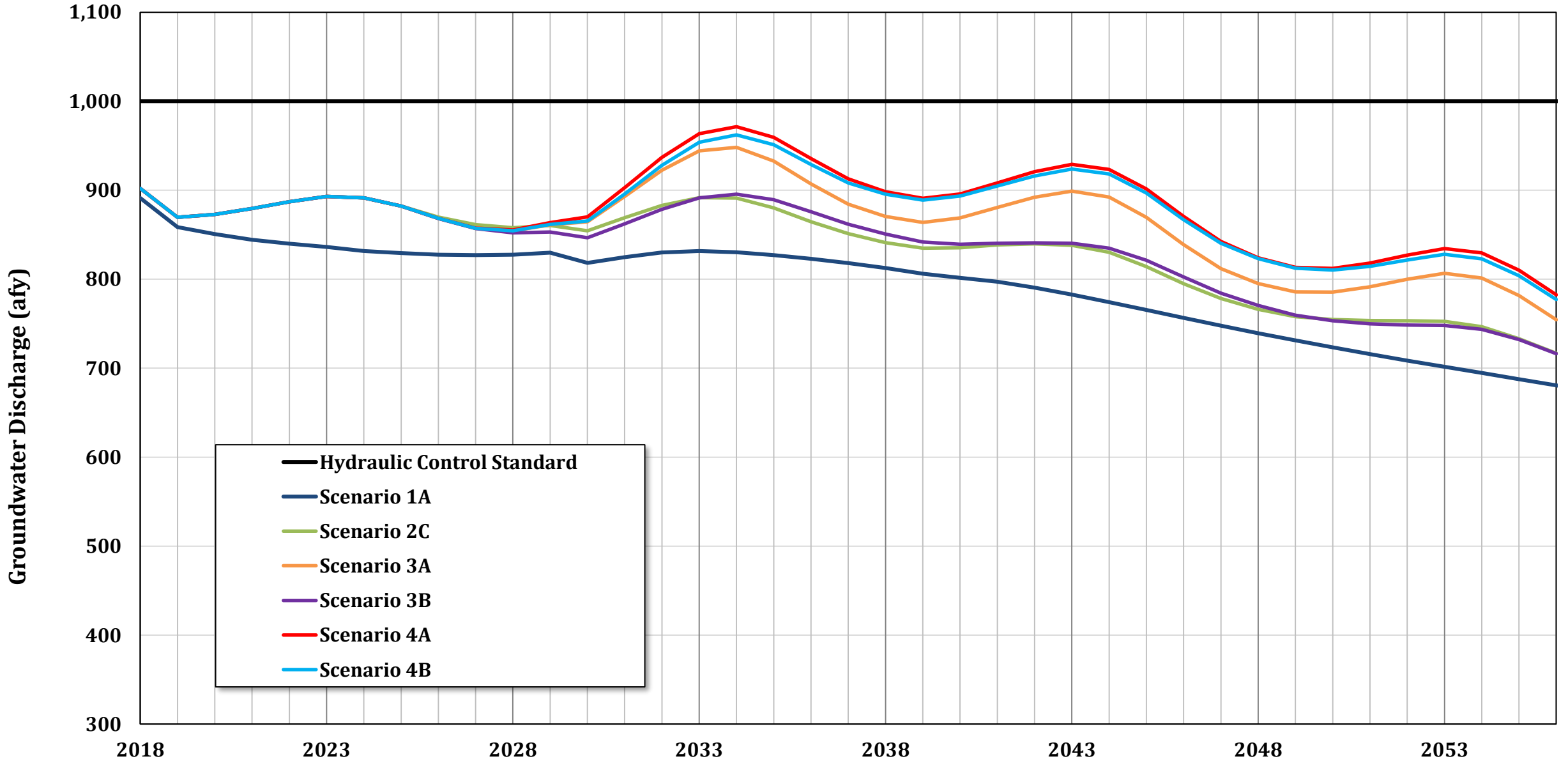
Feature	Operating Band				
	2 (700 to 800 kaf)	3 (800 to 900 kaf)		4 (900 to 1,000 kaf)	
Scenario	2C	3A	3B	4A	4B
Pumping sustainability	No MPI	No MPI through 2050. Potential MPI after 2060. Can be mitigated by optimizing recovery well field to minimize drawdown.			
New land subsidence	No MPI				
Reduction in annual net recharge as a percentage of annual storage space used	2.41%	1.50%			
Hydraulic Control	Maintained	Increased groundwater discharge through the CCWF, approaching the de minimis standard. Can be mitigated by optimizing recovery well field.			
Effects on solvent plumes	Affects the speed and direction of the GE Flat Iron and GE Test Cell plumes				



Storage and Recovery Programs

- Hydraulic Control Impacts Due to a Storage and Recovery Program Must Be Mitigated

Figure 6-9 from the Storage Framework Investigation
Projected Groundwater Discharge from Chino North Management Zone through the Chino Creek Well Field for Storage and Recovery Program Scenarios

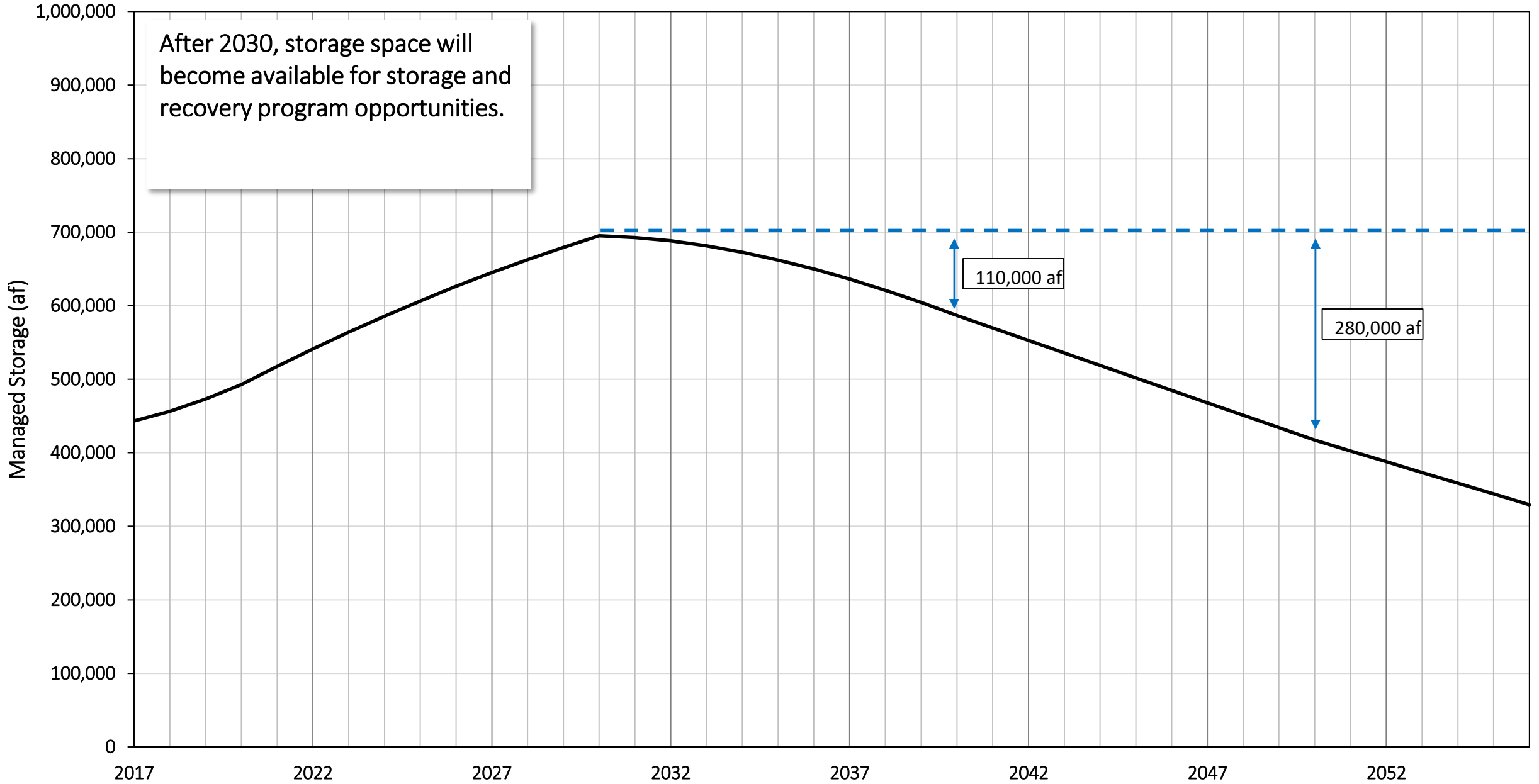




Storage Management Plan Update

- The projected post 2030 decline in the parties managed storage use creates an opportunity to expand the space available for Storage and Recovery Programs and provide broad mutual benefits to the parties and the basin. The Storage Management Plan should be periodically updated to identify and pursue these opportunities.
- Watermaster should update the Storage Management Plan on a ??-year frequency coinciding with the Safe Yield recalculation or more frequently.

Figure 6-3 from the Storage Framework Investigation
Model-Projected End-of-Year Volume in Managed Storage for Scenario 1A





Questions for discussion

1. What are your needs in regards to storage?
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4. If there should be storage space allocated to parties, how should the effects of that be accounted for?
5. How often should the Storage Management Plan be updated?



Proposed Next Steps

- Parties submit written comments by July 5 on the draft 2020 storage management white paper, workshop presentation and proposed Storage Management Plan report TOC.
- Parties respond to the first question posed by Watermaster staff by July 5
 - What are your needs in regards to storage?
- Next workshop July 18, following Advisory Committee



Future Considerations

- Modifications to the Peace Agreement to Implement the Storage Management Plan
- Modifications to the OBMP Implementation Plan to Implement the Storage Management Plan
- Modifications to Existing Rules and Regulations to Implement the Storage Management Plan
- Modifications to Storage Forms and Templates to Implement the Storage Management Plan



Questions

Presentation can be viewed and downloaded from:

<http://cbwm.org/FTP/Storage/>





End



Conclusions from the review of Storage Framework baseline scenarios through 2050

Feature	Scenario 1A	Scenario 1B with mitigation	Scenario 1C
Maximum storage space used	700 kaf	680 kaf	640 kaf
Pumping sustainability	Pumping sustainability challenges are projected to occur in the CDA and JCSD well fields and at some FWC wells. Scenario 1A has the least challenges and Scenario 1B with mitigation has the greatest challenges.		
New Land Subsidence	No new land subsidence projected through 2050		
Net Recharge	Net recharge increases in 2021 with implementation of the 2013 RMPU facilities. In Scenarios 1A and 1C, net recharge declines with increasing managed storage through 2030 and increases in 2040 and thereafter with decreasing managed storage and increasing pumping. In Scenario 1B with mitigation, net recharge increases generally through 2050.		
Hydraulic Control	Maintained through 2050 for all baseline scenarios		

Figure 5-8 from the Storage Framework Investigation
Projected Groundwater Discharge from the Chino North Management Zone through the Chino Creek Wellfield

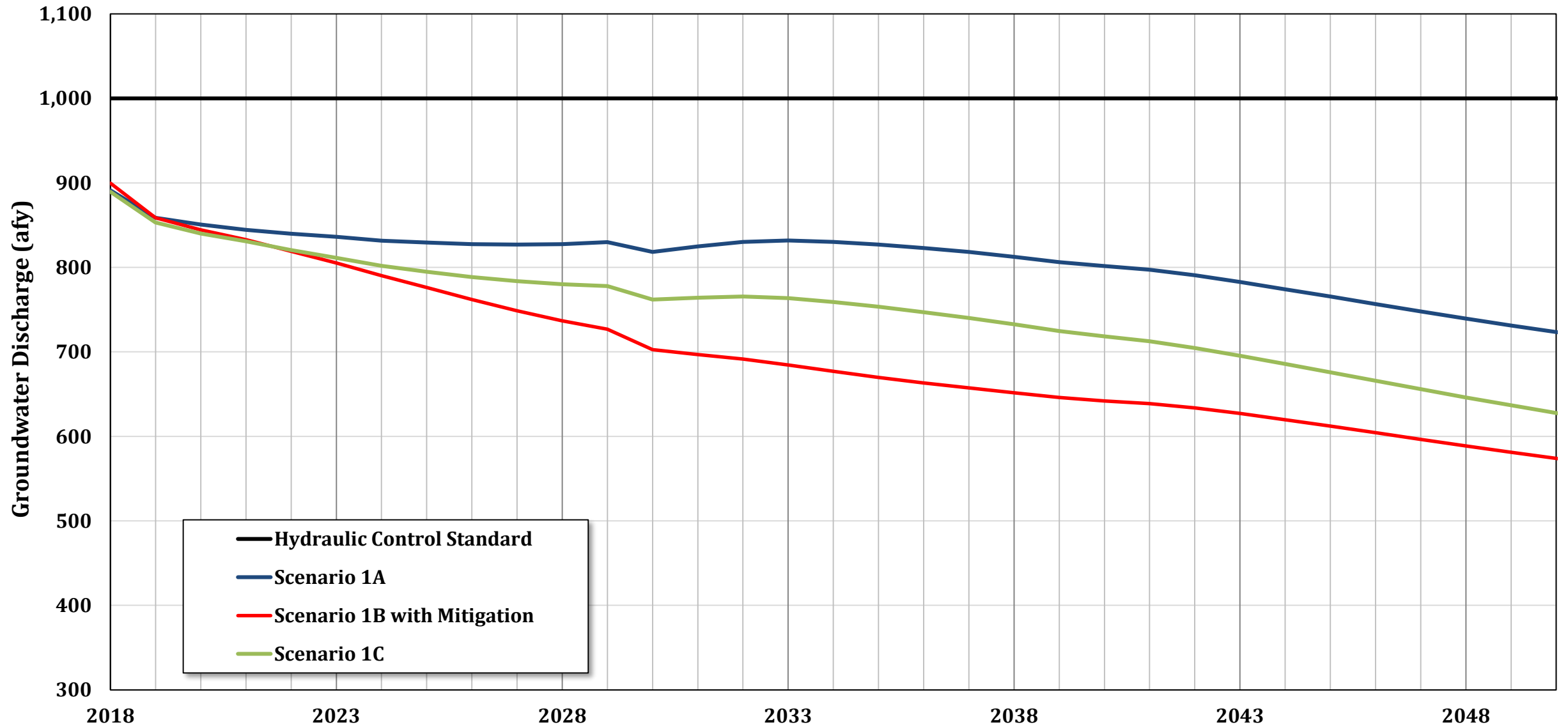
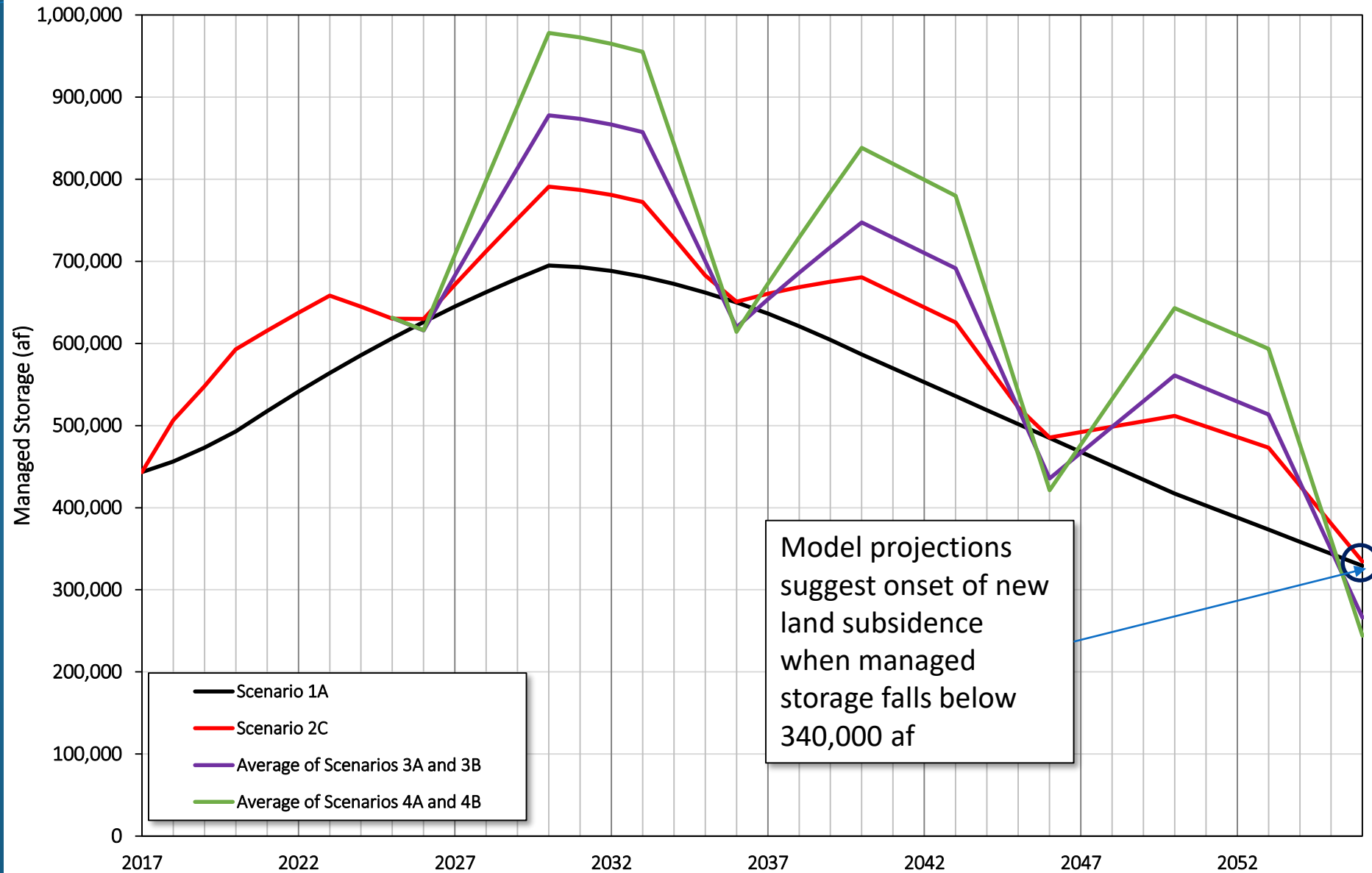




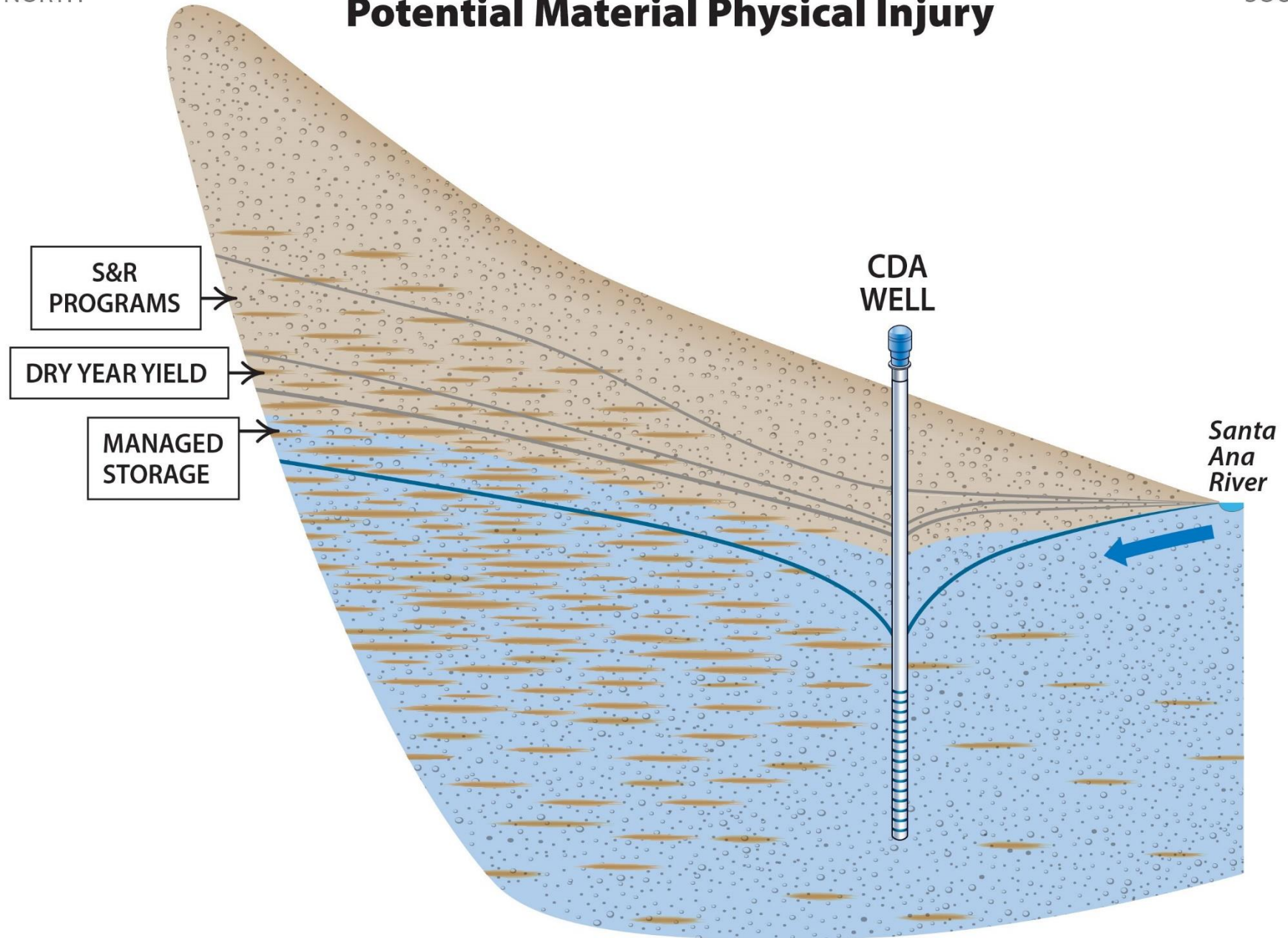
Figure 6-3 from the Storage Framework Investigation
Model-Projected End-of-Year Volume in Managed Storage for Scenarios 1A and 2C and Average
End-of-Year Volume for Scenarios 3A and 3B and 4A and 4B



A
NORTH

Storage Framework and Potential Material Physical Injury

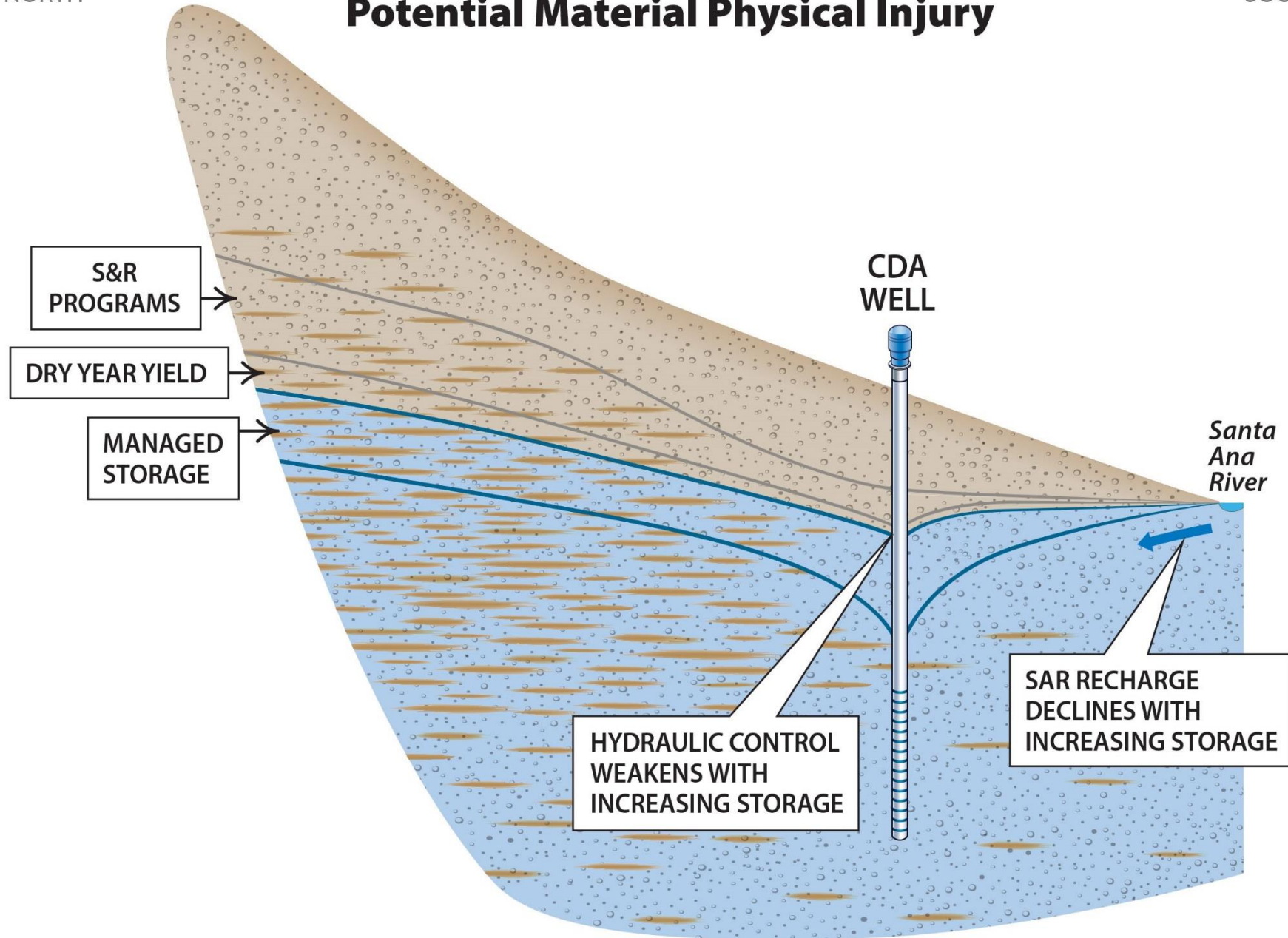
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Storage Framework and Potential Material Physical Injury

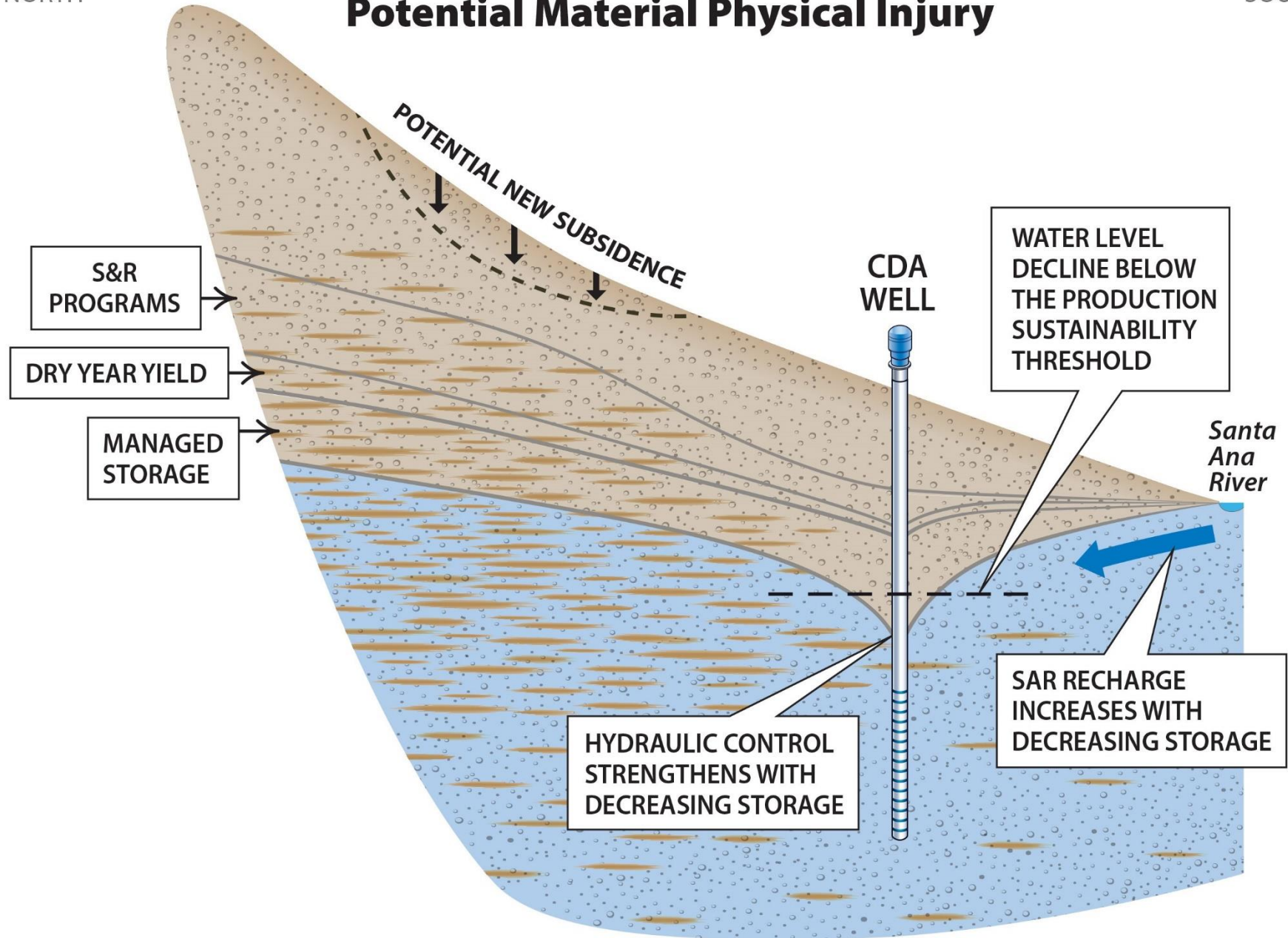
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Storage Framework and Potential Material Physical Injury

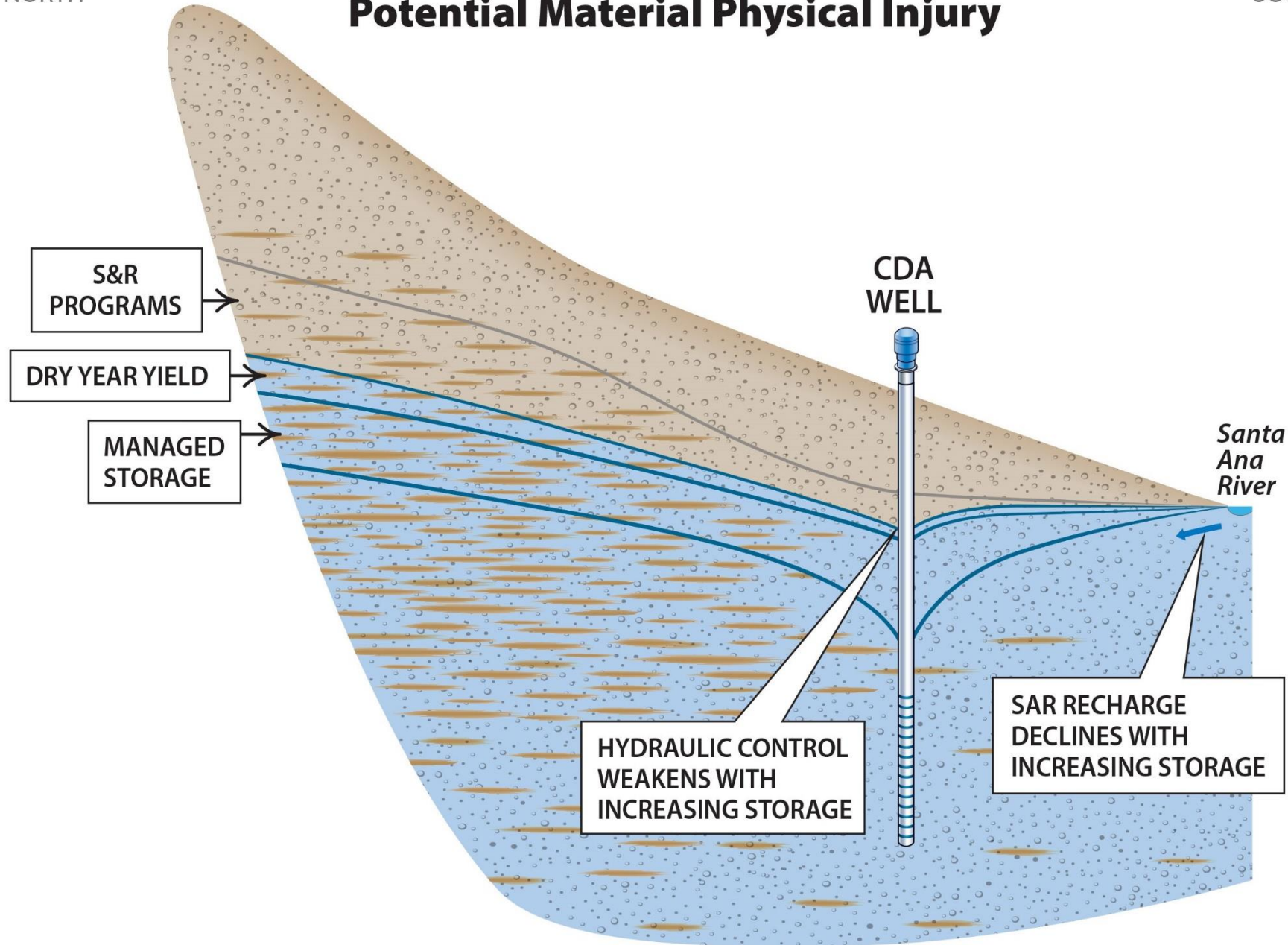
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Storage Framework and Potential Material Physical Injury

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