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CITY CLERK, FRESNO, CA

Agenda Item: 2:00 P.M.
Date: 6/19/14

FRESNO CITY COUNCIL

City of FRESNO

Supplemental Information Packet

Agenda Related Items – 2:00 P.M.
Supplemental Packet Date: June 19, 2014

Item(s)

WORKSHOP on City of Fresno water supply – Department of Public Utilities

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CITY CLERK, FRESNO CA

Reliable Water for Fresno

City of
FRESNO
WATER DIVISION

June 19, 2014

DPU

A Nationally Accredited
PUBLIC UTILITY AGENCY

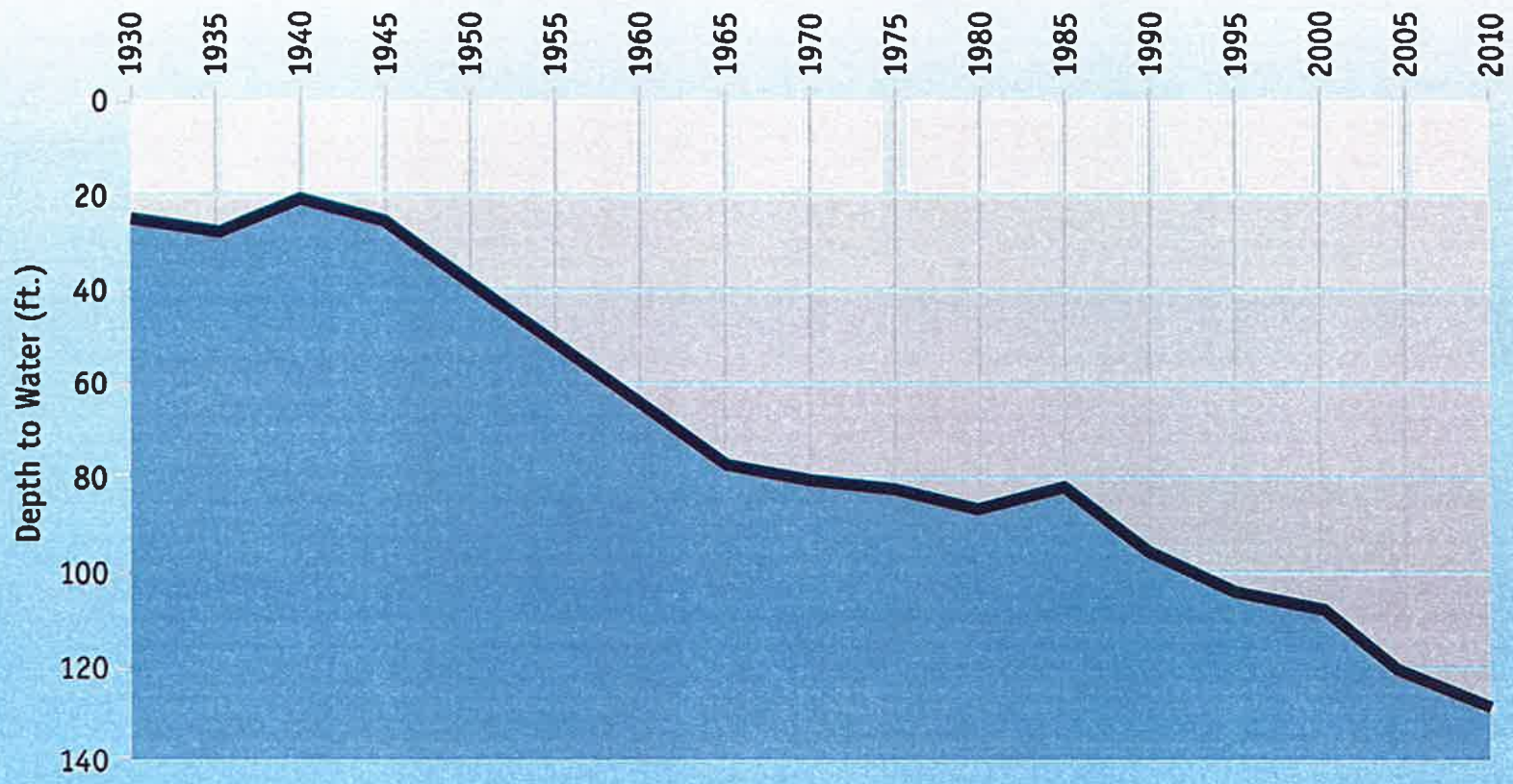
Where Does Our Water Come From?

- Snowfall & Rainfall
- Kings River Watershed (water entitlements)
- San Joaquin Watershed (water contract)

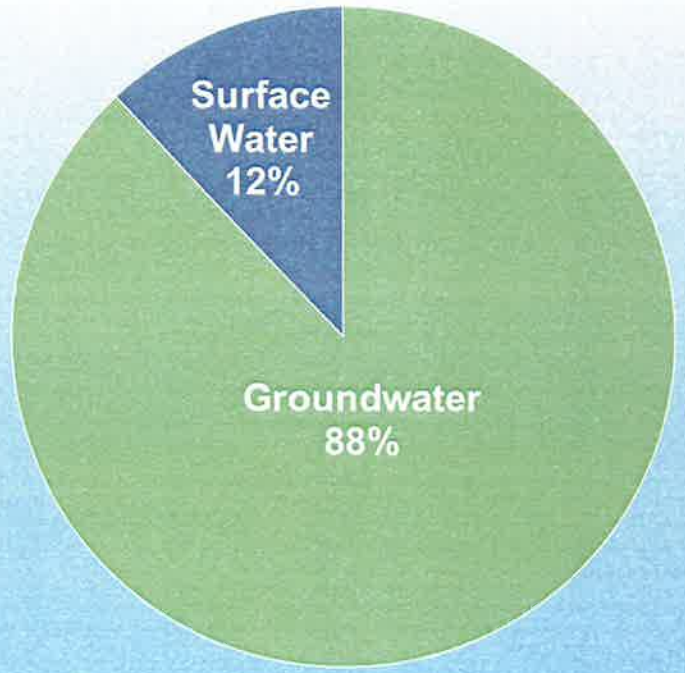
- Kings River / Pine Flat Reservoir
- San Joaquin River / Millerton Lake
- Friant/Kern Canal
- Fresno Irrigation District Canals

Fresno is committed to addressing its declining groundwater levels…

City of Fresno Historical Ground Water Levels



...and diversifying water supply sources...



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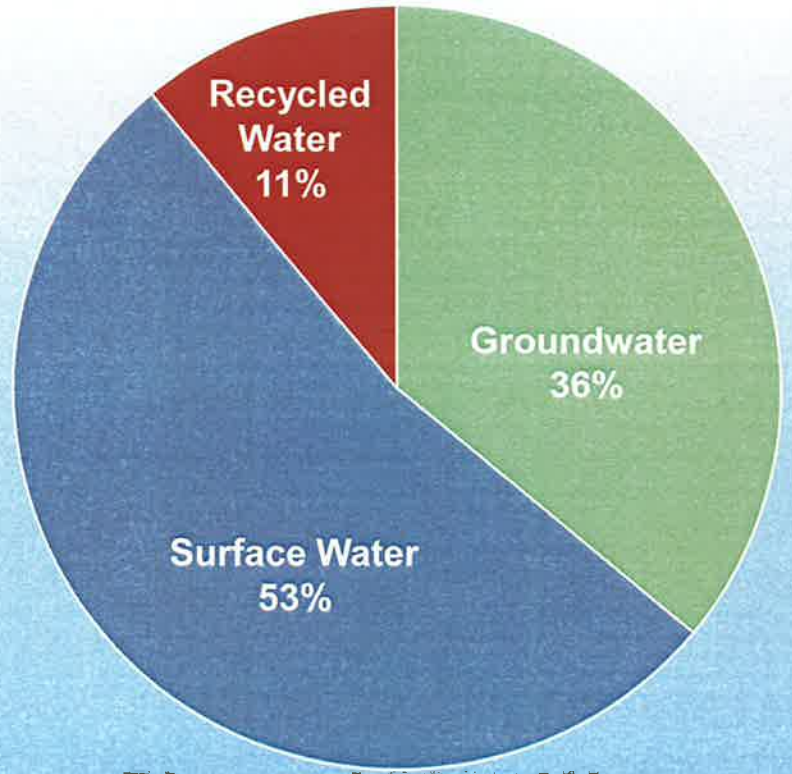

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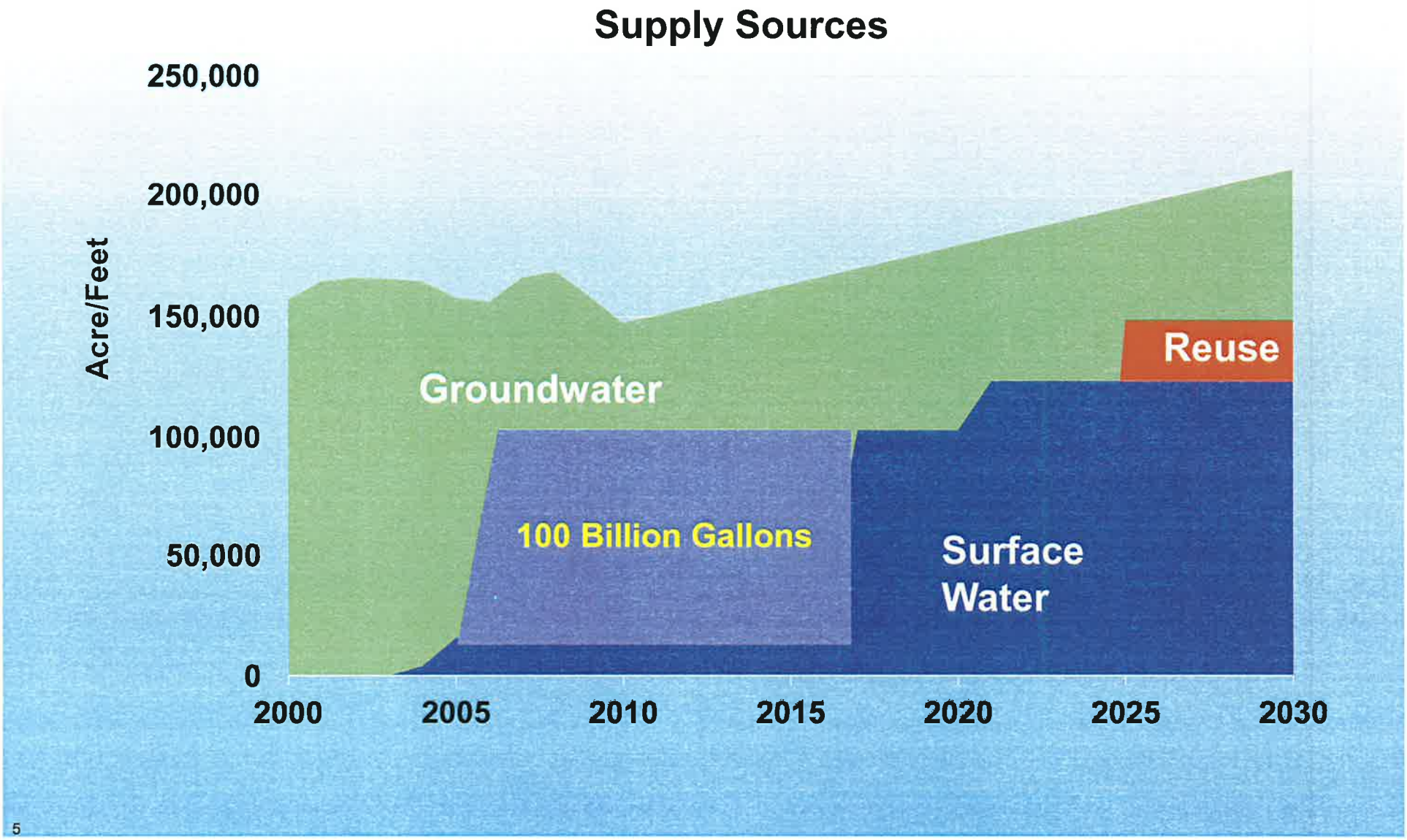
...to result in a truly sustainable water supply.



Future Water Supply Challenges

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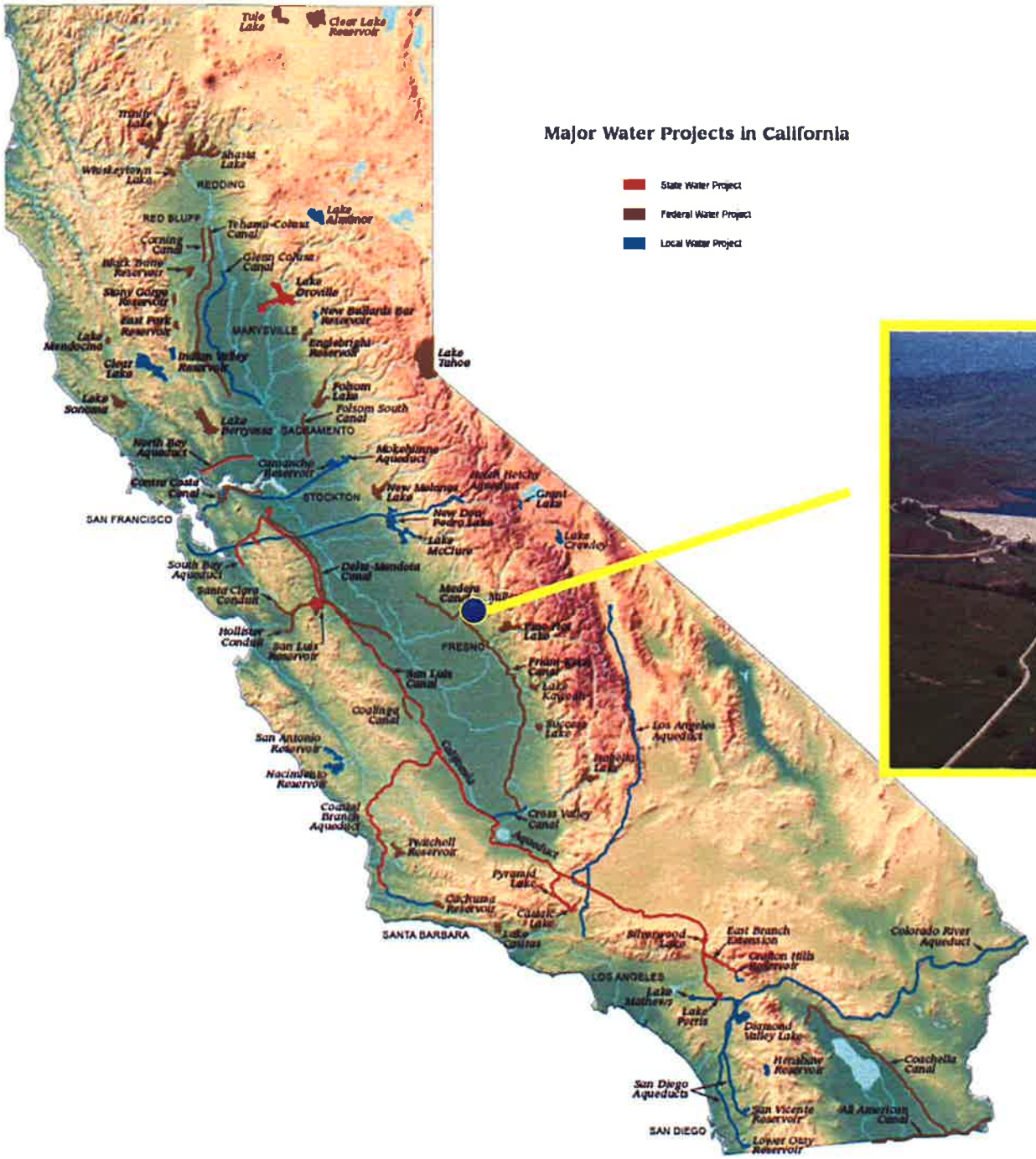
Friant Water Authority

Perspectives on Key Water Activities and Proposals



By
Ronald D. Jacobsma
General Manager

Friant Division Service Area and Contractors

Service Area

Merced County
Madera County
Fresno County
Tulare County
Kern County

1,200,000+ Acres
15,000 Farmers
$5B+ Ag Economy

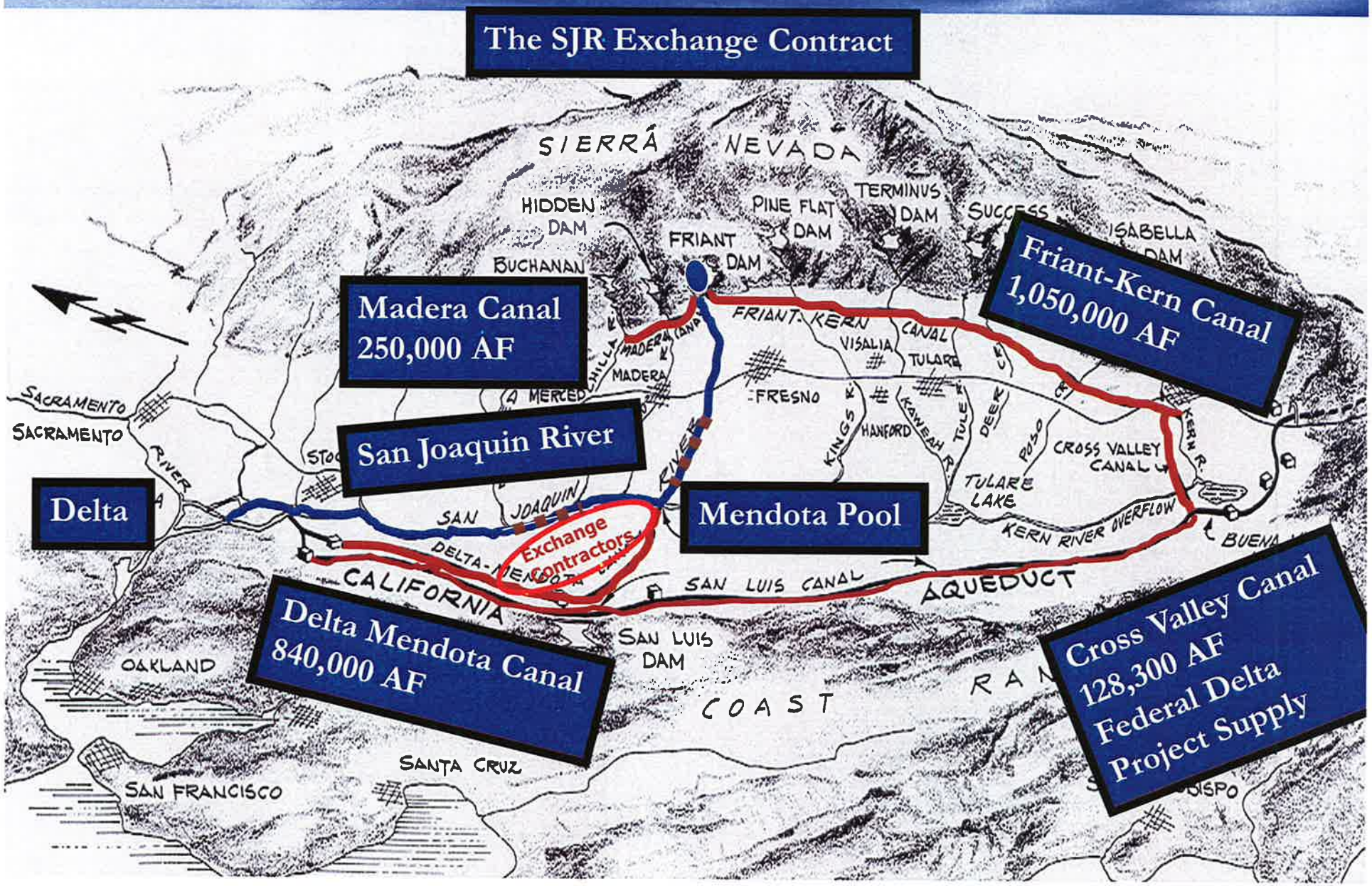
Ag Water Contractors

- Arvin-Edison W.S.D.
- Chowchilla W.D.
- Delano-Earlimart I.D.
- Exeter I.D.
- Fresno I.D.
- Garfield W.D.
- Gravelly Ford W.D.
- Hills Valley I.D.
- International W.D.
- Ivanhoe I.D.
- Kaweah-Delta WCD
- Kern-Tulare W.D.
- Lewis Creek W.D.
- Lindmore I.D.
- Lindsay-Strathmore I.D.
- Lower Tule River I.D.
- Madera I.D.
- Orange Cove I.D.
- Porterville I.D.
- Saucelito I.D.
- Shafter-Wasco I.D.
- Southern San Joaquin M.U.D.
- Stone Corral I.D.
- Tea Pot Dome W.D.
- Terra Bella I.D.
- Tri-Valley
- Tulare I.D.

M&I Contractors

- City of Fresno
- City of Orange Cove
- City of Lindsay
- Fresno Co. WWD #18
- Madera County

How The Friant Division Works



NRDC v. Murillo (USBR and FWA) Litigation

- Lawsuit filed in 1988 as Friant 40 year contracts were being renewed.
- Lawsuit was amended 7 times with F&G code 5937 being the critical issue as to Friant Dam operations
- Judge Karlton ruled in favor of Plaintiffs in 2005 as to liability aspect of case stating USBR needed to make releases to support the historical (salmon) fishery
- "Remedy" phase of trial scheduled to begin February 2006 as to what USBR would be required to do to comply with F&G code 5937

NRDC v. Murillo (USBR and FWA) Settlement

- Obviously Judge Karlton was not treating the defendants very well. Based on a couple "trips" to the 9th Circuit, there was further uncertainty as to the outcome through litigation.
- Significant uncertainty as to what the water supply impacts would be, particularly if a Court imposed "Master" had broad authority to implement "adaptive management", as advocated by the Plaintiffs in the litigation.
- Significant uncertainty as to the costs of litigation, and the potential significant increase in water costs to Friant Contractors and to all CVP contractors (as the CVP is financially integrated).

NRDC v. Murillo (USBR and FWA) Settlement - continued

- Settlement is a global settlement – It resolves all claims
- It affirms that the long term renewal contracts entered into by the Friant Contractors in 2001 are valid and full force and effect and provides for minor amendments to refer to the Settlement Agreement.
- It disposes of other claims which were pending and which the Friant defendants feared the court probably would have ruled against the U.S. and Friant, including NEPA and ESA compliance for the renewal contracts.

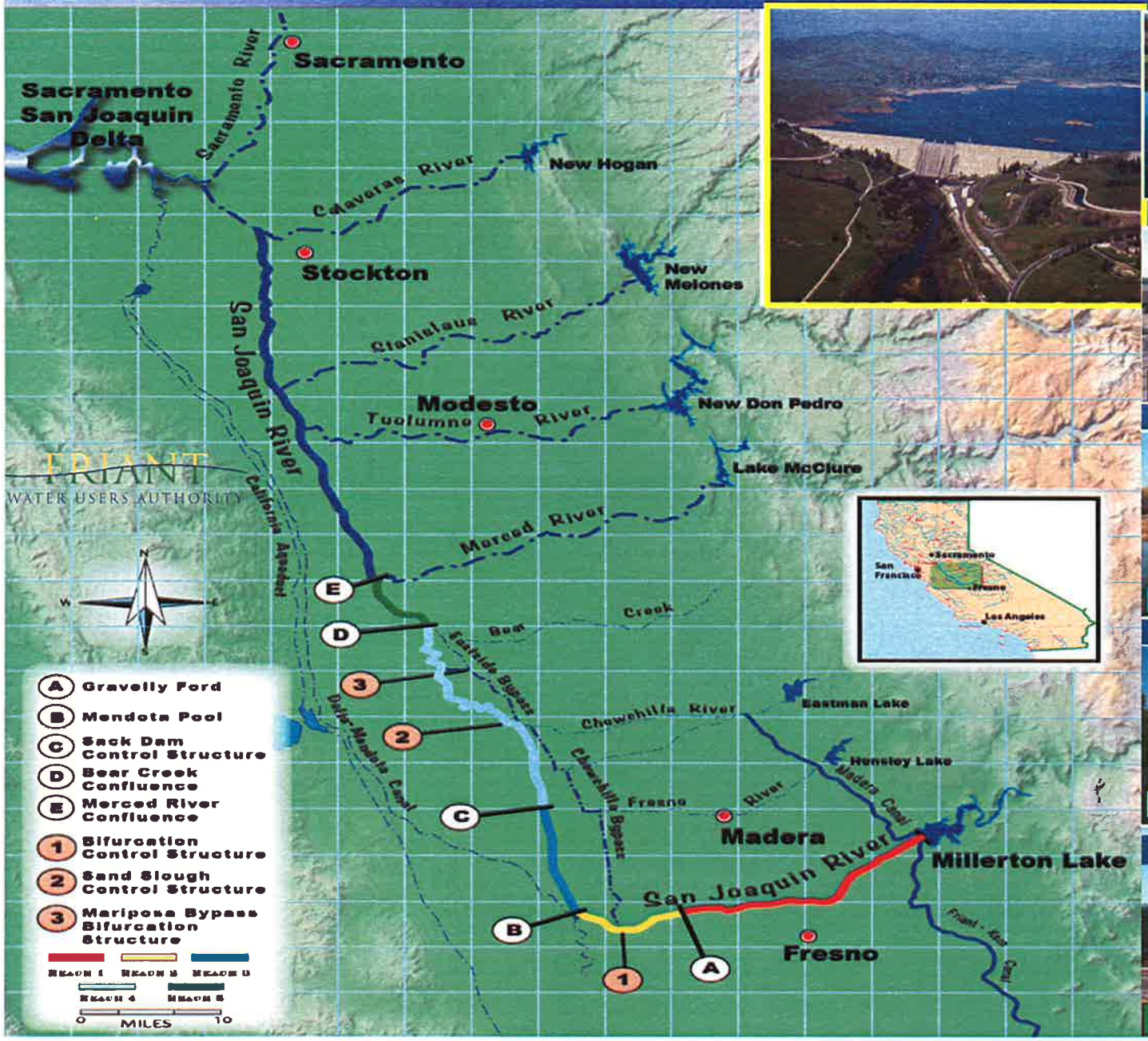
NRDC v. Murillo (USBR and FWA) Settlement - continued

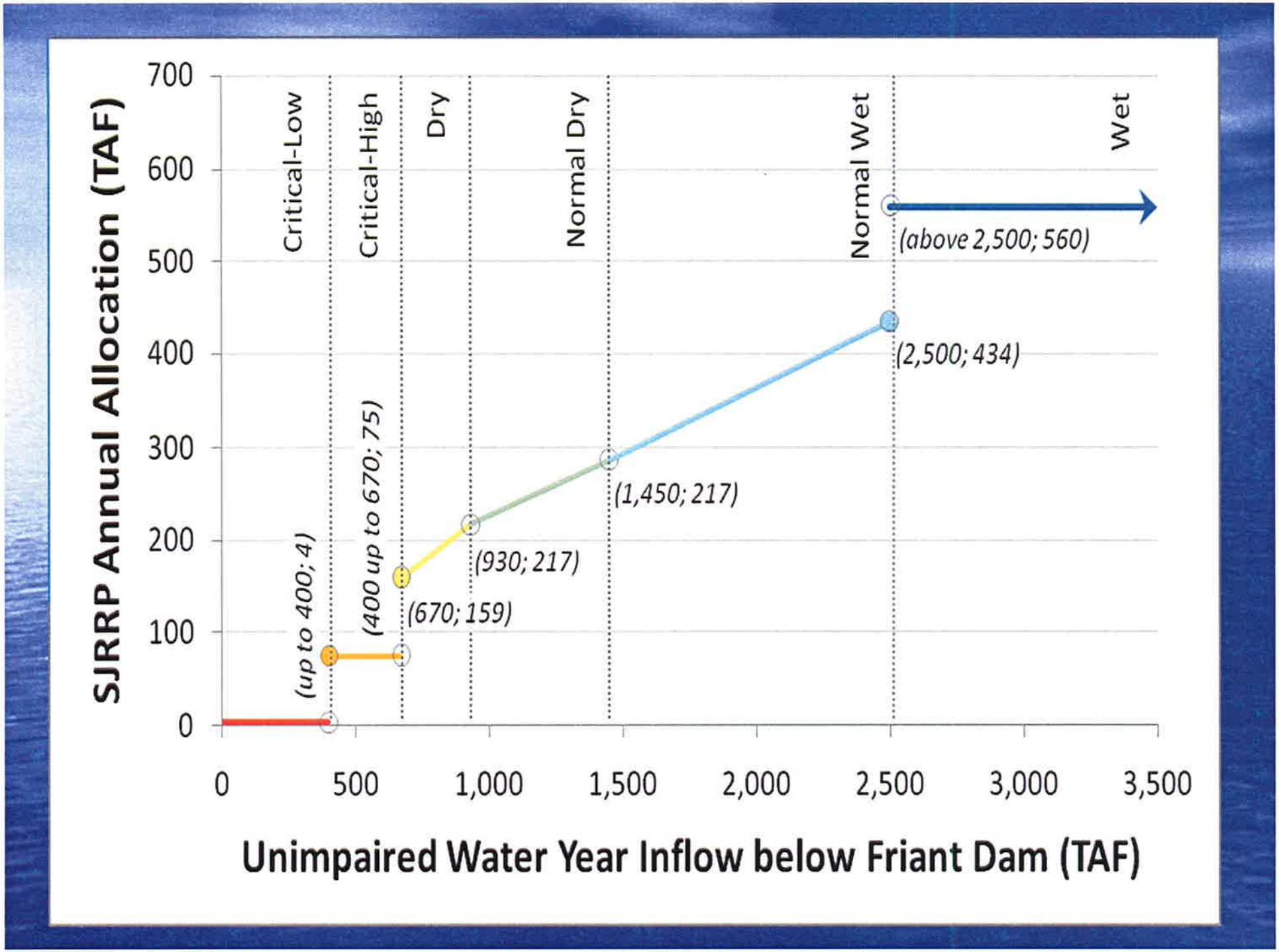
- Settlement and enabling legislation provide water recovery opportunities
  - Recirculation downstream of confluence with the Merced River
  - Reduced price "wet year" water
  - Canal conveyance capacity improvements
  - Reverse pumping on FKC for recirculation
  - Authorization for funding Groundwater programs
  - Relief from certain CVPIA water transfer provisions

NRDC v. Murillo (USBR and FWA) Settlement - continued

- Opportunity to convert Water Service Contracts to perpetual Repayment Contracts
- Greater contract certainty – no further renewals
- Accelerated repayment using a discount factor and future price relief for irrigation contracts – intent that no cost for conversion
- Relief from certain RRA land use and pricing provisions

SJR Restoration Sections

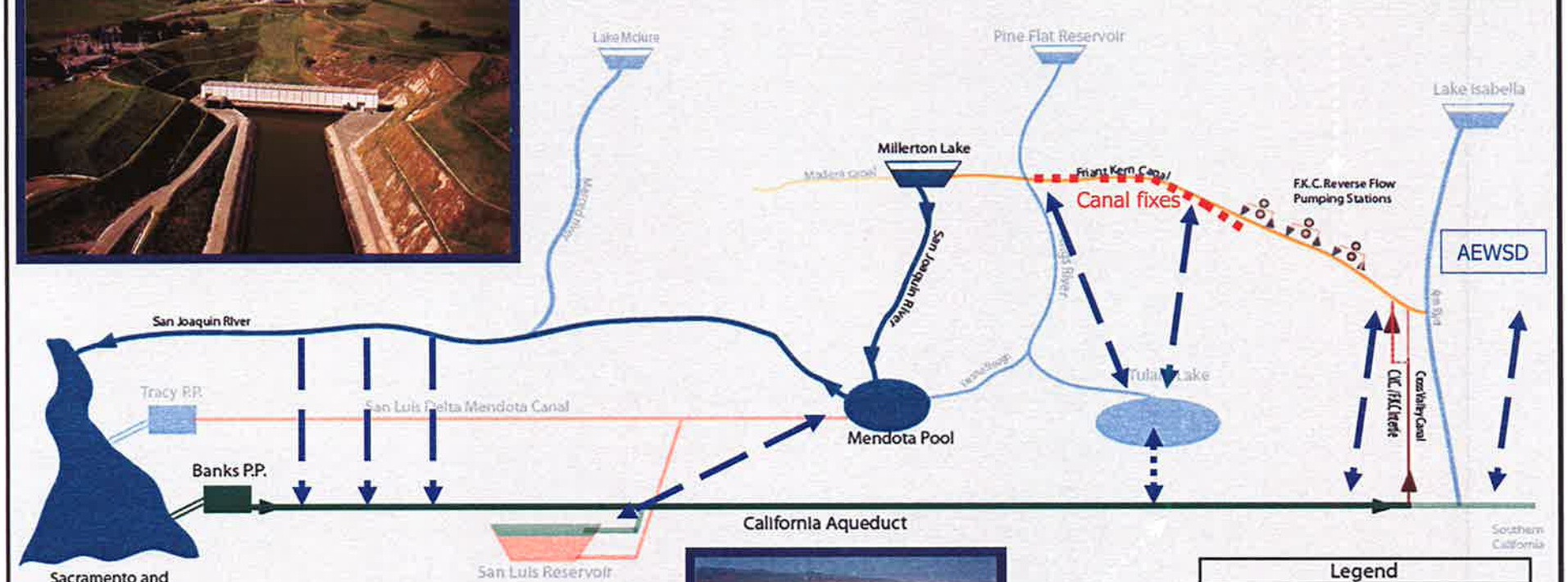



SJRRP Annual Allocation (TAF)
700
600
500
400
300
200
100
0
Critical-Low
Critical-High
Dry
Normal Dry
Normal Wet
Wet
(up to 400; 4)
(400 up to 670; 75)
(670; 159)
(930; 217)
(1,450; 217)
(2,500; 434)
(above 2,500; 560)
0
500
1,000
1,500
2,000
2,500
3,000
3,500
Unimpaired Water Year Inflow below Friant Dam (TAF)

Water Management Goal

Friant Division

Recirculation: Lower SJR, Delta, Exchanges, Cross Valley Canal, AEWSD



Main Features

500 C.F.S.	Pipeline Intertie
500 C.F.S.	Reverse Flow Pump Station
250 C.F.S.	Reverse Flow Pump Station
125 C.F.S.	Reverse Flow Pump Station
Project Cost	$12,000,000

Legend

Proposed Conveyance Structures

Proposed Pump Stations

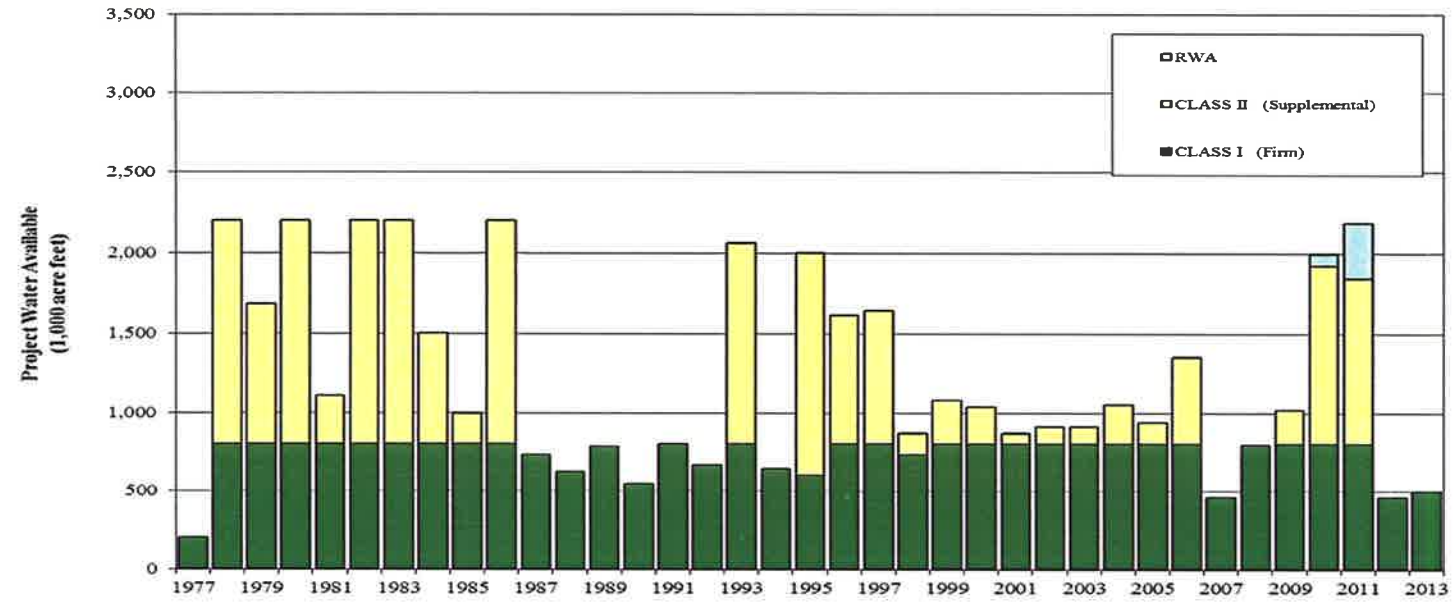
Concept: A - 1 | Date: 1-20-07

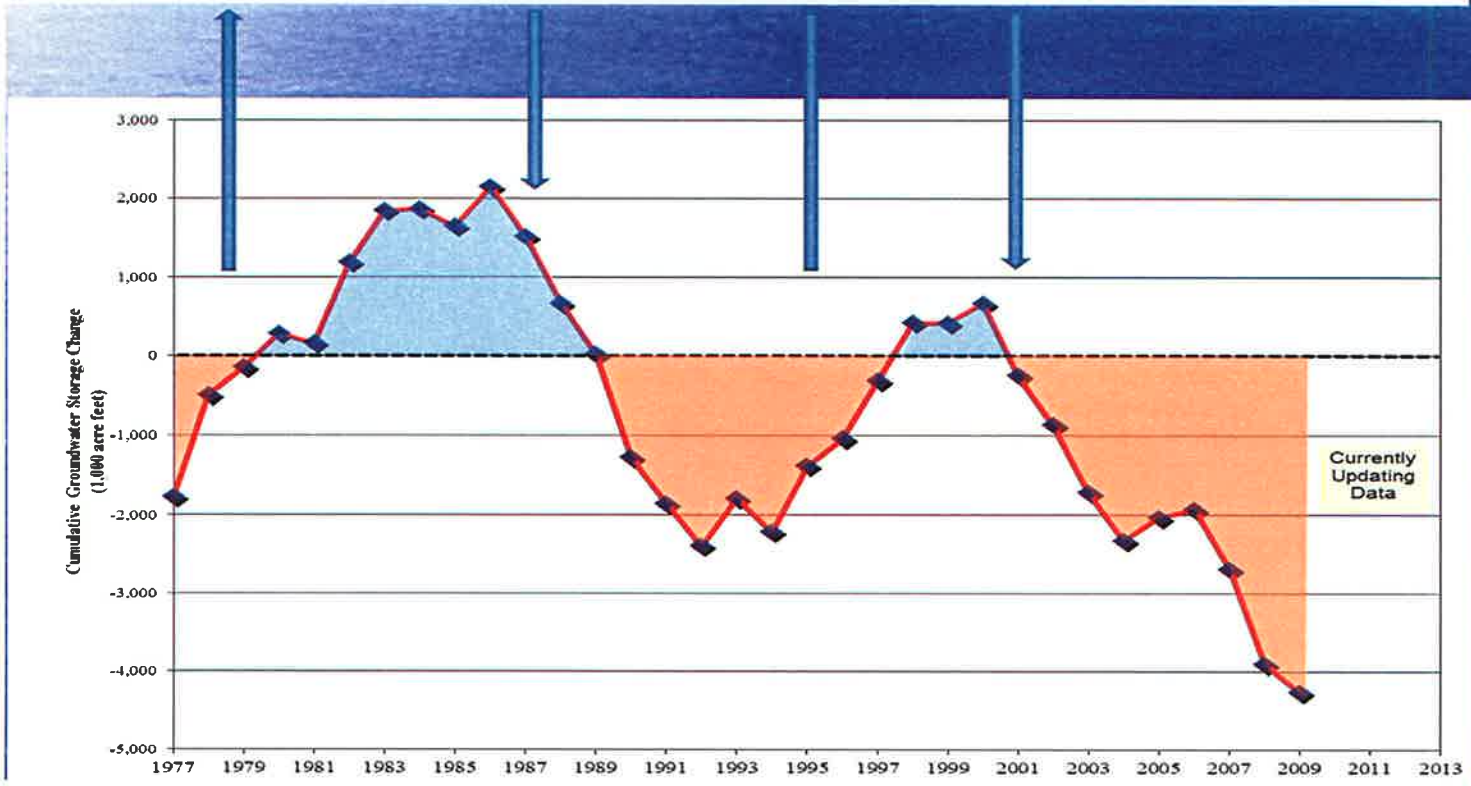
FRIANT WATER USERS AUTHORITY

Drawing Not To Scale

- Friant Division

Class 2
Water Supply and Groundwater Storage Relationship

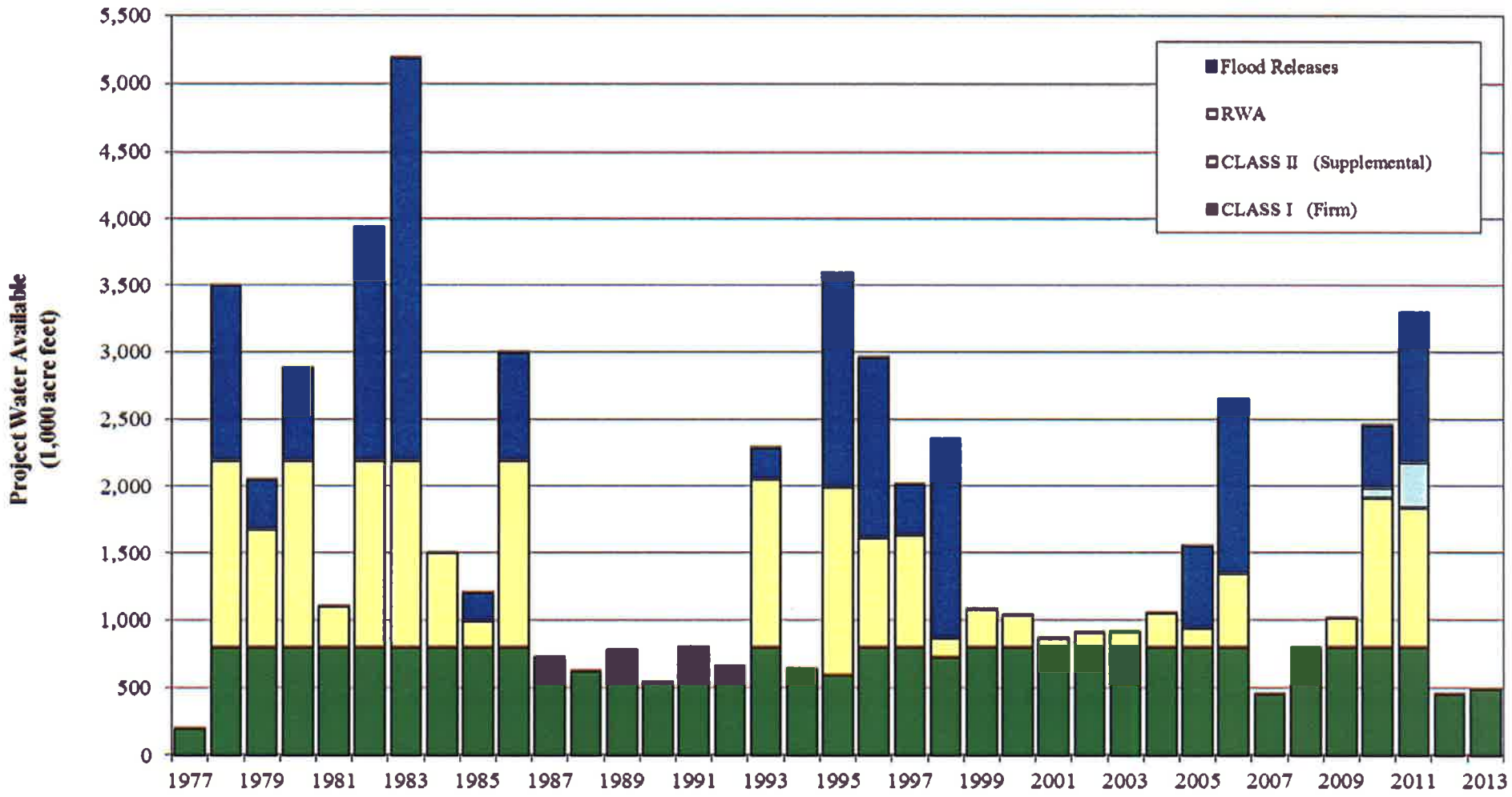


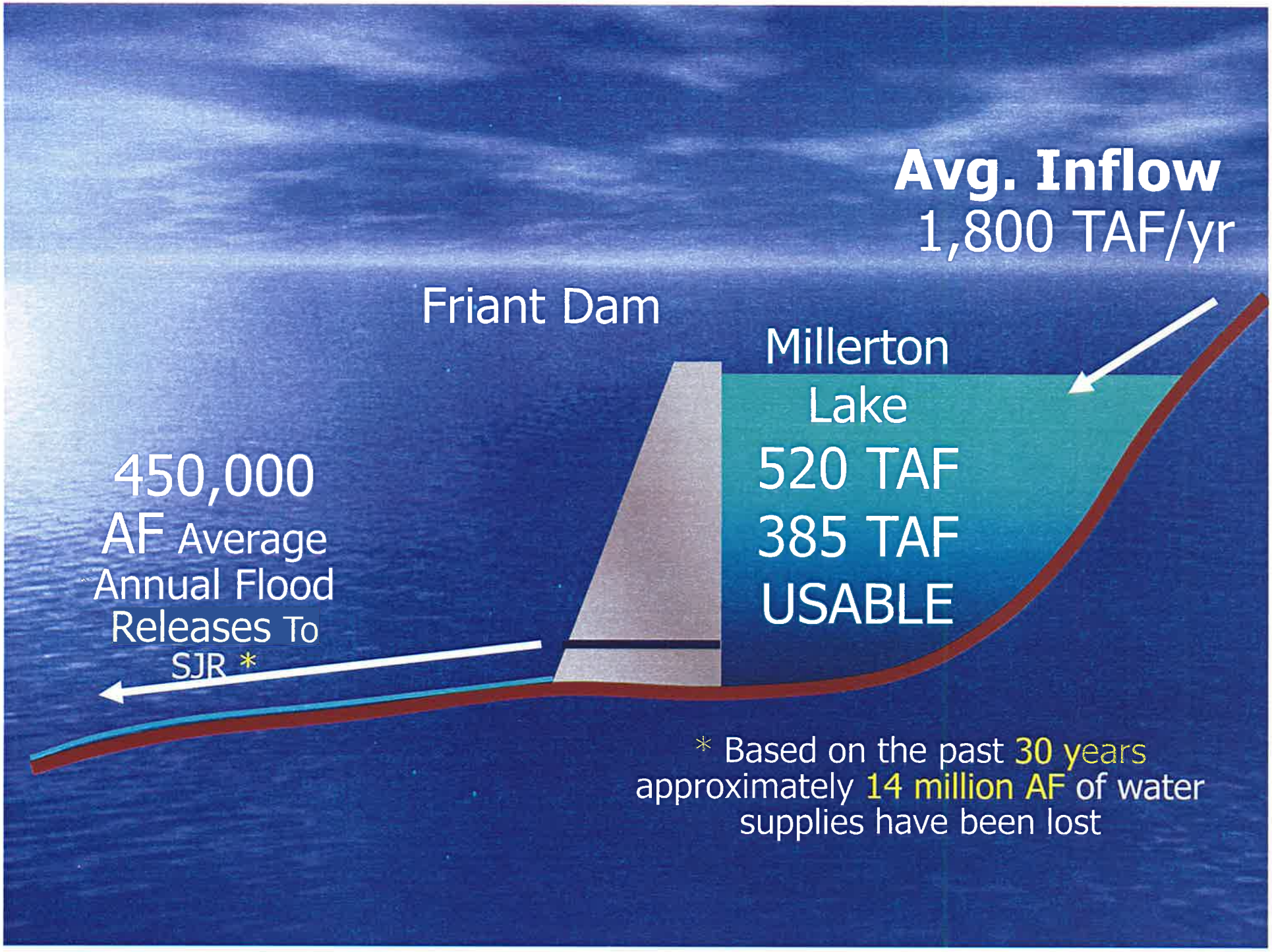


Cumulative Groundwater Storage Change

Friant Division

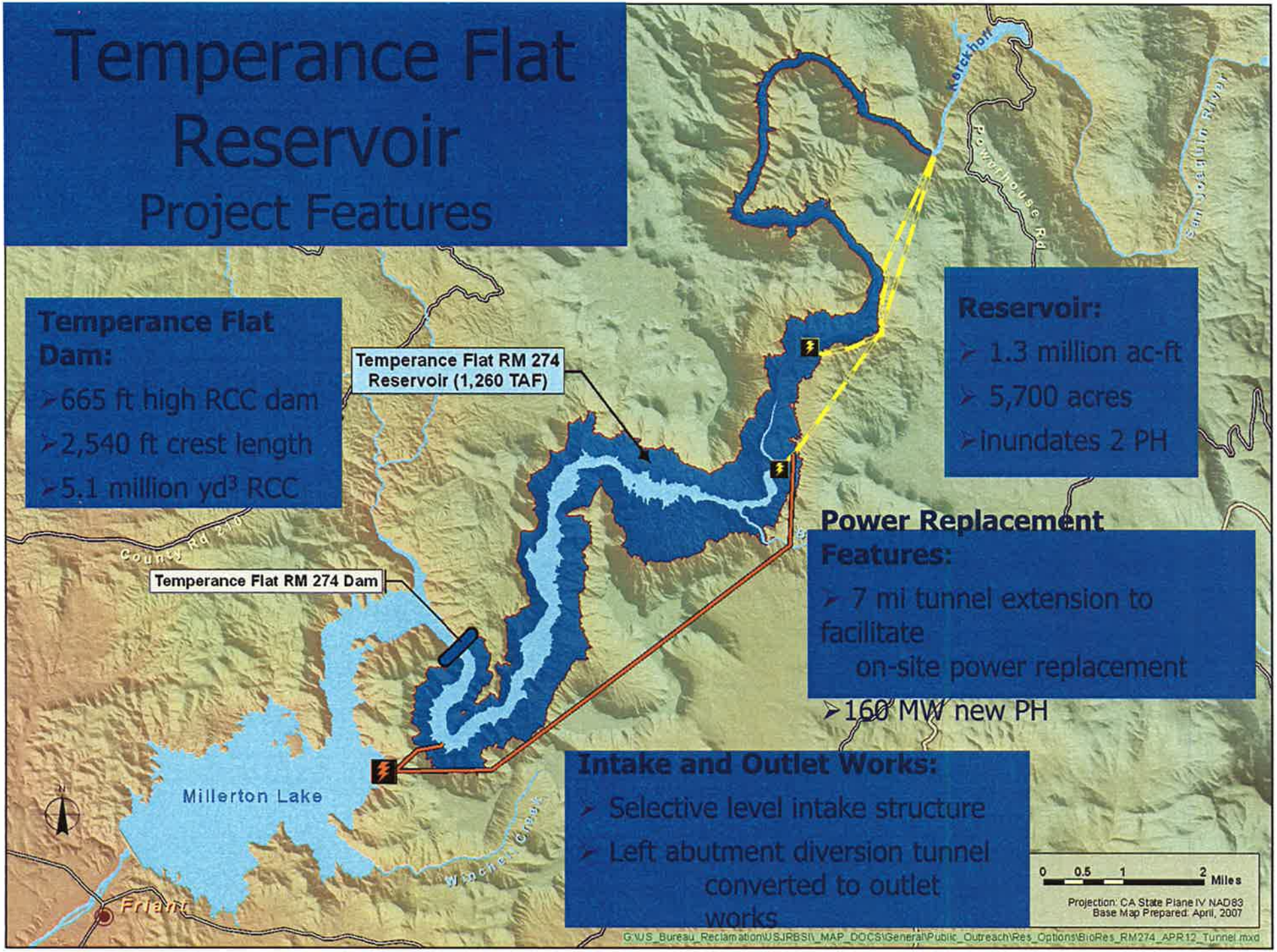
Flood Releases




Avg. Inflow
1,800 TAF/yr
Friant Dam
Millerton
Lake
520 TAF
385 TAF
USABLE
450,000
AF Average
Annual Flood
Releases To
SJR *
* Based on the past 30 years
approximately 14 million AF of water
supplies have been lost

Temperance Flat Reservoir

Project Features



Temperance Flat Dam:

- 665 ft high RCC dam
- 2,540 ft crest length
- 5.1 million yd³ RCC

Reservoir:

- 1.3 million ac-ft
- 5,700 acres
- Inundates 2 PH

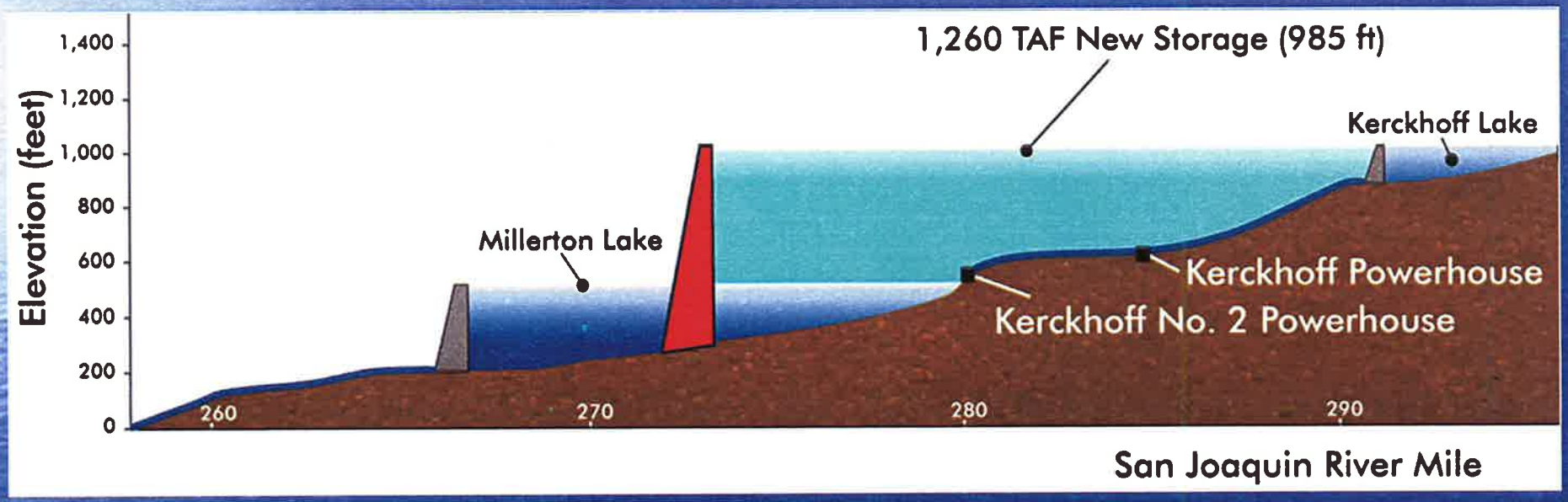
Power Replacement Features:

- 7 mi tunnel extension to facilitate on-site power replacement
- 160 MW new PH

Intake and Outlet Works:

- Selective level intake structure
- Left abutment diversion tunnel converted to outlet works

Temperance Flat Dam would be constructed in the upper portion of Millerton Lake with water depths ranging from 100-200 feet



- Requires additional large cofferdams
- Requires power replacement

Temperance Flat Particulars

- Nearly 1.3MAF storage capacity
- Dam built in existing reservoir
- Relatively benign footprint
- Neutral Hydropower impact, possible peaking
- Cost estimates are declining significantly
- 150kaf for Friant Division
- 0 – 100+kaf for SOD contractors, delta integration
- Cost per a/f dependent on integration/public benefits

Benefits to:
Friant Water Contractors

- Approximately 150,000 Acre Feet additional average annual water supply
- Replaces majority of water potentially lost To SJR River Restoration (est. of 200kaf/year) Saving thousands of jobs and nearly $300MM in average annual crop production
- Enhances groundwater and conjunctive use programs (WQ improvement also a regional benefit)

Storage Benefits for: San Joaquin River Restoration and delta ecosystem

- Enhance cold water for Salmon below Friant
- Flow management for fisheries
- Flexibility in delta operations
  - Pump shifting
  - EWA type water
  - Flood protection for SJR and delta improvements
- Mitigate climate change effects (Floods)

Storage Benefits for: Delta Export Water Agencies

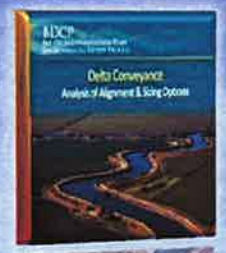
- Additional Storage in Wet Years to balance against dry year shortages
- Emergency Supply-Storage south of Delta
- Enhance Water Quality for urban users

Challenges of Surface Storage

- Cost: $2-3 Billion estimate – includes temperature and hydro generation replacement components
- State Water Bond to fund public benefits
- Federal funding component
- Partnering with Export and other Interests
- Environmental legal challenges

San Joaquin River Settlement

- No Channel Work Initiated Yet – Restricts Releases
- Salmon Reintroduction Possibly Next Spring
- Full Restoration Flows Starting 1/1/14
- About a Third of Released Water Recaptured
- Estimated Average Annual Water Supply Impact of 200,00 a.f.
- Challenges of Recapture in Delta
- RWA Wet Year Water at Reduced Cost
- Groundwater Program Financial Assistance
- FKC/MC Rehab to Design Capacity
- Federal Funding Challenges - $900M Budget - $100M Spent



New Delta Conveyance
Tunnel Alignment

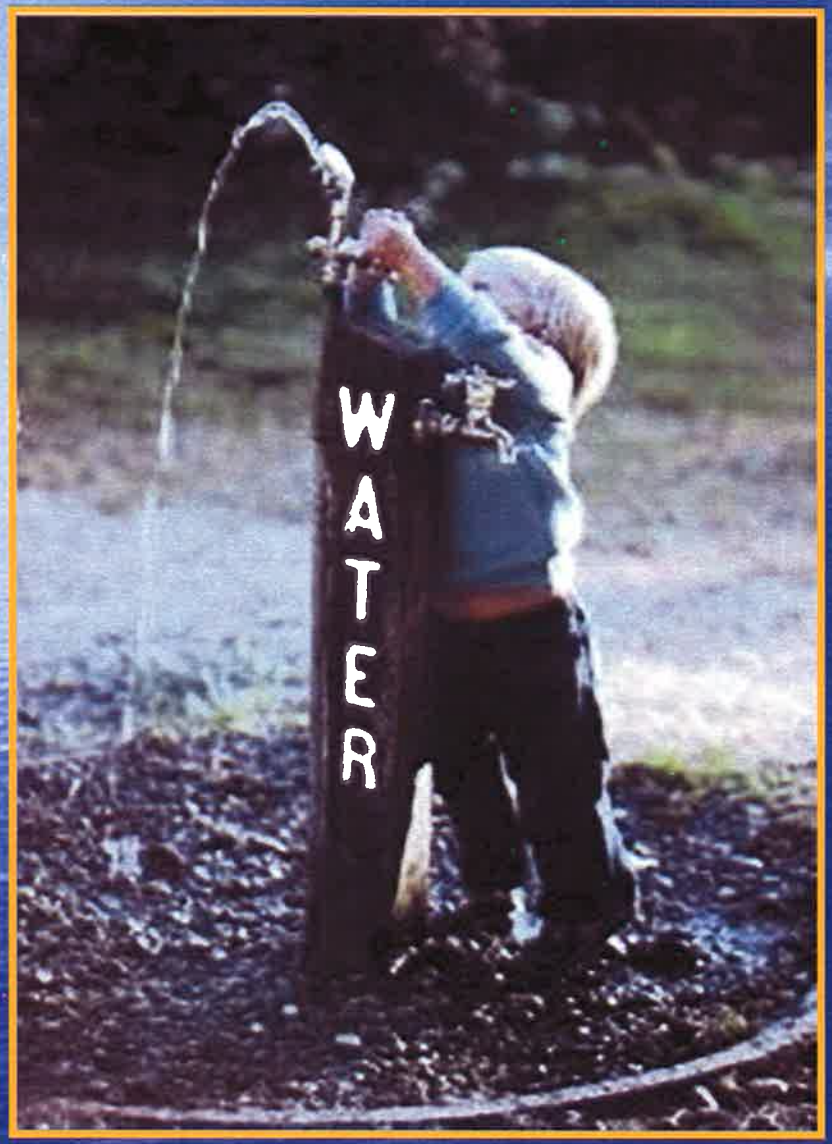
Importance of the Delta to Friant

- 884,000 AF of Exchange Water, which if not met, could come from Friant Supplies
- 128,000 AF of Cross Valley Supplies in Friant Division
- 200,000 AF of SJR Settlement Recirculation Water
- Equitable allocation of costs relative to Benefits

2014 State Water Bond

Key areas of interest:

- Funding for delta resolution
  - Ecosystem
  - Water Supply
- Support for Regional Management Plans
- Storage Development
- ACWA proposal maintains key elements and reduces Bond from $11.4B to $8.2B



Questions?

Council Workshop

City of Fresno Water Supplies

Presented by:
Robert Saperstein, J.D.
June 19, 2014

Brownstein Hyatt Farber Schreck

Water Law and Policy

- General Legal / Policy Framework
- Fresno Water Supply Portfolio
- Policy and Politics
  - Statewide Drought Response
  - Fed, State; Location, Location, Location
  - Local Overlay, Land Use Policy
  - Partners and Stakeholders
  - Prop 218 – Rates

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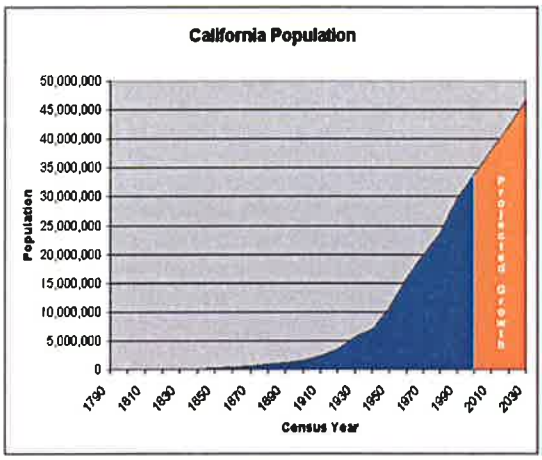
California Population Growth

- 2050 Projection
  - Double 1990
  - ~60 million



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CA Plumbing System

- Central Valley Project (CVP)
  - ~7 MAFY
  - Incomplete storage
- State Water Project (SWP)
  - 2.5 MAFY (> 4.1 Tbl A)
  - 29 contractors
  - ~60% reliability
- Colorado River
  - 5 MAFY (4.4 plan)
  - 15 v. 16 MAFY total

4

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CA Plumbing System

- Bay – Delta
  - Choke Point
  - Endangered Species
- Delta Bypass: Tunnel of No Love

5

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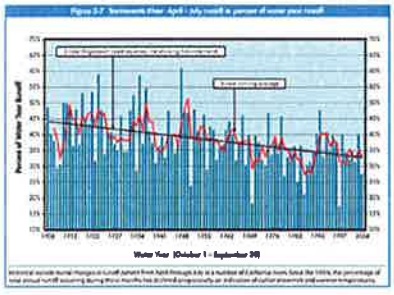
Climate Change: Declining Seasonal Storage

- Reduced snowpack – rain, not snow
  - Reduced runoff and storage
- Earlier snow melt
  - Increased flooding
- SWP / CVP / CO River declining yield?
- Increase groundwater use / overdraft
- More frequent shortages?



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Water Law Framework – California

- Dual Regulatory / Legal System
- Surface Water
  - State Water Resources Control Board
- Groundwater
  - Local regulation only
  - State now proposing GW framework
- Federal, state and local overlay
  - ESA, CWA, SDWA, . . .

Discussing Water Rights, A Western Pastime

7

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City Portfolio

- Surface Water
  - Central Valley Project (Friant – CVP)
  - Kings River (FID)
- Groundwater
  - Network of ~250 groundwater wells
- Recycled Water
  - City control

8

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City – FID Agreements

- "Conveyance" or "Cooperative" Agreement
  - Kings River water to City
  - Conveyance of City CVP water
  - Recharge & direct use
  - Vintage 1976
- Recycled Water Exchange Agreement
  - Exchange RW for FID CVP / Kings River Water
  - 1 RW : 0.46 FID water
  - Vintage 1974

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Extraordinary Drought Response

- Governor's Drought Declarations
- SWRCB Curtailment Junior Water Right Holders
  - May be extended to some Senior Rights
- Exchange Contractor Priority
  - Rights to up to 840,000 AFY
  - Normally supplied from Delta
  - FIRST EVER CALL ON FRIANT SYSTEM
  - Bureau claimed Force Majeure
  - FWA Litigation

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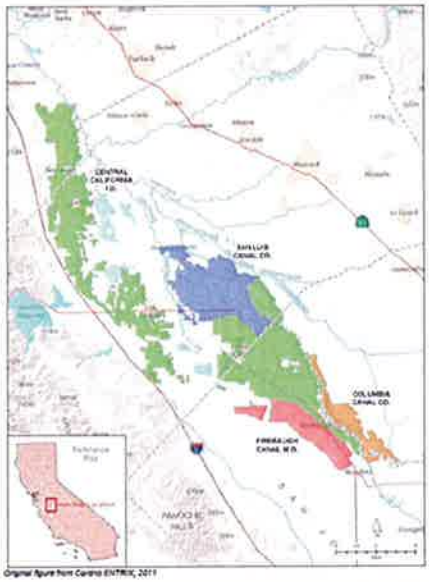

Original figure from Corona ENTRIX, 2011

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Water Crisis

or

Water <u>Management</u> Crisis?

12

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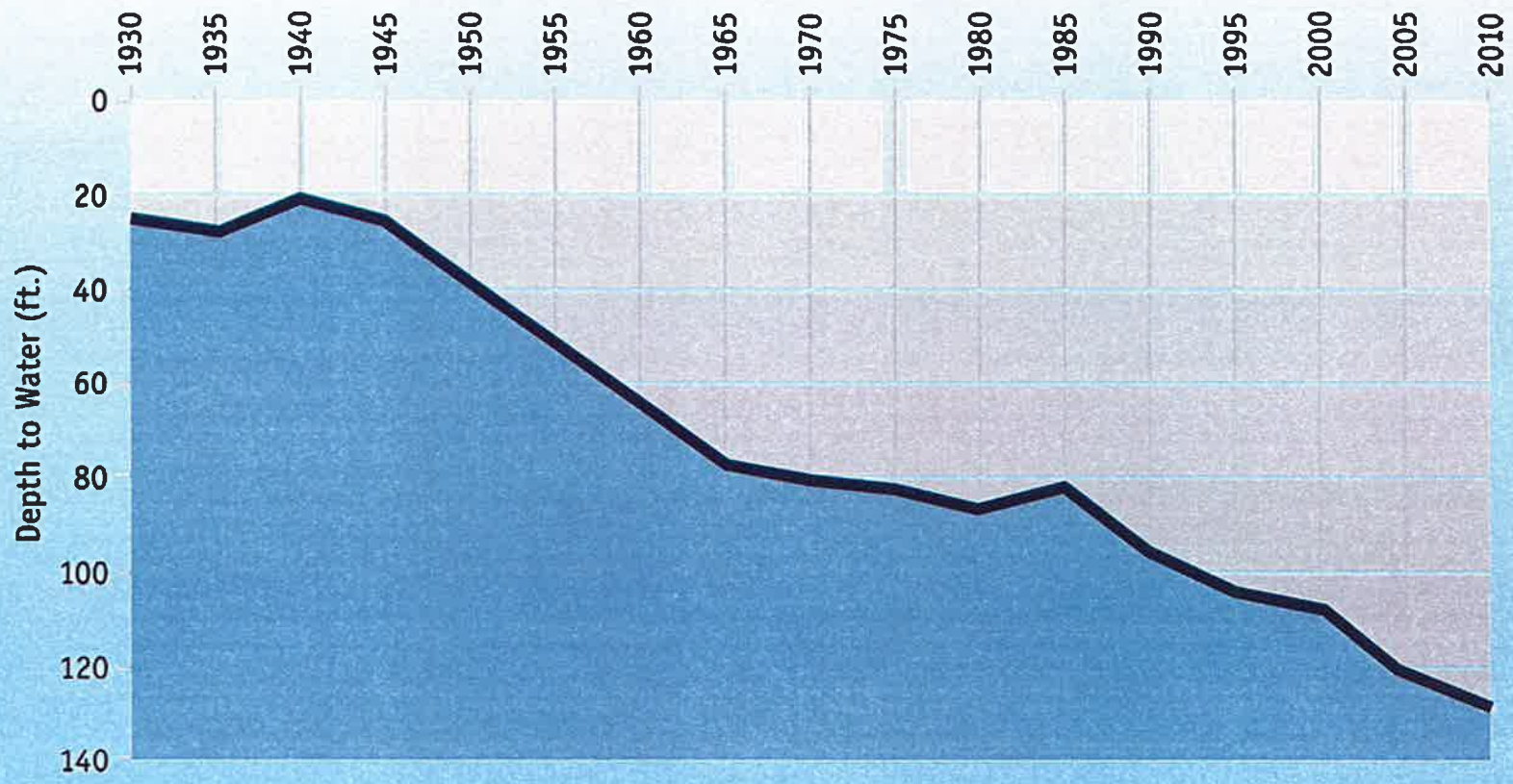

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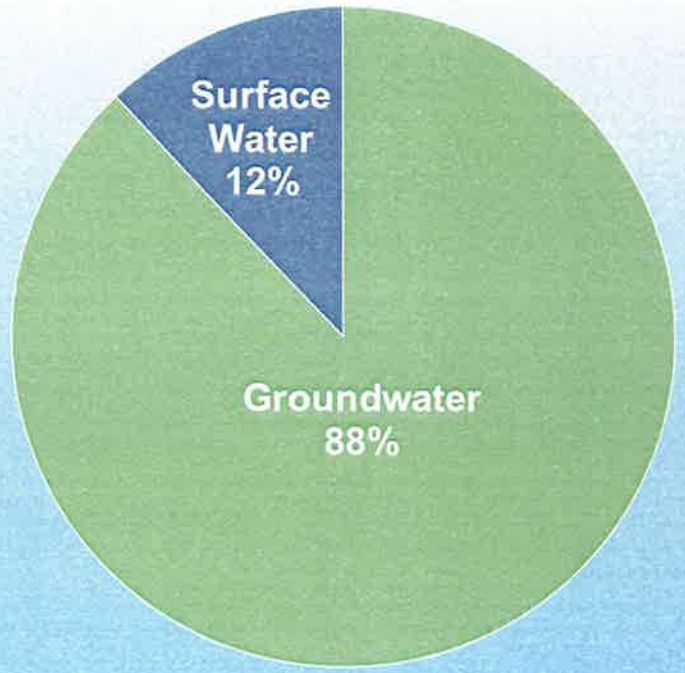

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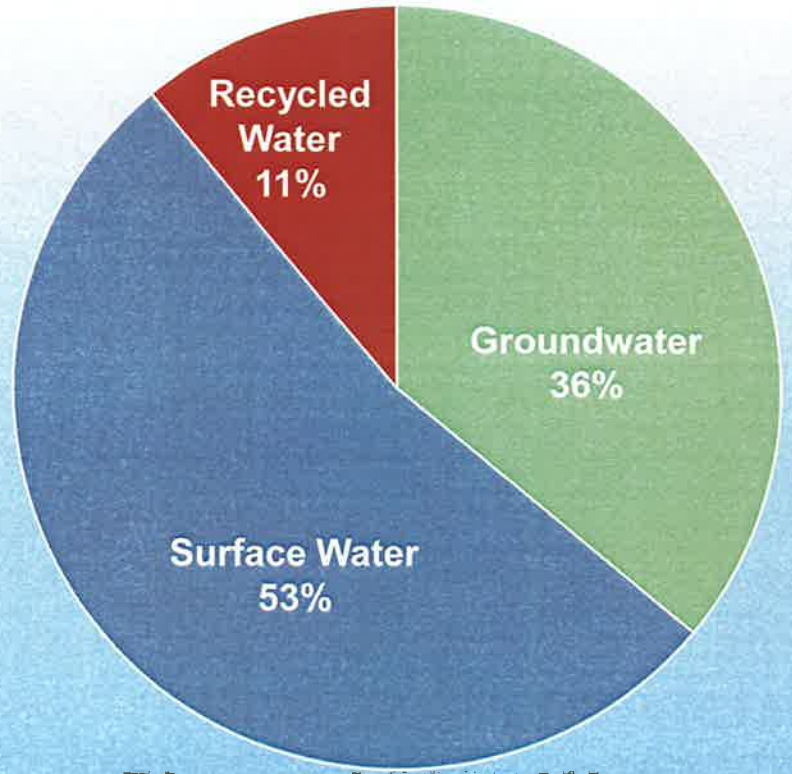
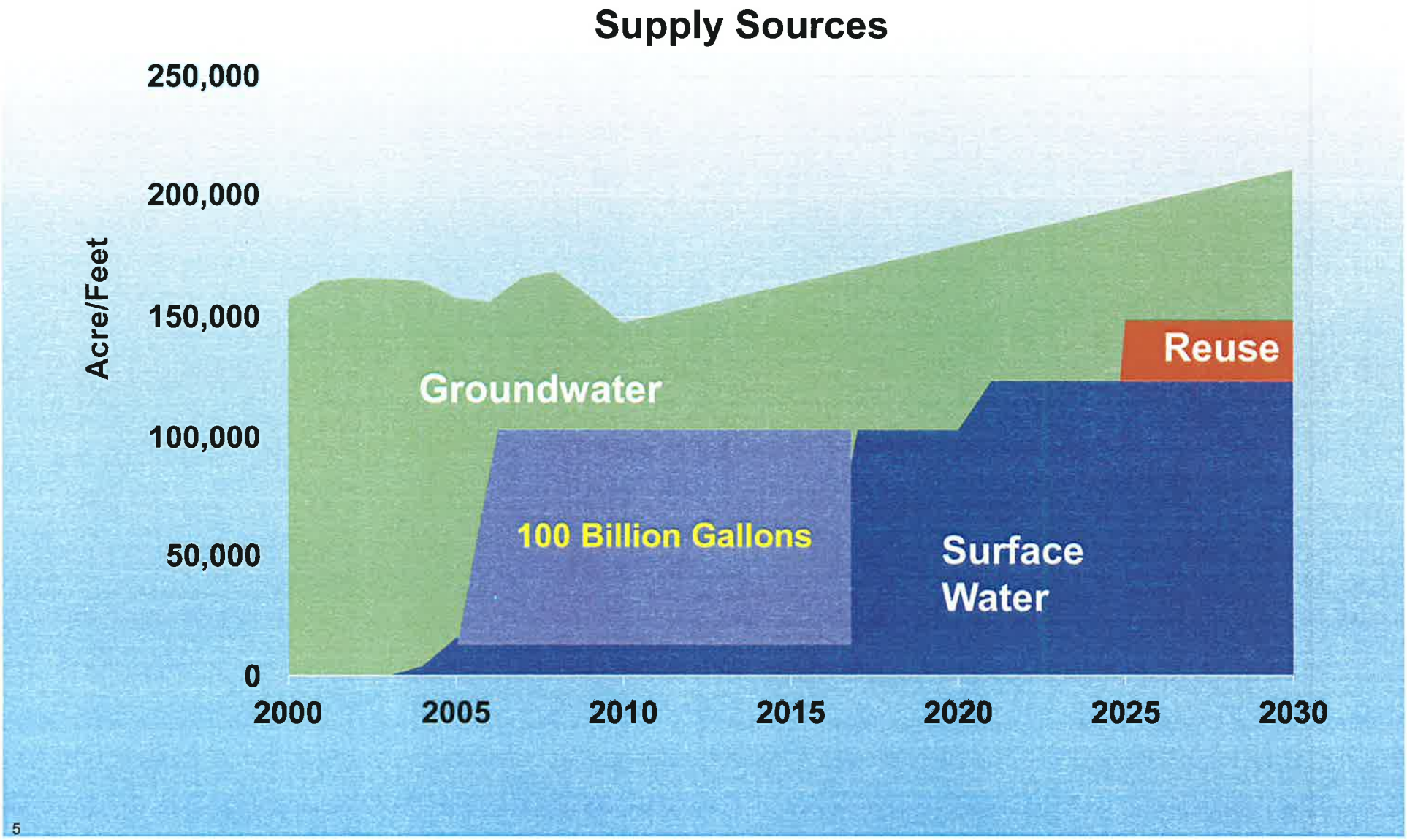


Planned 2025 Water Sources

...to result in a truly sustainable water supply.



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Friant Water Authority

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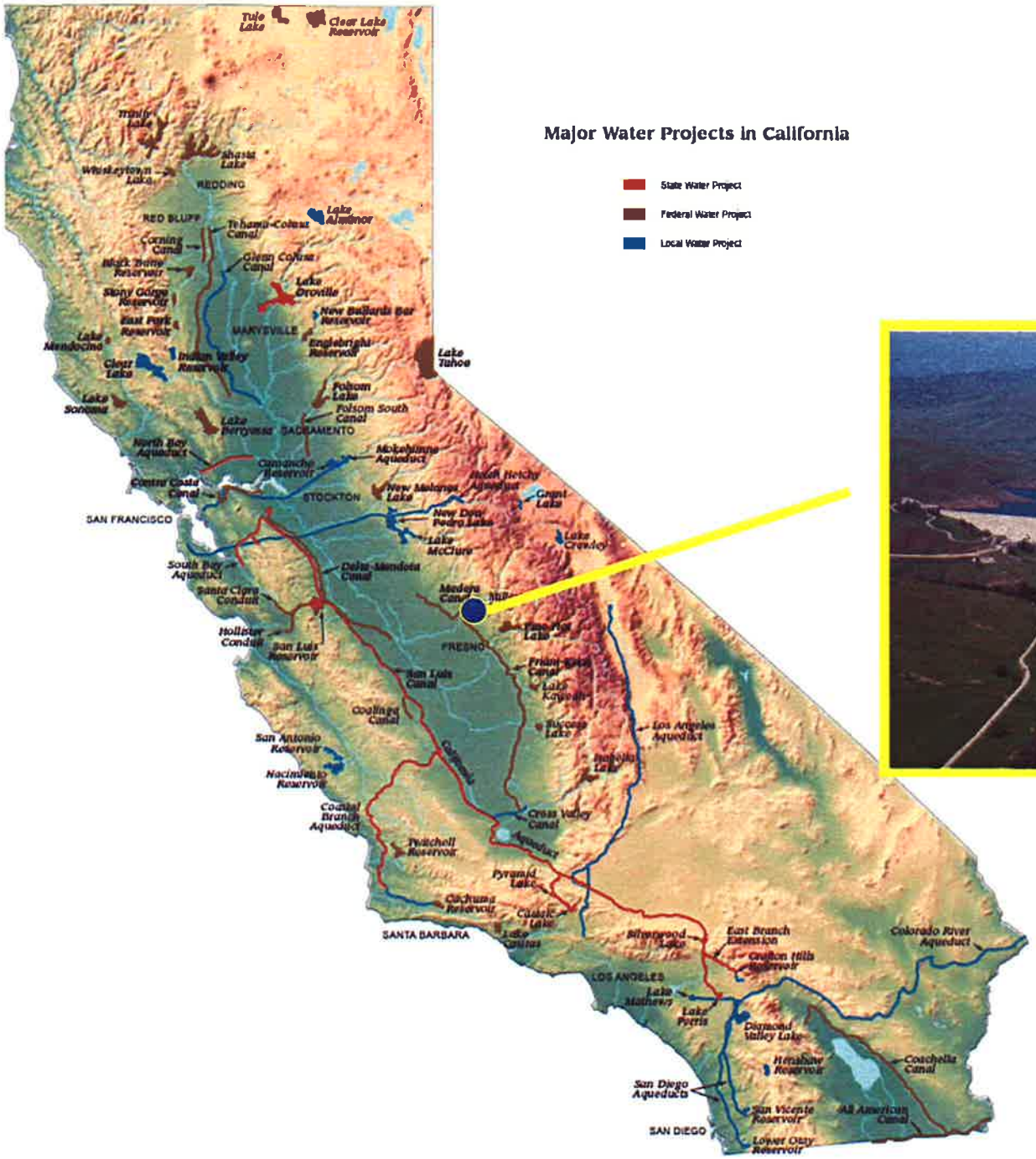


By
Ronald D. Jacobsma
General Manager

Friant Division Service Area and Contractors

Service Area

Merced County
Madera County
Fresno County
Tulare County
Kern County

1,200,000+ Acres
15,000 Farmers
$5B+ Ag Economy

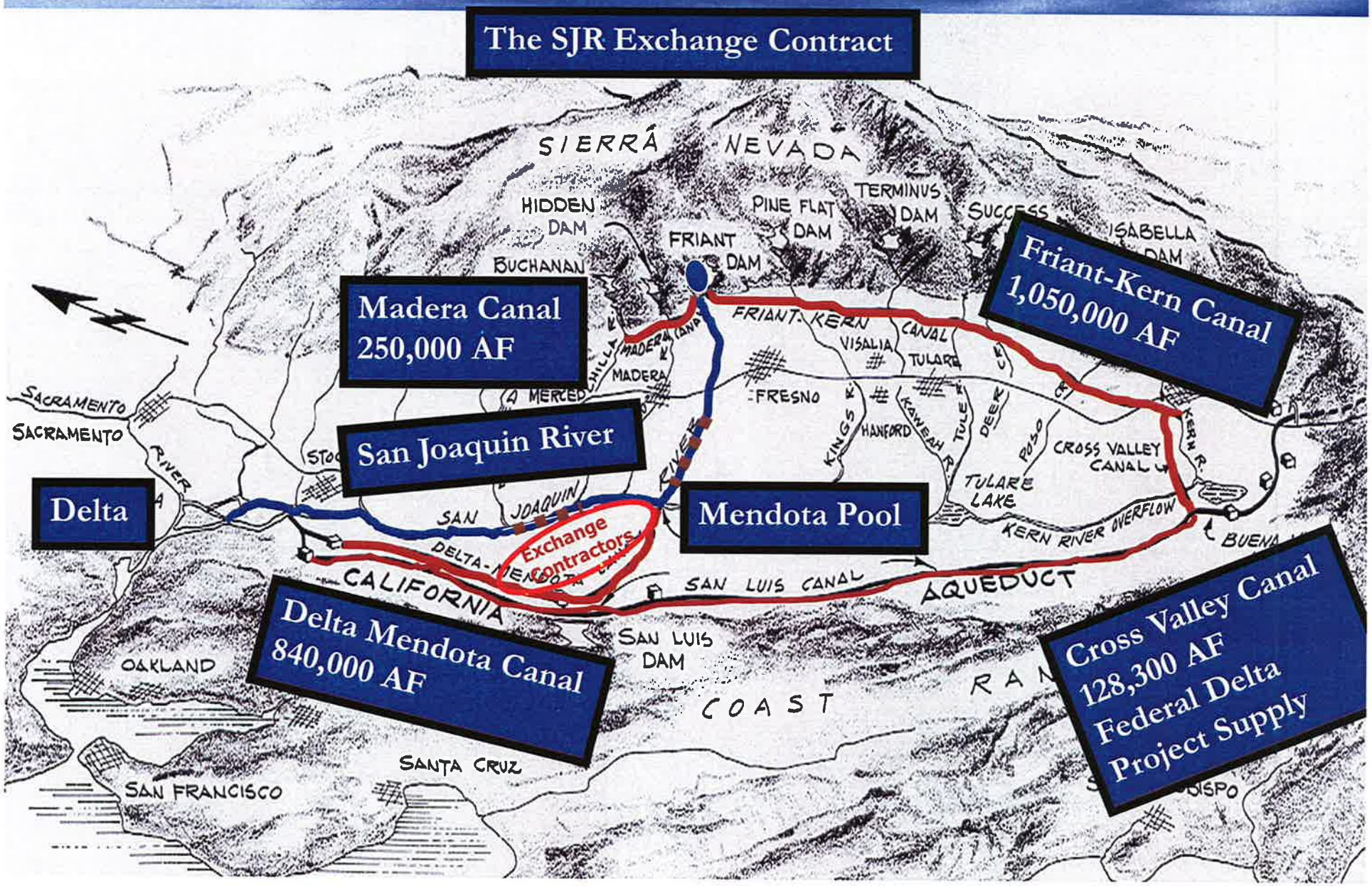
Ag Water Contractors

- Arvin-Edison W.S.D.
- Chowchilla W.D.
- Delano-Earlimart I.D.
- Exeter I.D.
- Fresno I.D.
- Garfield W.D.
- Gravelly Ford W.D.
- Hills Valley I.D.
- International W.D.
- Ivanhoe I.D.
- Kaweah-Delta WCD
- Kern-Tulare W.D.
- Lewis Creek W.D.
- Lindmore I.D.
- Lindsay-Strathmore I.D.
- Lower Tule River I.D.
- Madera I.D.
- Orange Cove I.D.
- Porterville I.D.
- Saucelito I.D.
- Shafter-Wasco I.D.
- Southern San Joaquin M.U.D.
- Stone Corral I.D.
- Tea Pot Dome W.D.
- Terra Bella I.D.
- Tri-Valley
- Tulare I.D.

M&I Contractors

- City of Fresno
- City of Orange Cove
- City of Lindsay
- Fresno Co. WWD #18
- Madera County

How The Friant Division Works



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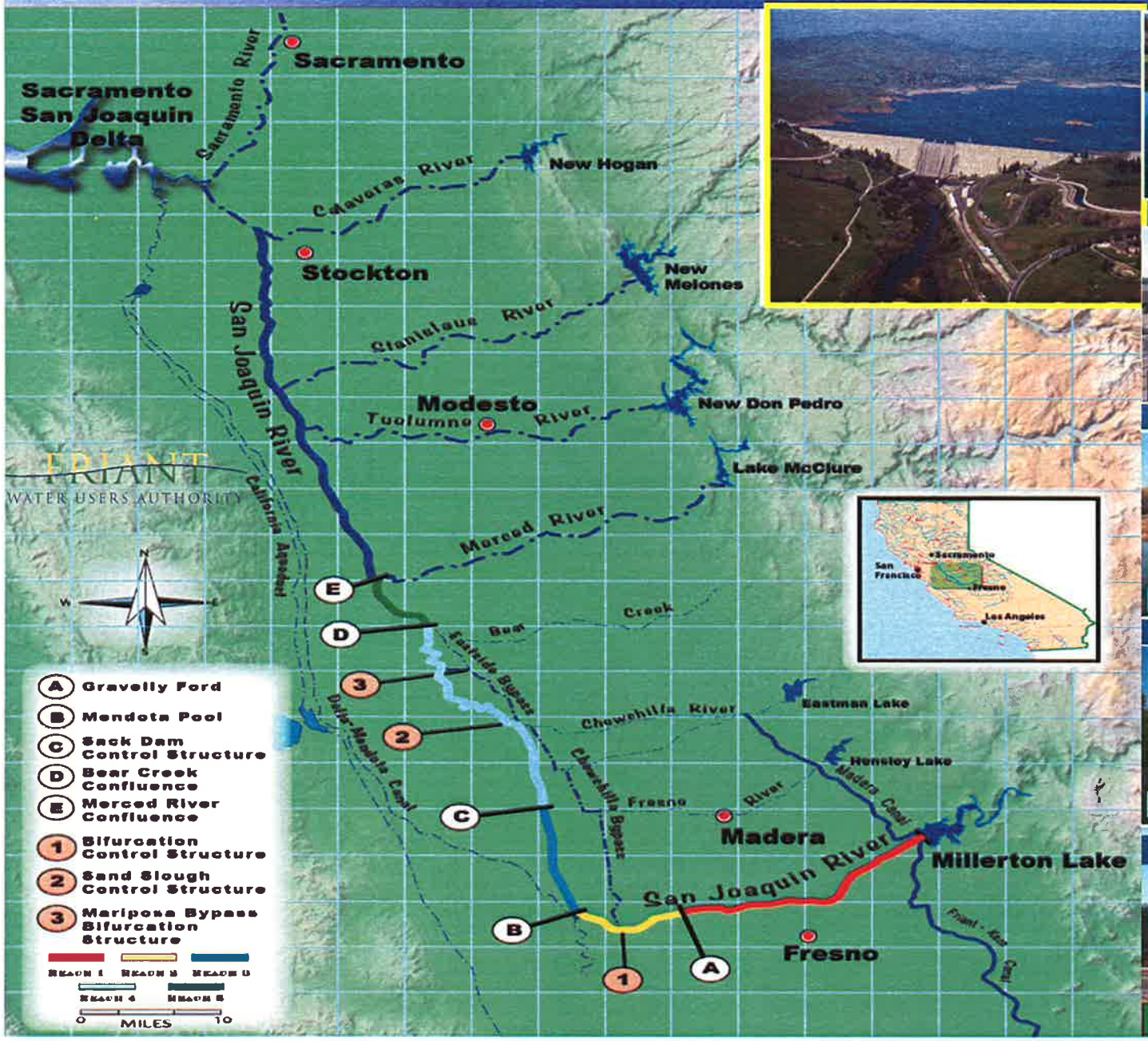
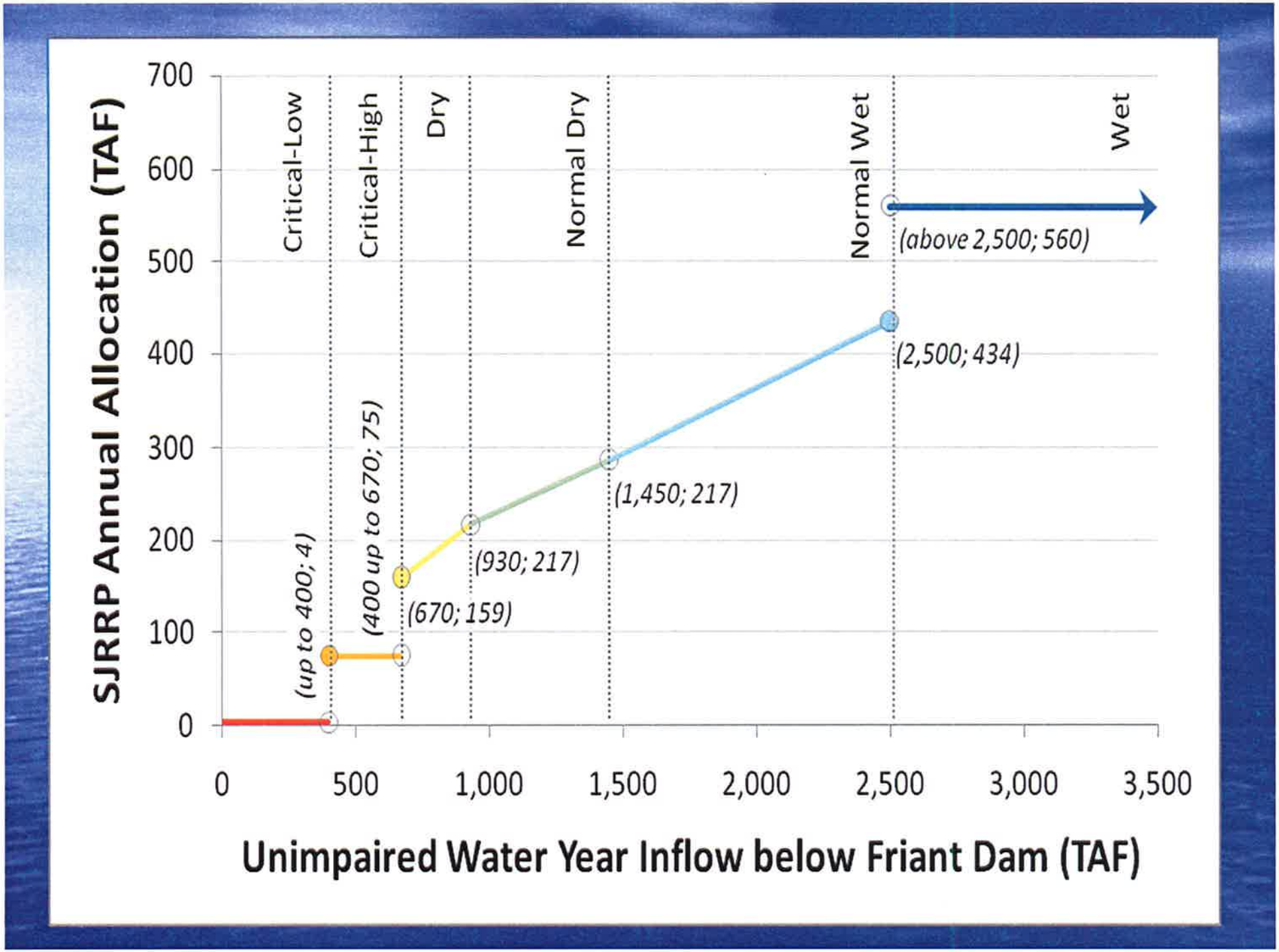
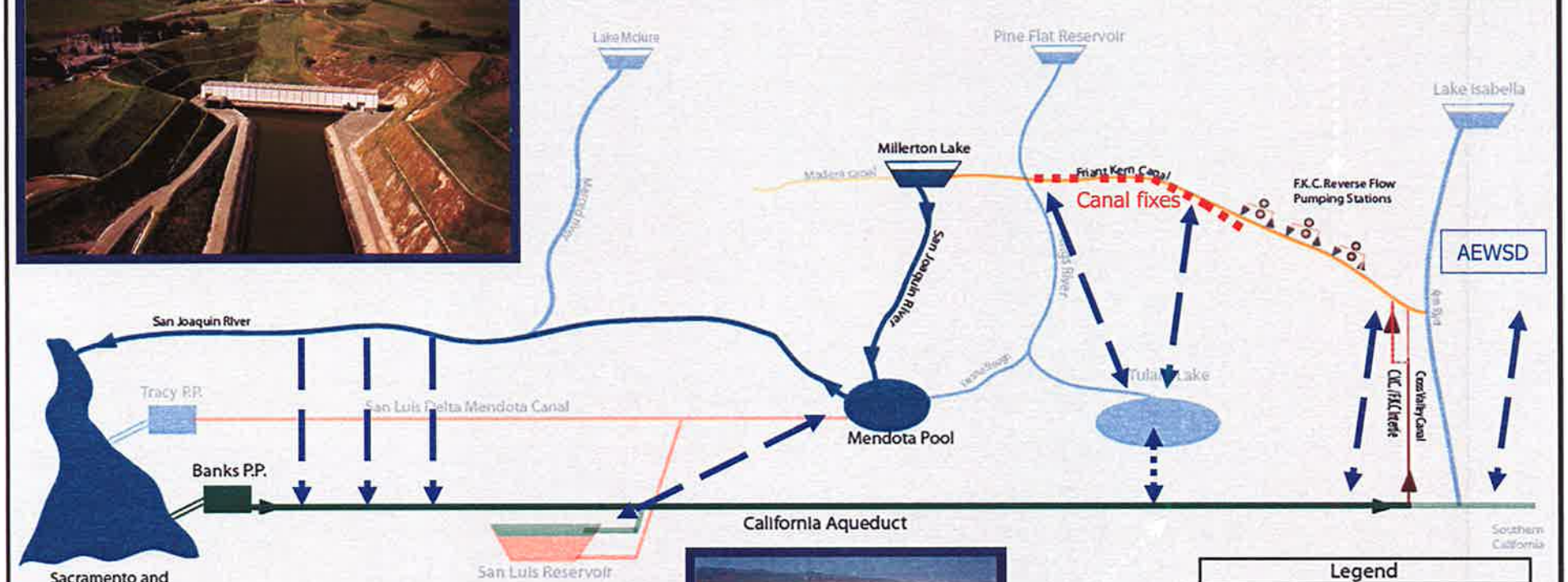



SJRRP Annual Allocation (TAF)
700
600
500
400
300
200
100
0
Critical-Low
Critical-High
Dry
Normal Dry
Normal Wet
Wet
(up to 400; 4)
(400 up to 670; 75)
(670; 159)
(930; 217)
(1,450; 217)
(2,500; 434)
(above 2,500; 560)
0
500
1,000
1,500
2,000
2,500
3,000
3,500
Unimpaired Water Year Inflow below Friant Dam (TAF)

Water Management Goal

Friant Division

Recirculation: Lower SJR, Delta, Exchanges, Cross Valley Canal, AEWSD



Main Features

500 C.F.S.	Pipeline Intertie
500 C.F.S.	Reverse Flow Pump Station
250 C.F.S.	Reverse Flow Pump Station
125 C.F.S.	Reverse Flow Pump Station
Project Cost	$12,000,000

Legend

Proposed Conveyance Structures

Proposed Pump Stations

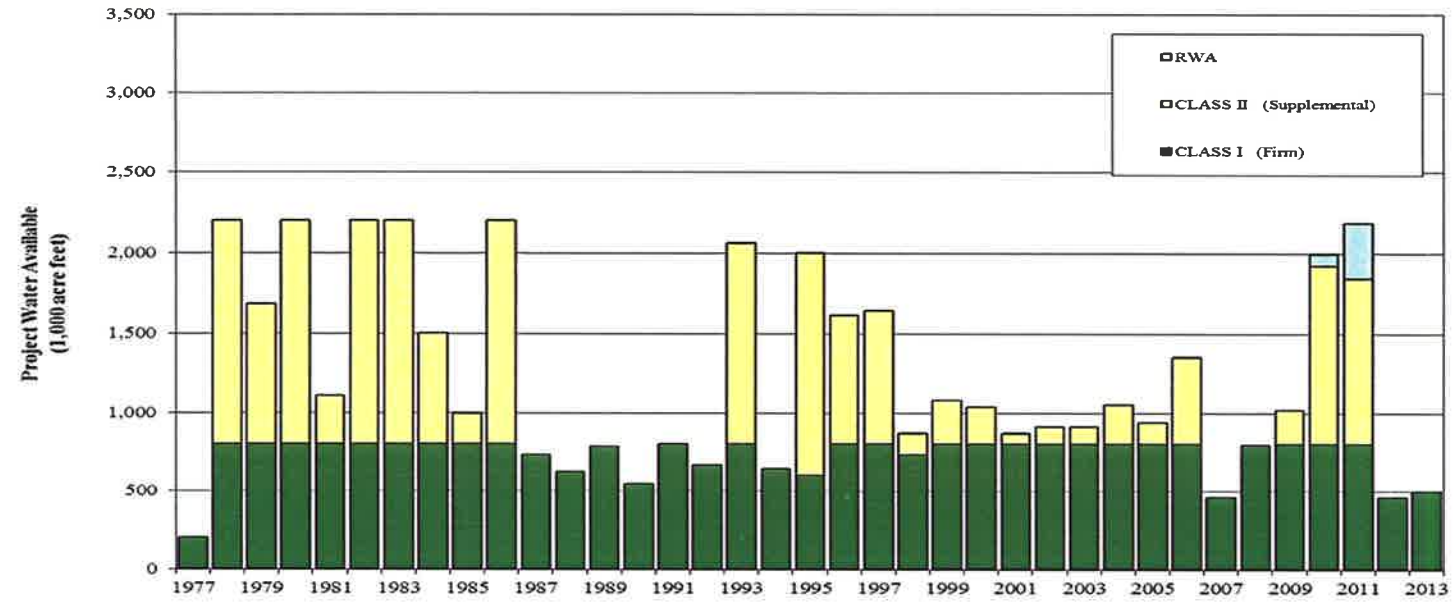
Concept: A - 1 | Date: 1-20-07

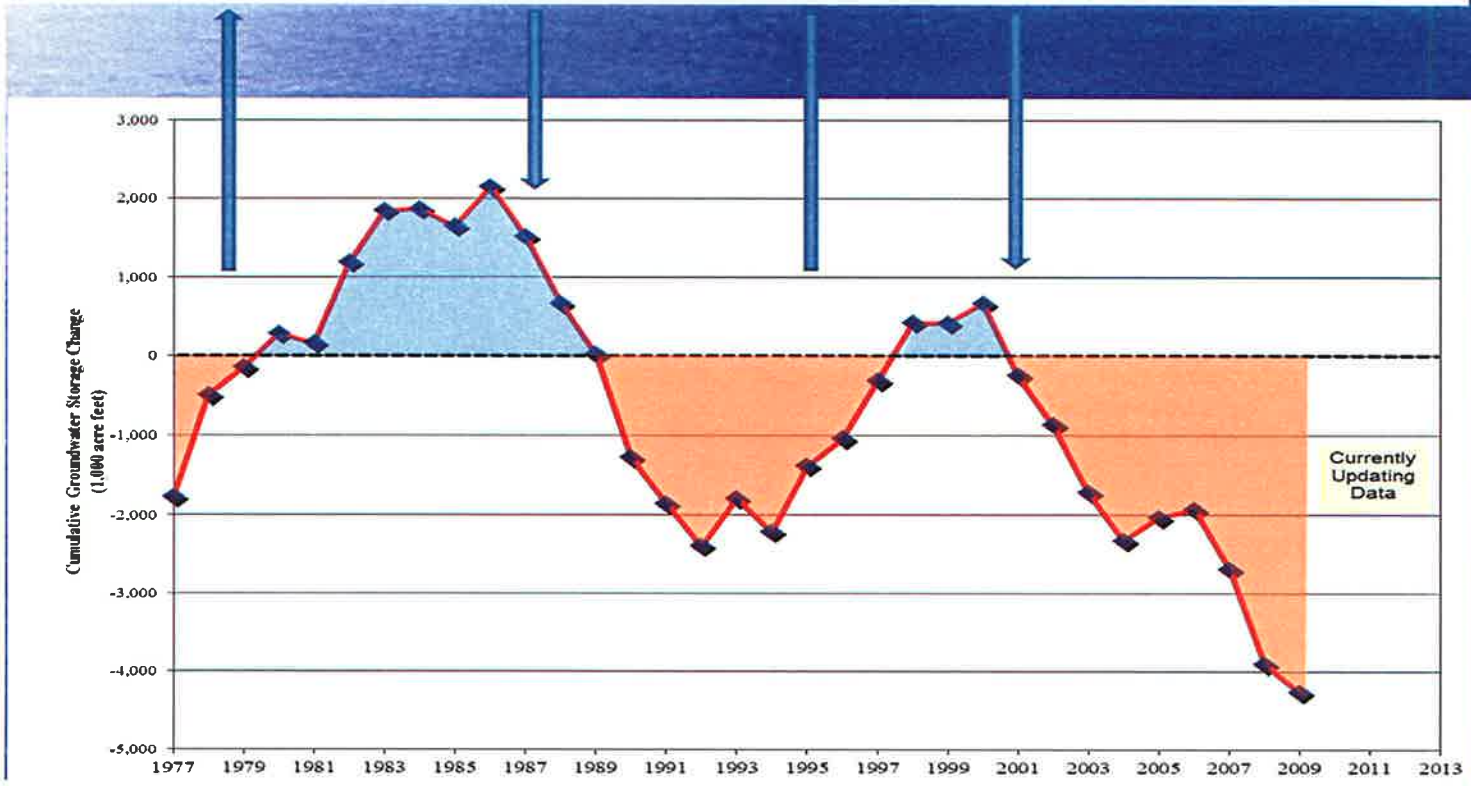
FRIANT WATER USERS AUTHORITY

Drawing Not To Scale

- Friant Division

Class 2
Water Supply and Groundwater Storage Relationship

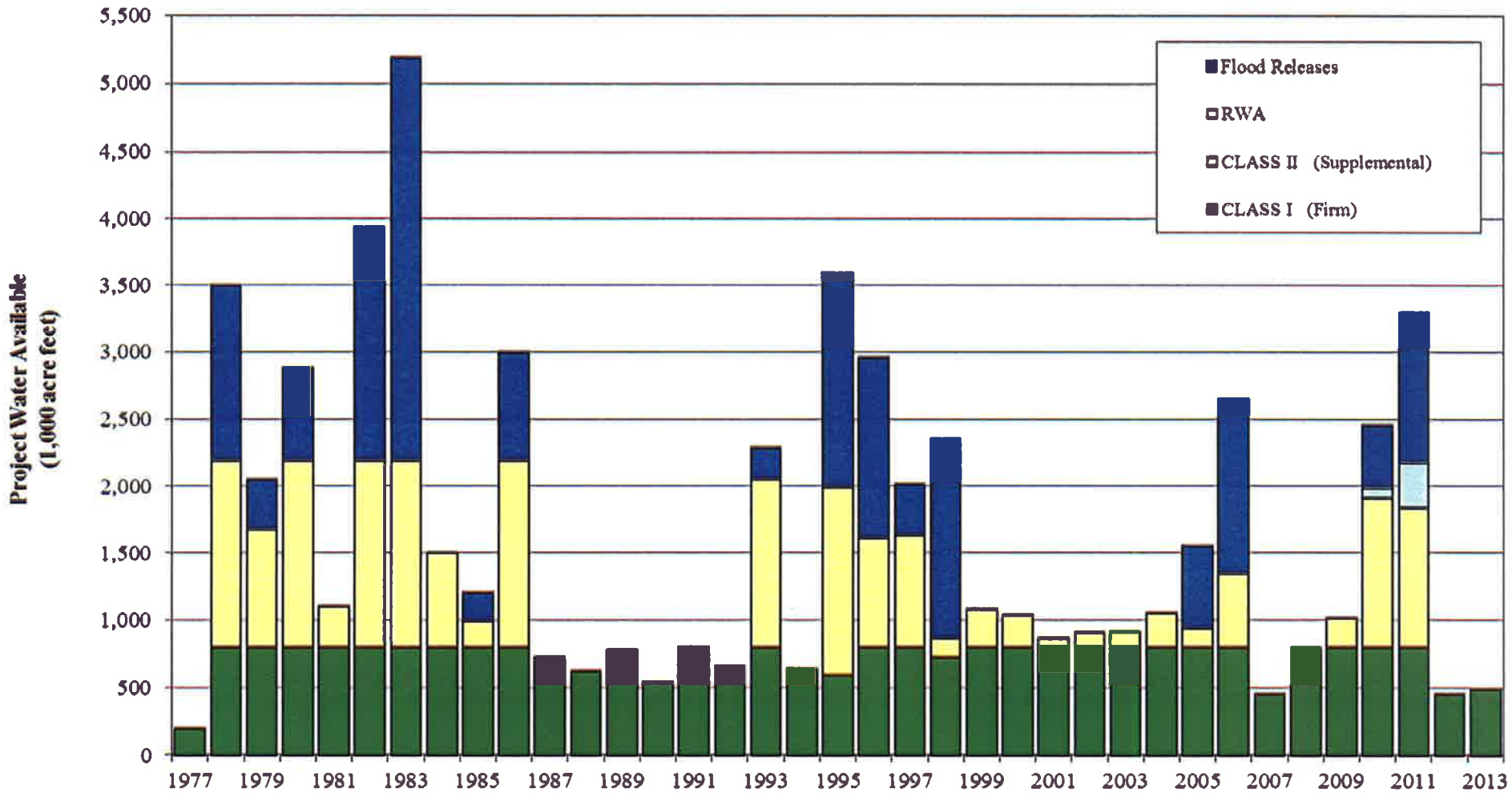


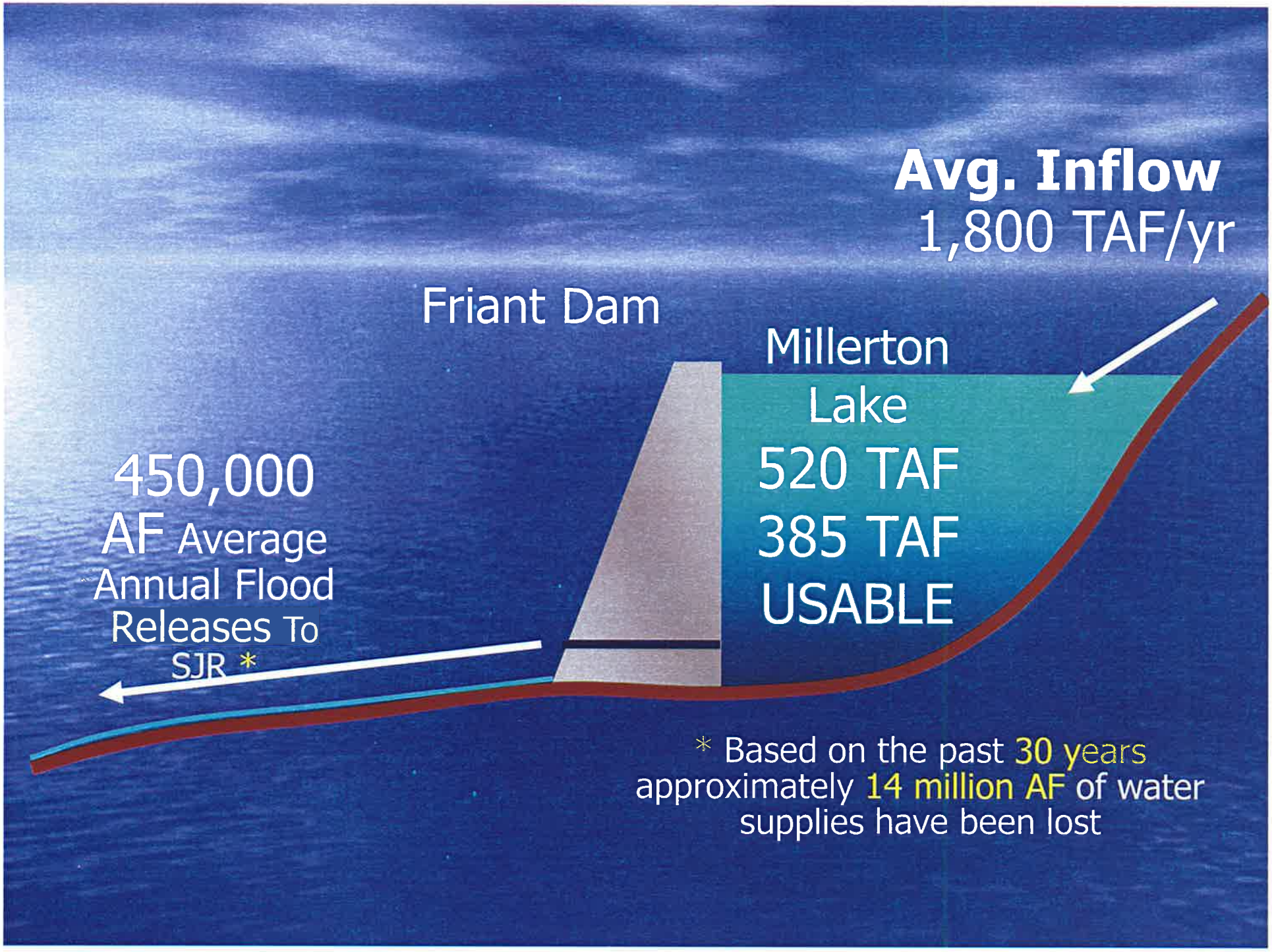


Cumulative Groundwater Storage Change

Friant Division

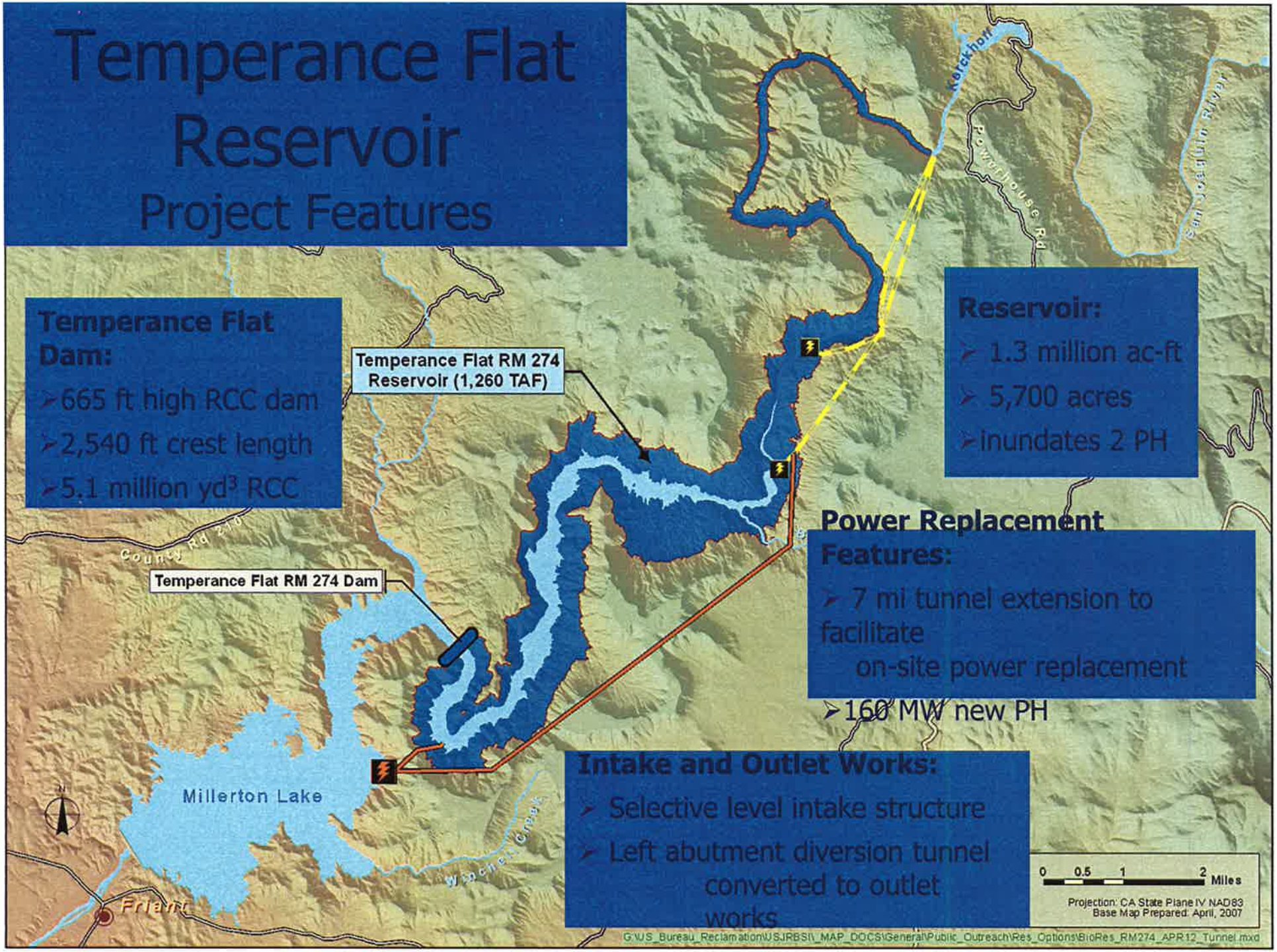
Flood Releases




Avg. Inflow
1,800 TAF/yr
Friant Dam
Millerton
Lake
520 TAF
385 TAF
USABLE
450,000
AF Average
Annual Flood
Releases To
SJR *
* Based on the past 30 years
approximately 14 million AF of water
supplies have been lost

Temperance Flat Reservoir

Project Features



Temperance Flat Dam:

- 665 ft high RCC dam
- 2,540 ft crest length
- 5.1 million yd³ RCC

Reservoir:

- 1.3 million ac-ft
- 5,700 acres
- Inundates 2 PH

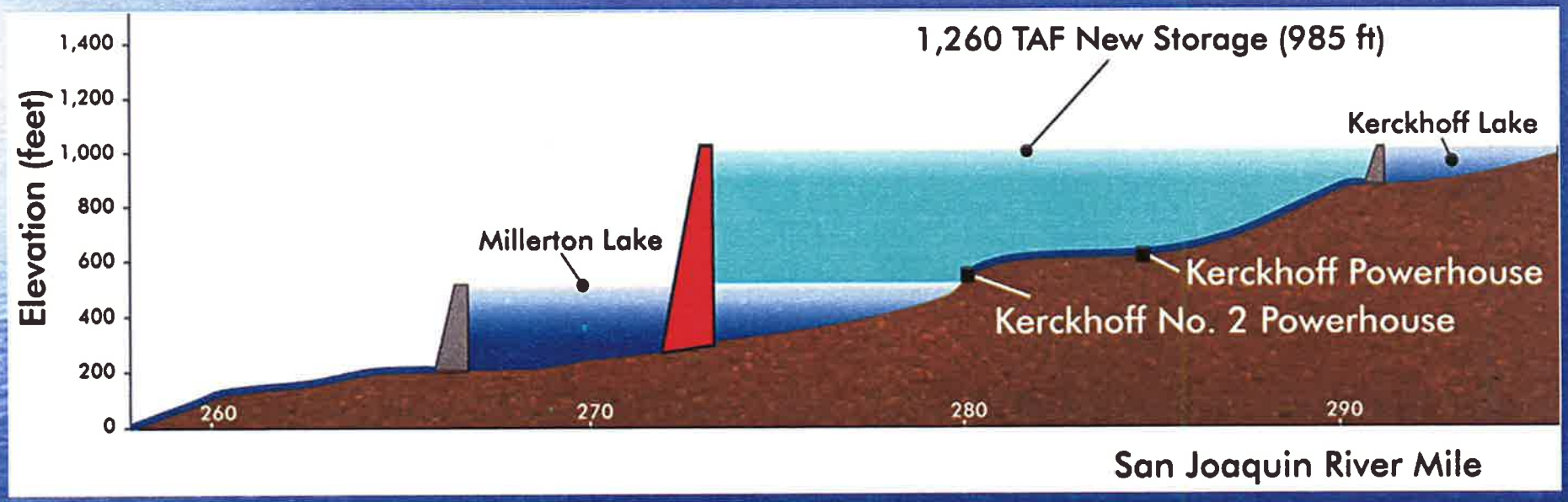
Power Replacement Features:

- 7 mi tunnel extension to facilitate on-site power replacement
- 160 MW new PH

Intake and Outlet Works:

- Selective level intake structure
- Left abutment diversion tunnel converted to outlet works

Temperance Flat Dam would be constructed in the upper portion of Millerton Lake with water depths ranging from 100-200 feet



- Requires additional large cofferdams
- Requires power replacement

Temperance Flat Particulars

- Nearly 1.3MAF storage capacity
- Dam built in existing reservoir
- Relatively benign footprint
- Neutral Hydropower impact, possible peaking
- Cost estimates are declining significantly
- 150kaf for Friant Division
- 0 – 100+kaf for SOD contractors, delta integration
- Cost per a/f dependent on integration/public benefits

Benefits to:
Friant Water Contractors

- Approximately 150,000 Acre Feet additional average annual water supply
- Replaces majority of water potentially lost To SJR River Restoration (est. of 200kaf/year) Saving thousands of jobs and nearly $300MM in average annual crop production
- Enhances groundwater and conjunctive use programs (WQ improvement also a regional benefit)

Storage Benefits for: San Joaquin River Restoration and delta ecosystem

- Enhance cold water for Salmon below Friant
- Flow management for fisheries
- Flexibility in delta operations
  - Pump shifting
  - EWA type water
  - Flood protection for SJR and delta improvements
- Mitigate climate change effects (Floods)

Storage Benefits for: Delta Export Water Agencies

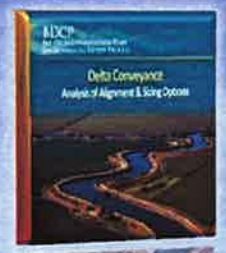
- Additional Storage in Wet Years to balance against dry year shortages
- Emergency Supply-Storage south of Delta
- Enhance Water Quality for urban users

Challenges of Surface Storage

- Cost: $2-3 Billion estimate – includes temperature and hydro generation replacement components
- State Water Bond to fund public benefits
- Federal funding component
- Partnering with Export and other Interests
- Environmental legal challenges

San Joaquin River Settlement

- No Channel Work Initiated Yet – Restricts Releases
- Salmon Reintroduction Possibly Next Spring
- Full Restoration Flows Starting 1/1/14
- About a Third of Released Water Recaptured
- Estimated Average Annual Water Supply Impact of 200,00 a.f.
- Challenges of Recapture in Delta
- RWA Wet Year Water at Reduced Cost
- Groundwater Program Financial Assistance
- FKC/MC Rehab to Design Capacity
- Federal Funding Challenges - $900M Budget - $100M Spent



New Delta Conveyance
Tunnel Alignment

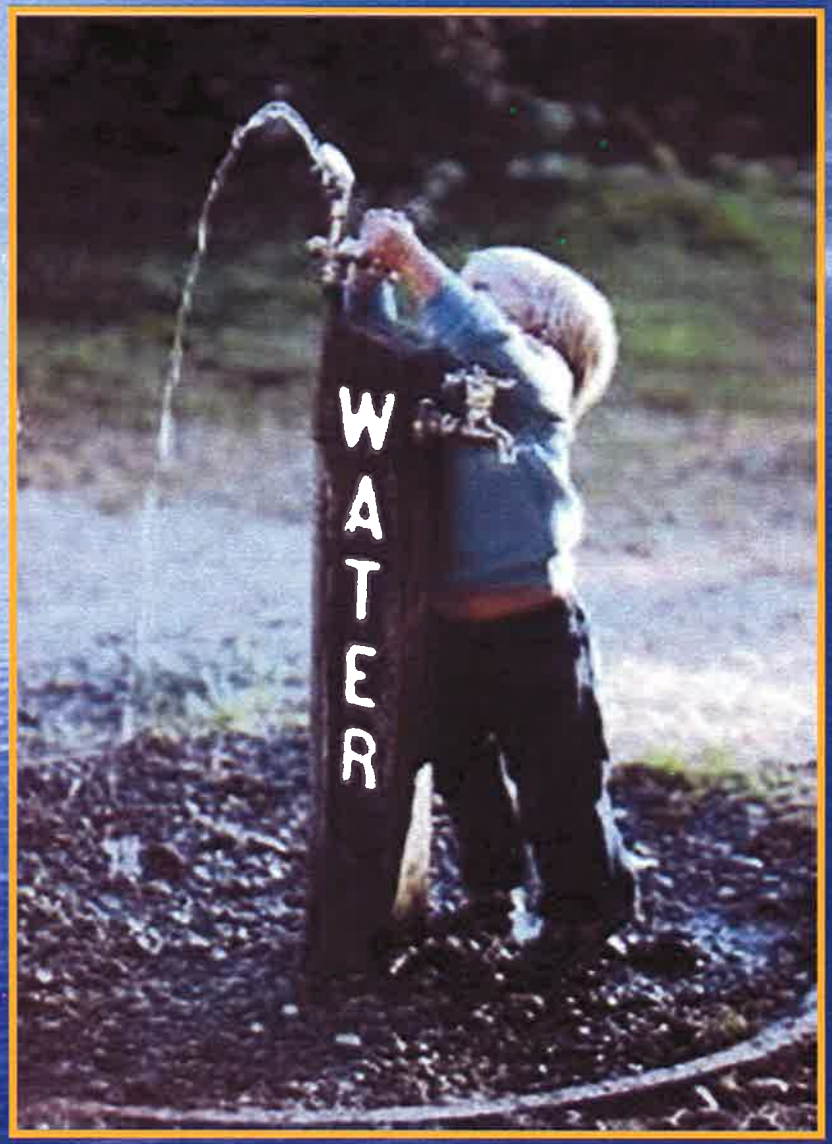
Importance of the Delta to Friant

- 884,000 AF of Exchange Water, which if not met, could come from Friant Supplies
- 128,000 AF of Cross Valley Supplies in Friant Division
- 200,000 AF of SJR Settlement Recirculation Water
- Equitable allocation of costs relative to Benefits

2014 State Water Bond

Key areas of interest:

- Funding for delta resolution
  - Ecosystem
  - Water Supply
- Support for Regional Management Plans
- Storage Development
- ACWA proposal maintains key elements and reduces Bond from $11.4B to $8.2B



Questions?

Council Workshop

City of Fresno Water Supplies

Presented by:
Robert Saperstein, J.D.
June 19, 2014

Brownstein Hyatt Farber Schreck

Water Law and Policy

- General Legal / Policy Framework
- Fresno Water Supply Portfolio
- Policy and Politics
  - Statewide Drought Response
  - Fed, State; Location, Location, Location
  - Local Overlay, Land Use Policy
  - Partners and Stakeholders
  - Prop 218 – Rates

2

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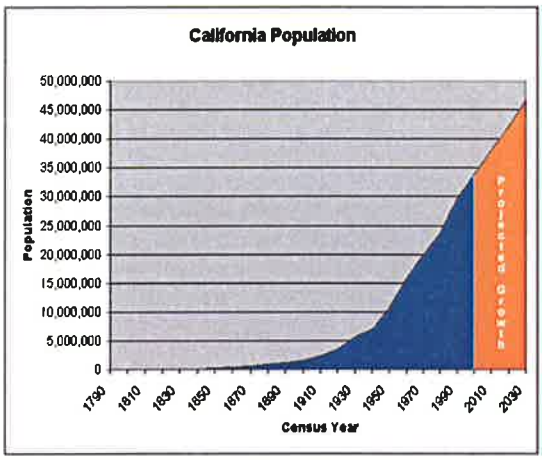
California Population Growth

- 2050 Projection
  - Double 1990
  - ~60 million



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CA Plumbing System

- Central Valley Project (CVP)
  - ~7 MAFY
  - Incomplete storage
- State Water Project (SWP)
  - 2.5 MAFY (> 4.1 Tbl A)
  - 29 contractors
  - ~60% reliability
- Colorado River
  - 5 MAFY (4.4 plan)
  - 15 v. 16 MAFY total

4

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CA Plumbing System

- Bay – Delta
  - Choke Point
  - Endangered Species
- Delta Bypass: Tunnel of No Love

5

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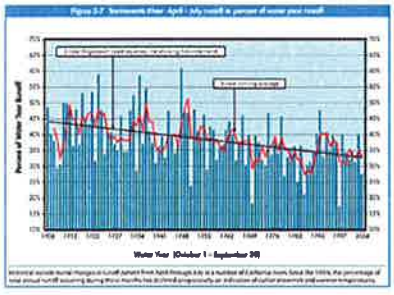
Climate Change: Declining Seasonal Storage

- Reduced snowpack – rain, not snow
  - Reduced runoff and storage
- Earlier snow melt
  - Increased flooding
- SWP / CVP / CO River declining yield?
- Increase groundwater use / overdraft
- More frequent shortages?



6

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Water Law Framework – California

- Dual Regulatory / Legal System
- Surface Water
  - State Water Resources Control Board
- Groundwater
  - Local regulation only
  - State now proposing GW framework
- Federal, state and local overlay
  - ESA, CWA, SDWA, . . .

Discussing Water Rights, A Western Pastime

7

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City Portfolio

- Surface Water
  - Central Valley Project (Friant – CVP)
  - Kings River (FID)
- Groundwater
  - Network of ~250 groundwater wells
- Recycled Water
  - City control

8

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City – FID Agreements

- "Conveyance" or "Cooperative" Agreement
  - Kings River water to City
  - Conveyance of City CVP water
  - Recharge & direct use
  - Vintage 1976
- Recycled Water Exchange Agreement
  - Exchange RW for FID CVP / Kings River Water
  - 1 RW : 0.46 FID water
  - Vintage 1974

9

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Extraordinary Drought Response

- Governor's Drought Declarations
- SWRCB Curtailment Junior Water Right Holders
  - May be extended to some Senior Rights
- Exchange Contractor Priority
  - Rights to up to 840,000 AFY
  - Normally supplied from Delta
  - FIRST EVER CALL ON FRIANT SYSTEM
  - Bureau claimed Force Majeure
  - FWA Litigation

10

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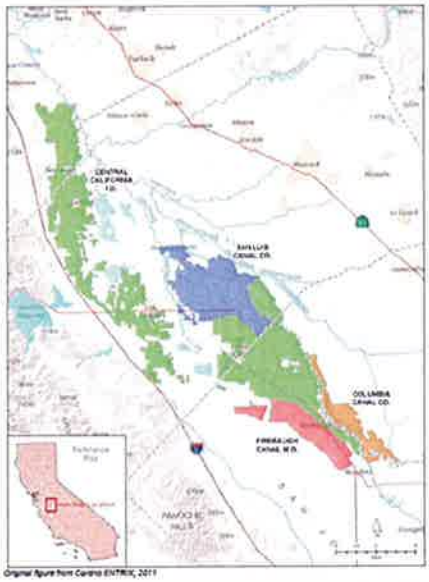

Original figure from Corona ENTRIX, 2011

11

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Water Crisis

or

Water <u>Management</u> Crisis?

12

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2014 JUN 19 PM 12 11

CITY CLERK, FRESNO, CA

Agenda Item: 2:00 P.M.
Date: 6/19/14

FRESNO CITY COUNCIL

City of FRESNO

Supplemental Information Packet

Agenda Related Items – 2:00 P.M.
Supplemental Packet Date: June 19, 2014

Item(s)

WORKSHOP on City of Fresno water supply – Department of Public Utilities

Supplemental Information:

Any agenda related public documents received and distributed to a majority of the City Council after the Agenda Packet is printed are included in Supplemental Packets. Supplemental Packets are produced as needed. The Supplemental Packet is available for public inspection in the City Clerk's Office, 2600 Fresno Street, during normal business hours (main location pursuant to the Brown Act, G.C. 54957.5(2). In addition, Supplemental Packets are available for public review at the City Council meeting in the City Council Chambers, 2600 Fresno Street. Supplemental Packets are also available on-line on the City Clerk's website.

Americans with Disabilities Act (ADA):

The meeting room is accessible to the physically disabled, and the services of a translator can be made available. Requests for additional accommodations for the disabled, sign language interpreters, assistive listening devices, or translators should be made one week prior to the meeting. Please call City Clerk's Office at 621-7650. Please keep the doorways, aisles and wheelchair seating areas open and accessible. If you need assistance with seating because of a disability, please see Security.

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Reliable Water for Fresno

City of
FRESNO
WATER DIVISION

June 19, 2014

DPU

A Nationally Accredited
PUBLIC UTILITY AGENCY

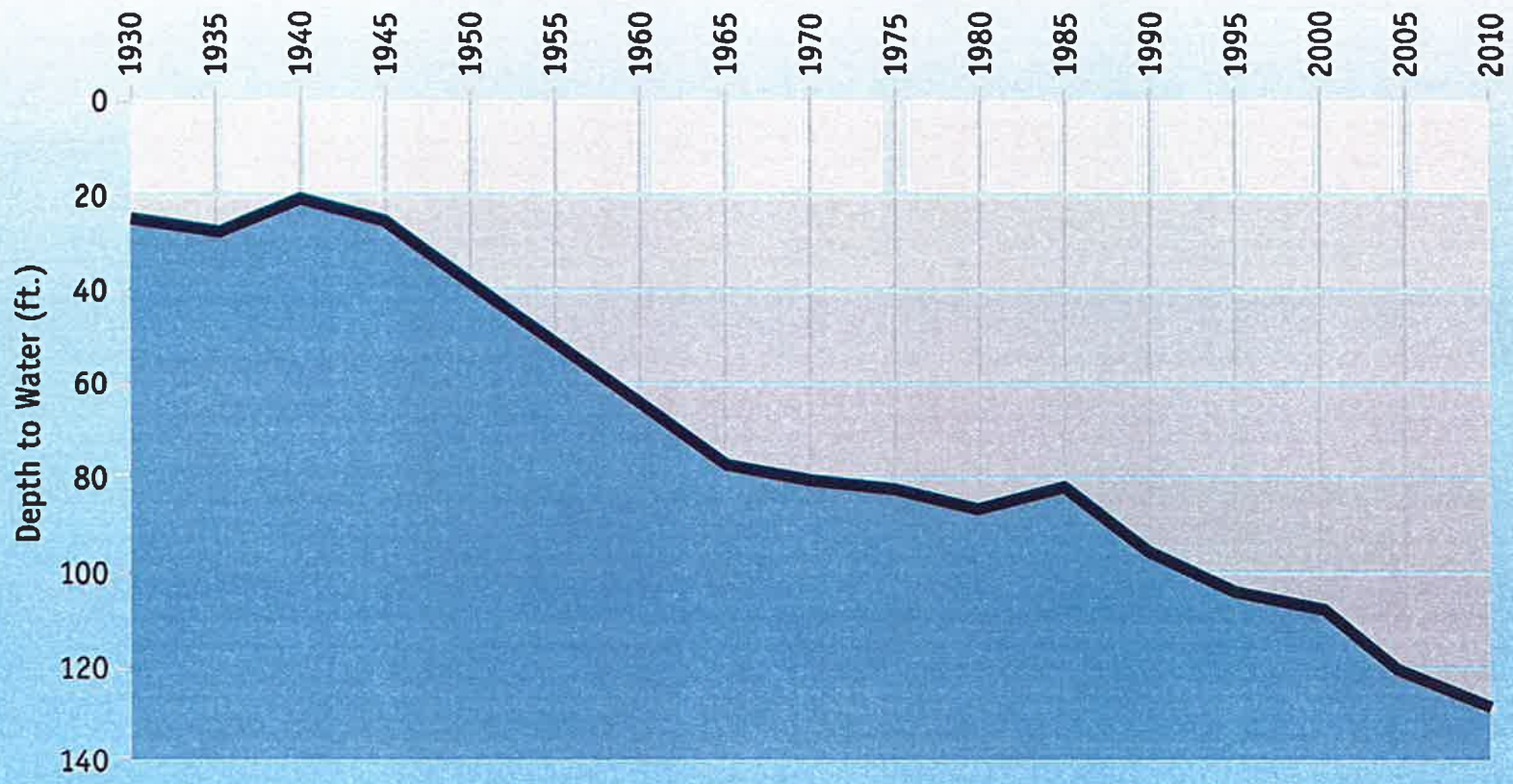
Where Does Our Water Come From?

- Snowfall & Rainfall
- Kings River Watershed (water entitlements)
- San Joaquin Watershed (water contract)

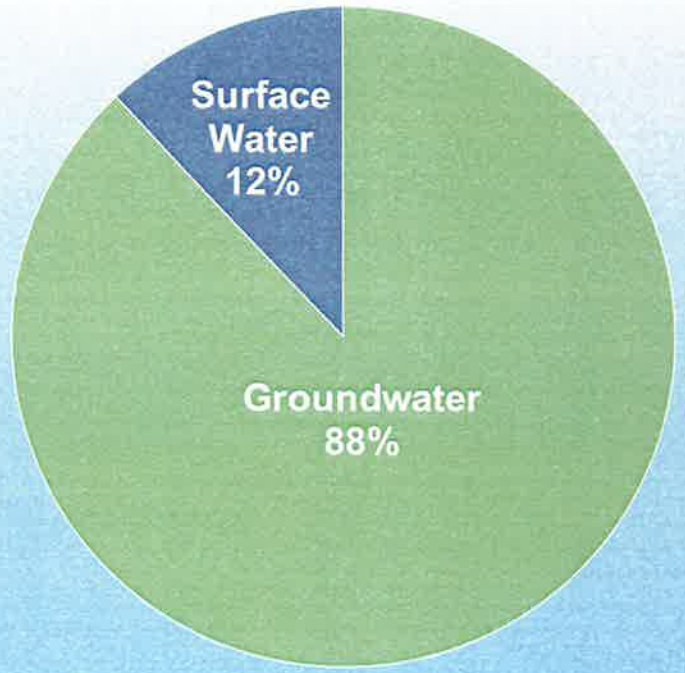
- Kings River / Pine Flat Reservoir
- San Joaquin River / Millerton Lake
- Friant/Kern Canal
- Fresno Irrigation District Canals

Fresno is committed to addressing its declining groundwater levels…

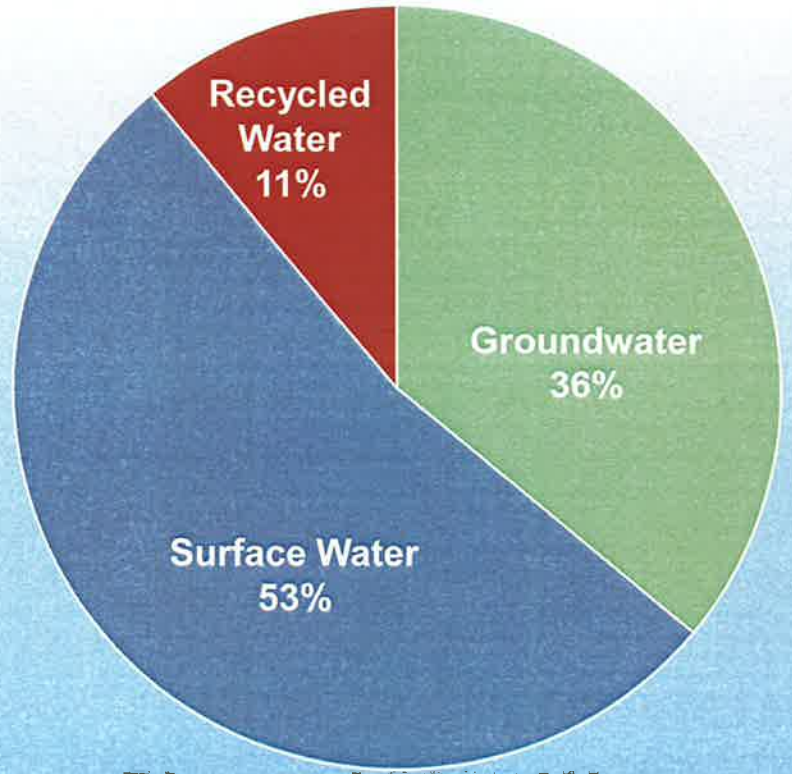
City of Fresno Historical Ground Water Levels



...and diversifying water supply sources...

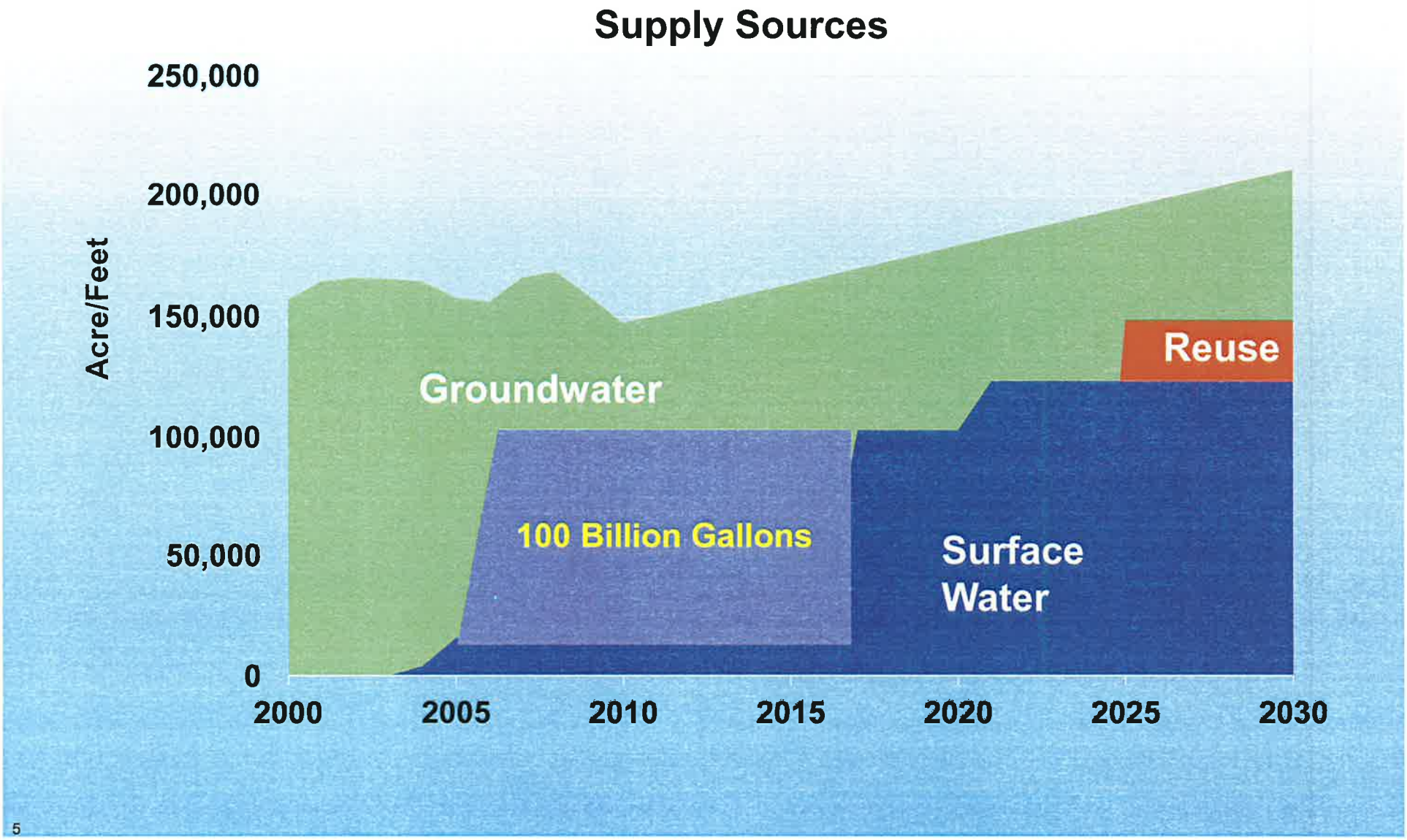


2009 Water Sources



Planned 2025 Water Sources

...to result in a truly sustainable water supply.



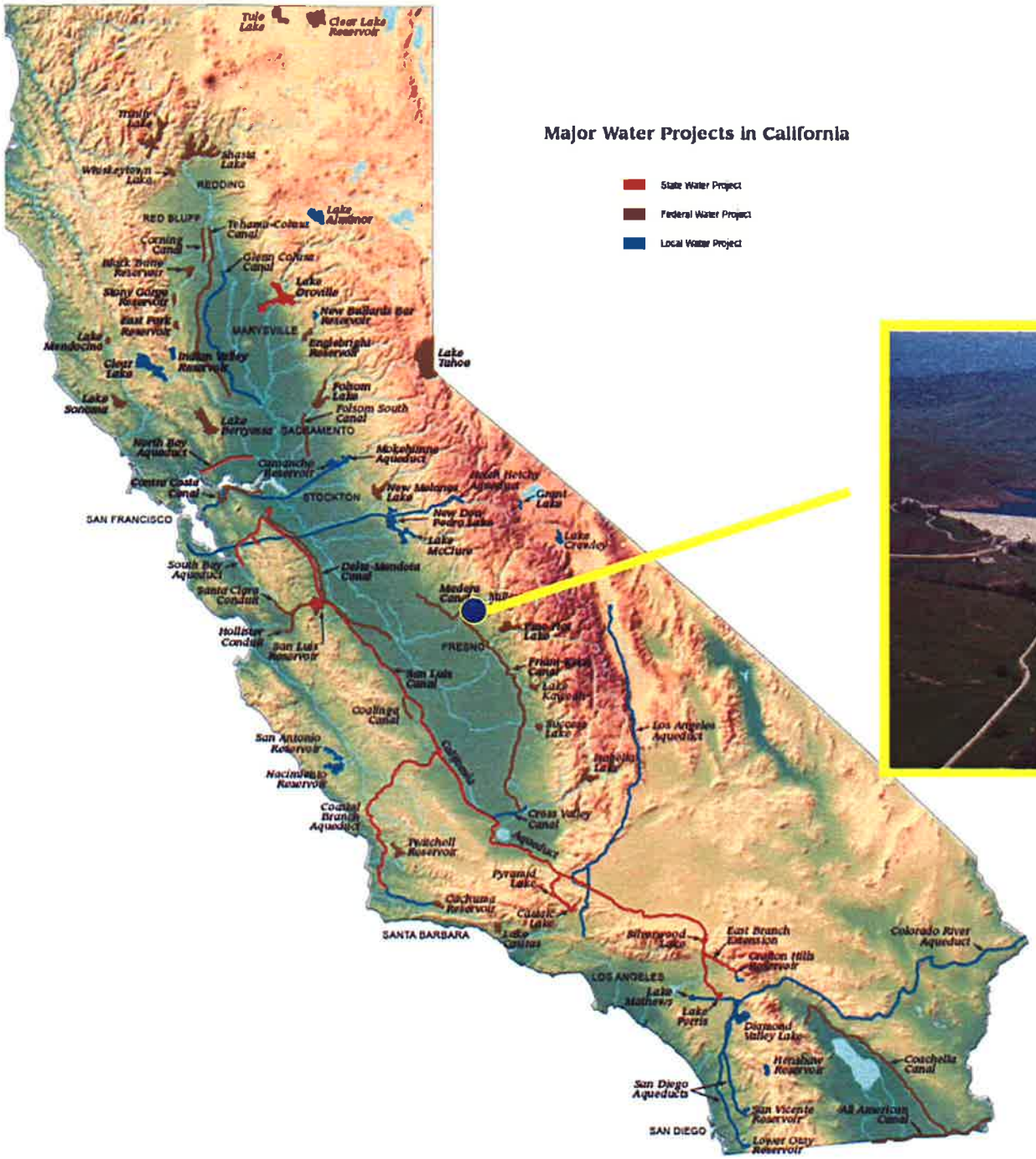
Future Water Supply Challenges

We can ensure safe, reliable water to meet present and address future demands (as forecast in the City's General Plan) **ONLY** if we do four things:

1. **IMPROVE** Water Conservation (reduce our need)
2. **INCREASE** Water Re-Use (diversify supply)
3. **ADDRESS** Deferred Maintenance of Facilities
4. **BUILD** Infrastructure and **BALANCE** Water Portfolio (to better manage water supply)

Friant Water Authority

Perspectives on Key Water Activities and Proposals



By
Ronald D. Jacobsma
General Manager

Friant Division Service Area and Contractors

Service Area

Merced County
Madera County
Fresno County
Tulare County
Kern County

1,200,000+ Acres
15,000 Farmers
$5B+ Ag Economy

Ag Water Contractors

- Arvin-Edison W.S.D.
- Chowchilla W.D.
- Delano-Earlimart I.D.
- Exeter I.D.
- Fresno I.D.
- Garfield W.D.
- Gravelly Ford W.D.
- Hills Valley I.D.
- International W.D.
- Ivanhoe I.D.
- Kaweah-Delta WCD
- Kern-Tulare W.D.
- Lewis Creek W.D.
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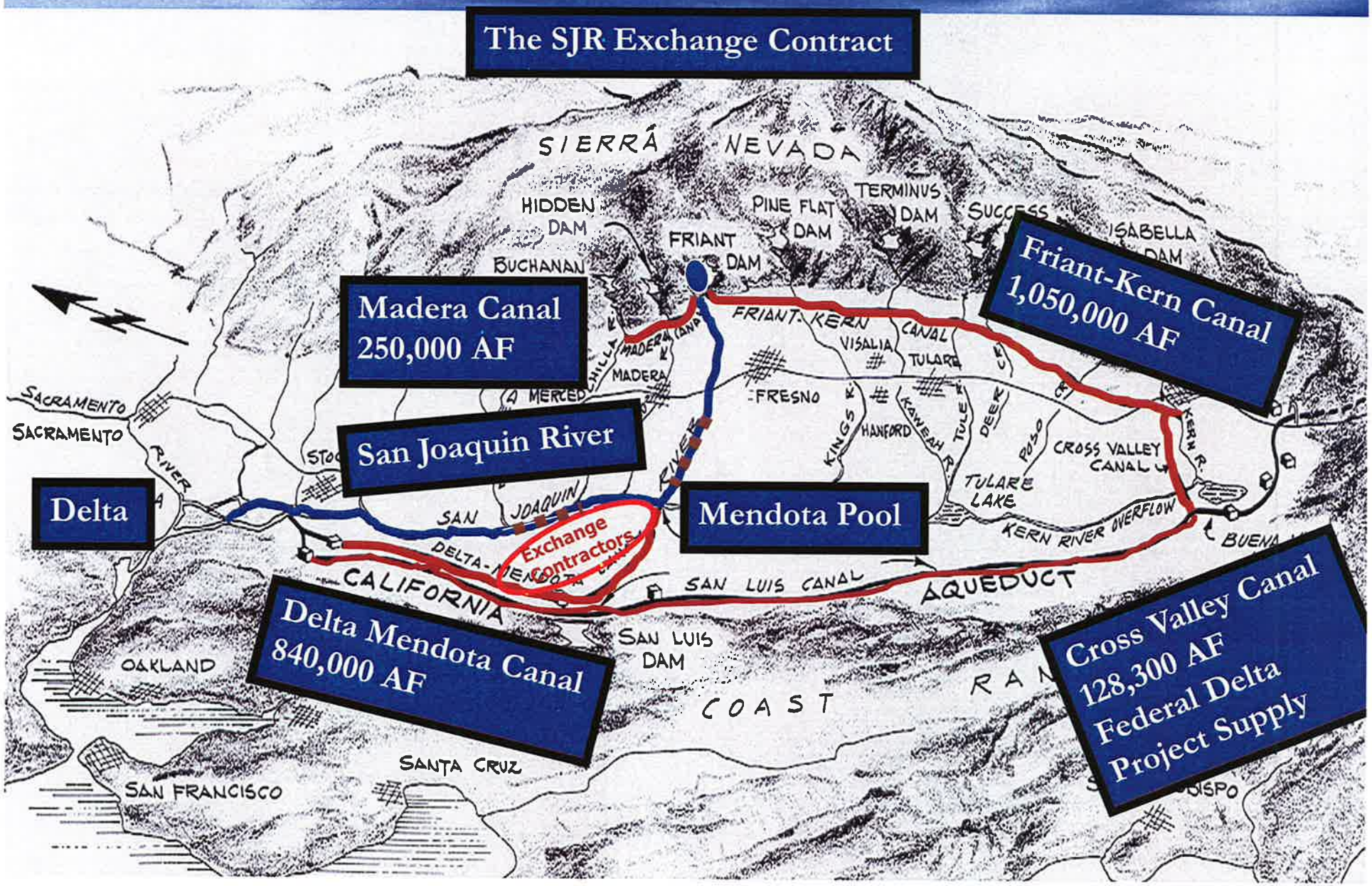

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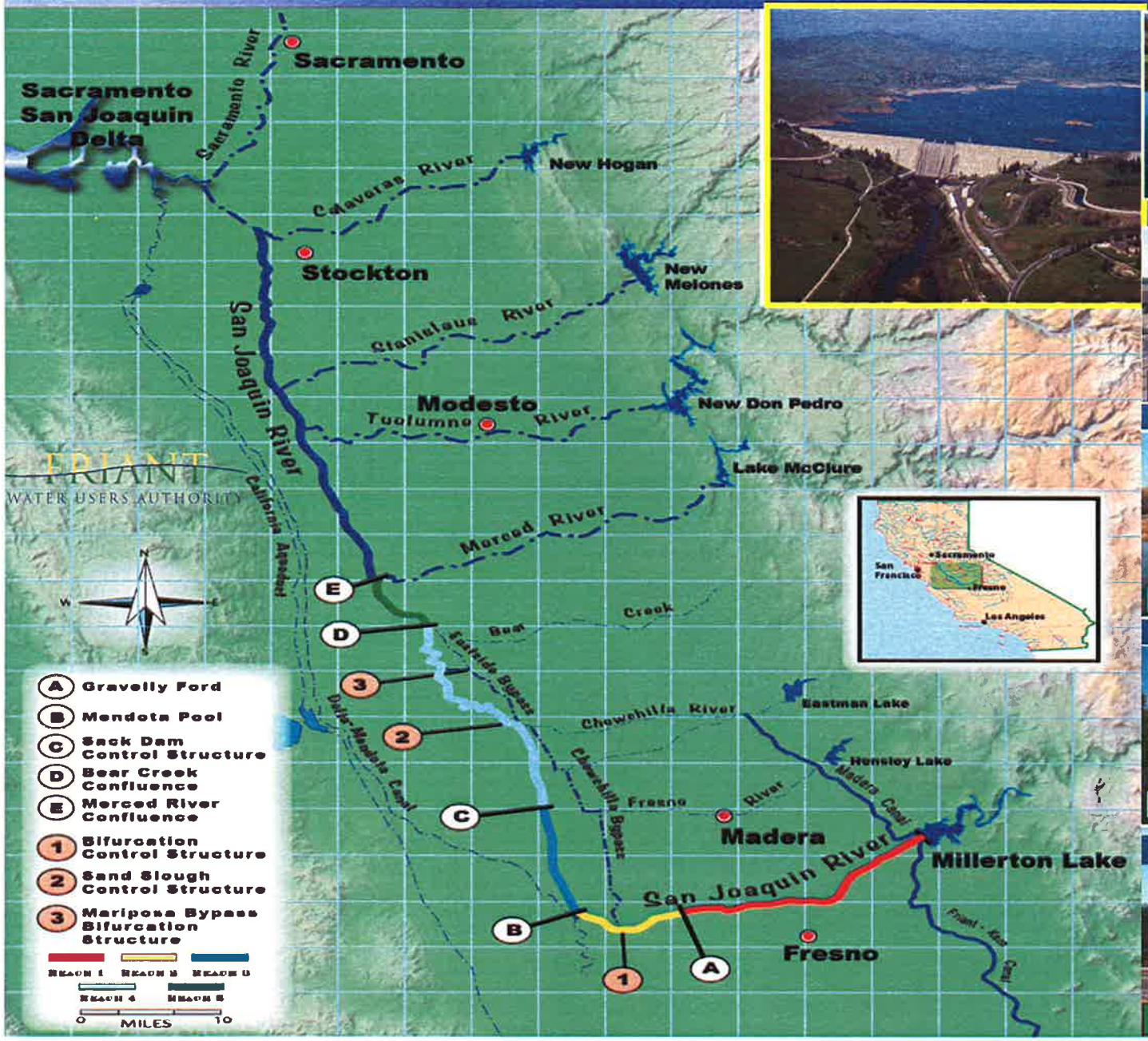

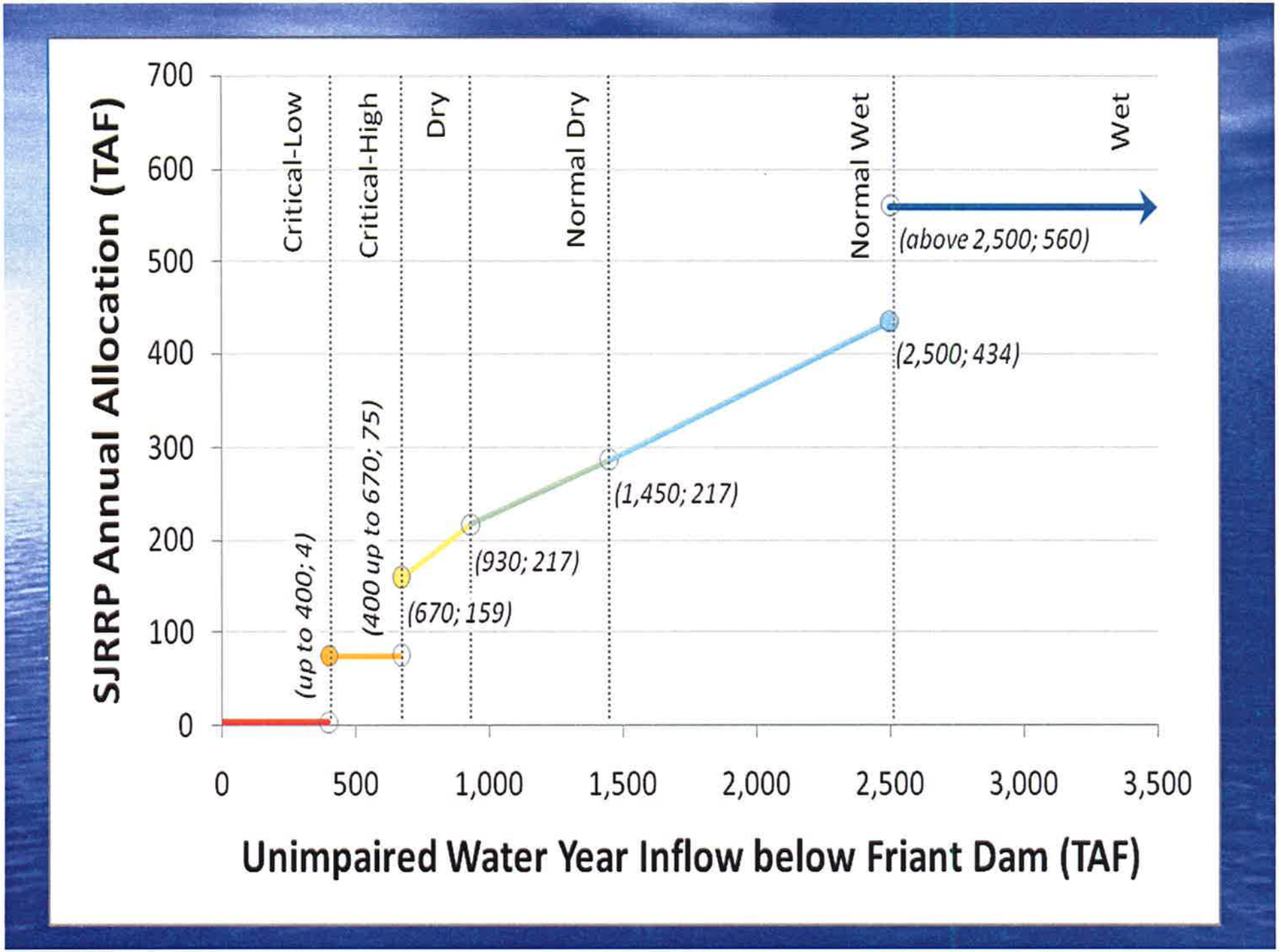
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700
600
500
400
300
200
100
0
Critical-Low
Critical-High
Dry
Normal Dry
Normal Wet
Wet
(up to 400; 4)
(400 up to 670; 75)
(670; 159)
(930; 217)
(1,450; 217)
(2,500; 434)
(above 2,500; 560)
0
500
1,000
1,500
2,000
2,500
3,000
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Friant Division

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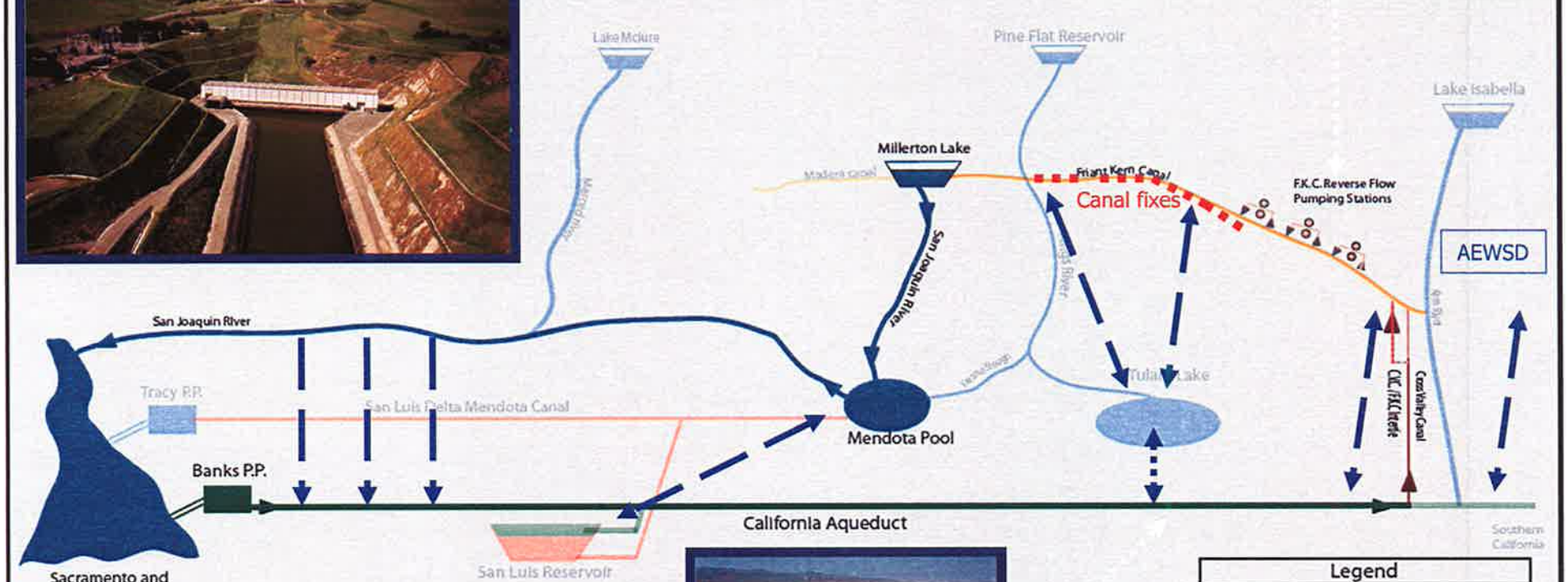

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Proposed Pump Stations

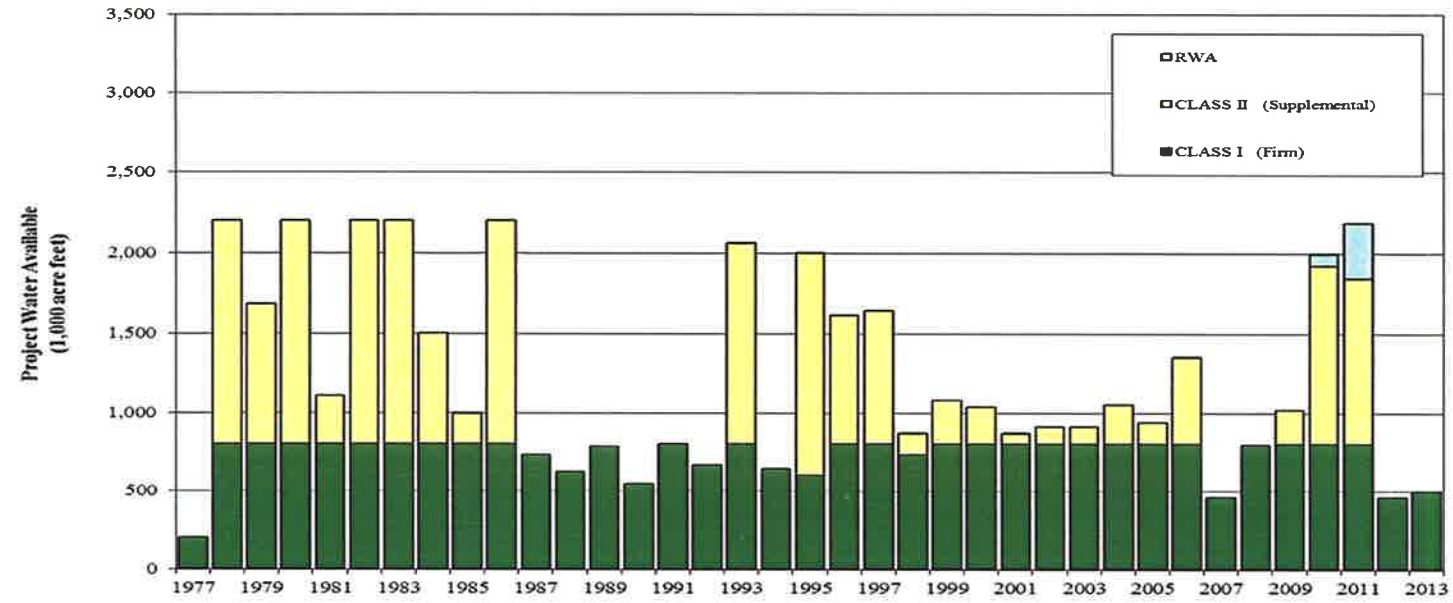
Concept: A - 1 | Date: 1-20-07

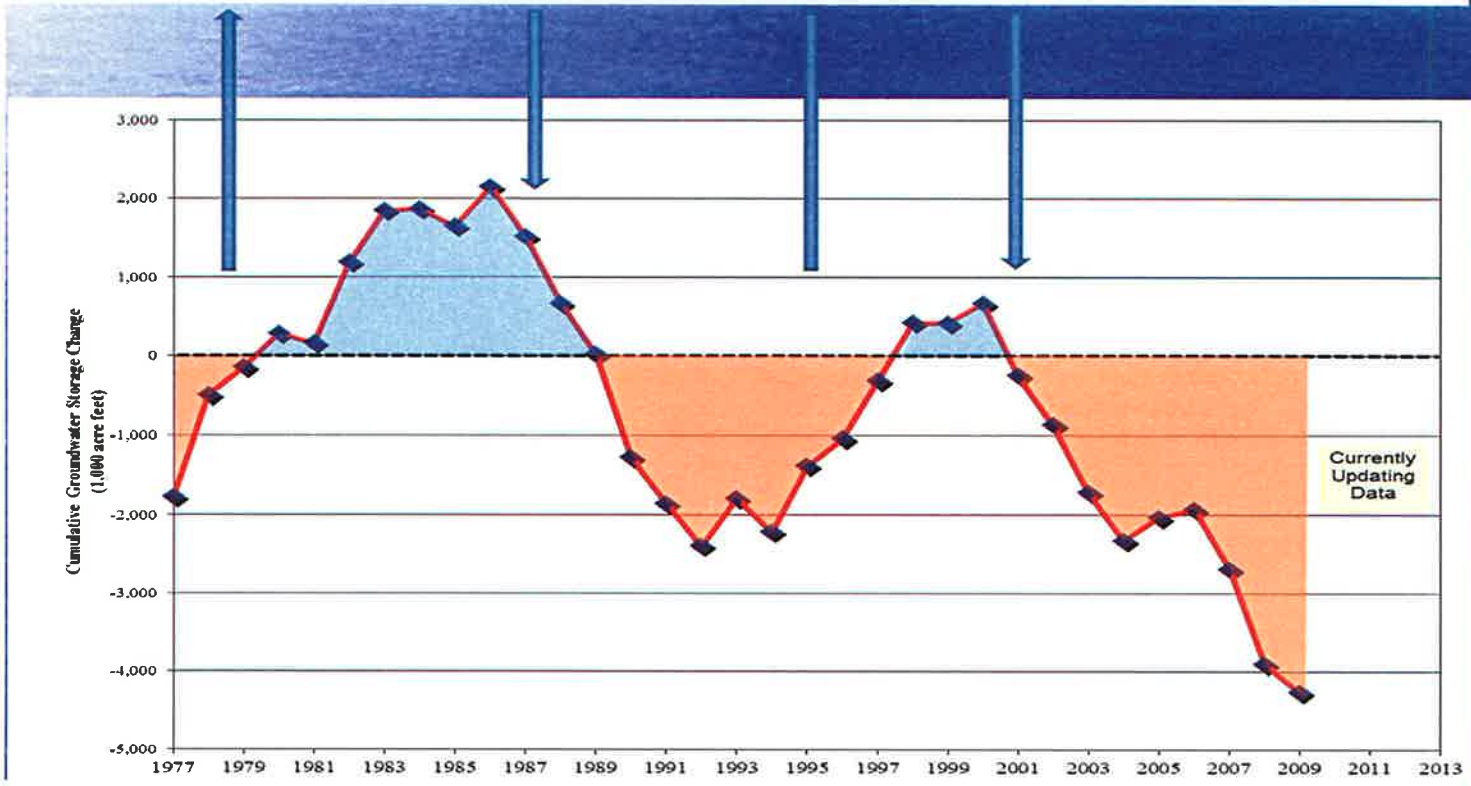
FRIANT WATER USERS AUTHORITY

Drawing Not To Scale

- Friant Division

Class 2
Water Supply and Groundwater Storage Relationship

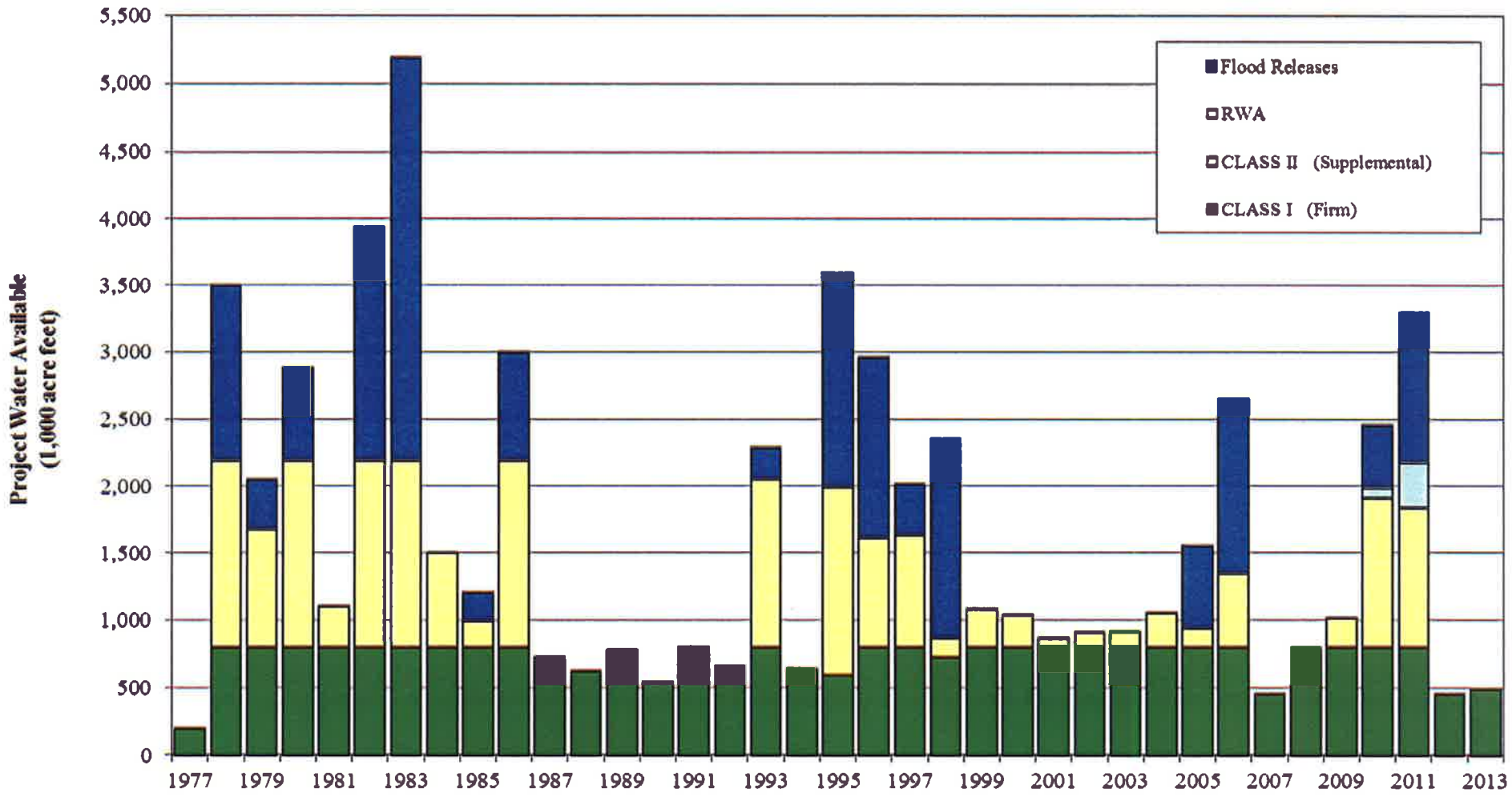


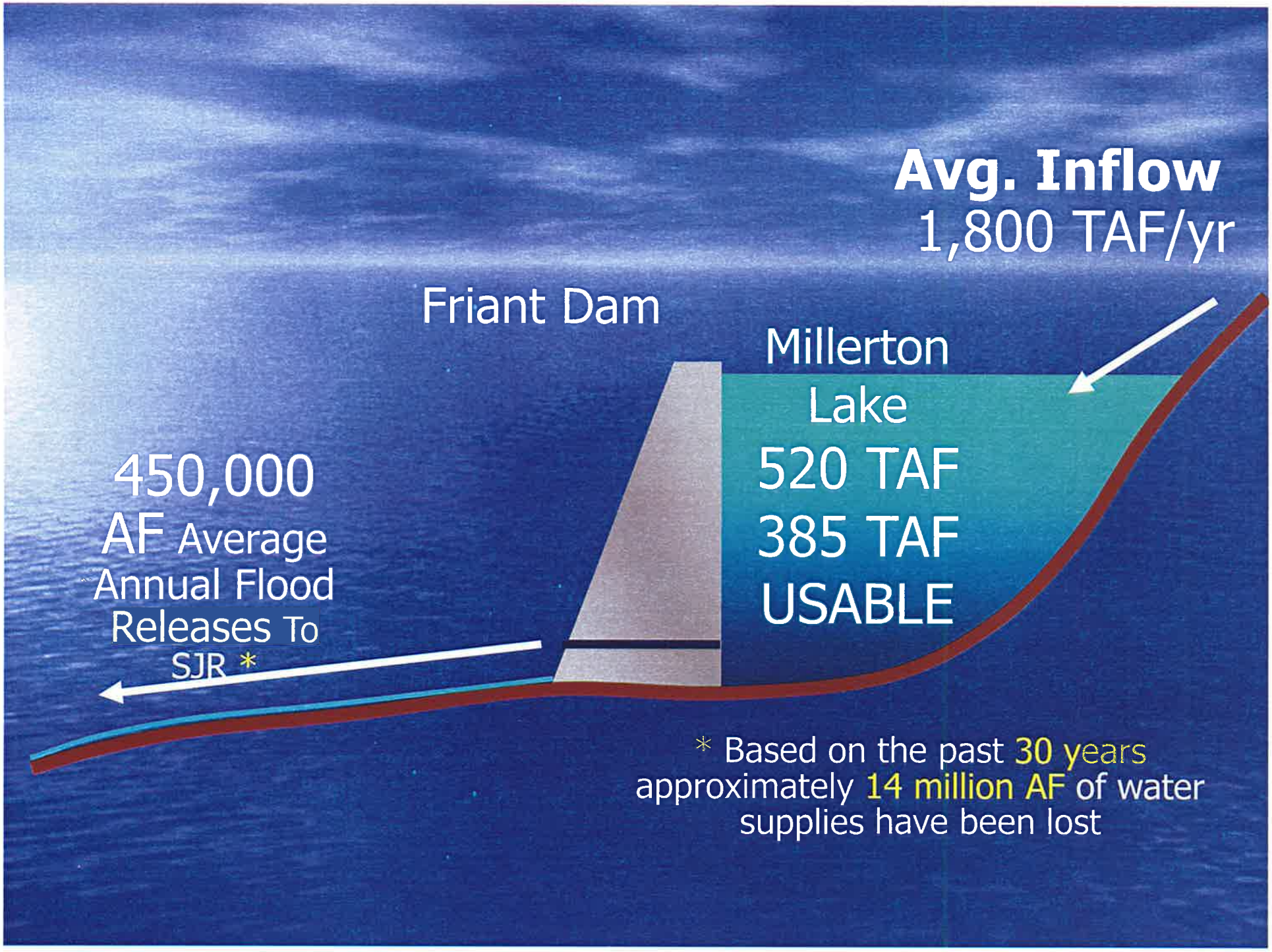


Cumulative Groundwater Storage Change

Friant Division

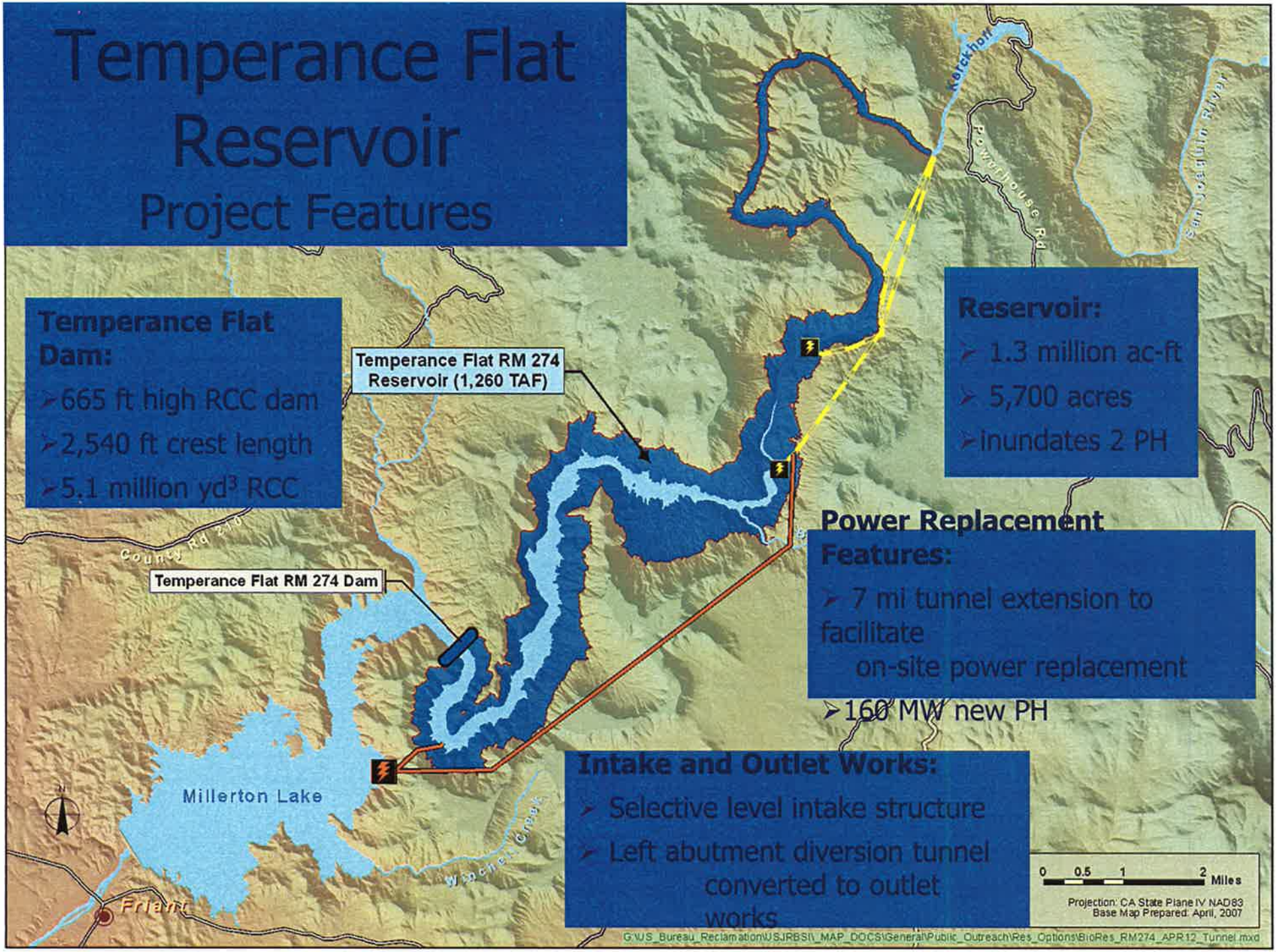
Flood Releases




Avg. Inflow
1,800 TAF/yr
Friant Dam
Millerton
Lake
520 TAF
385 TAF
USABLE
450,000
AF Average
Annual Flood
Releases To
SJR *
* Based on the past 30 years
approximately 14 million AF of water
supplies have been lost

Temperance Flat Reservoir

Project Features



Temperance Flat Dam:

- 665 ft high RCC dam
- 2,540 ft crest length
- 5.1 million yd³ RCC

Reservoir:

- 1.3 million ac-ft
- 5,700 acres
- Inundates 2 PH

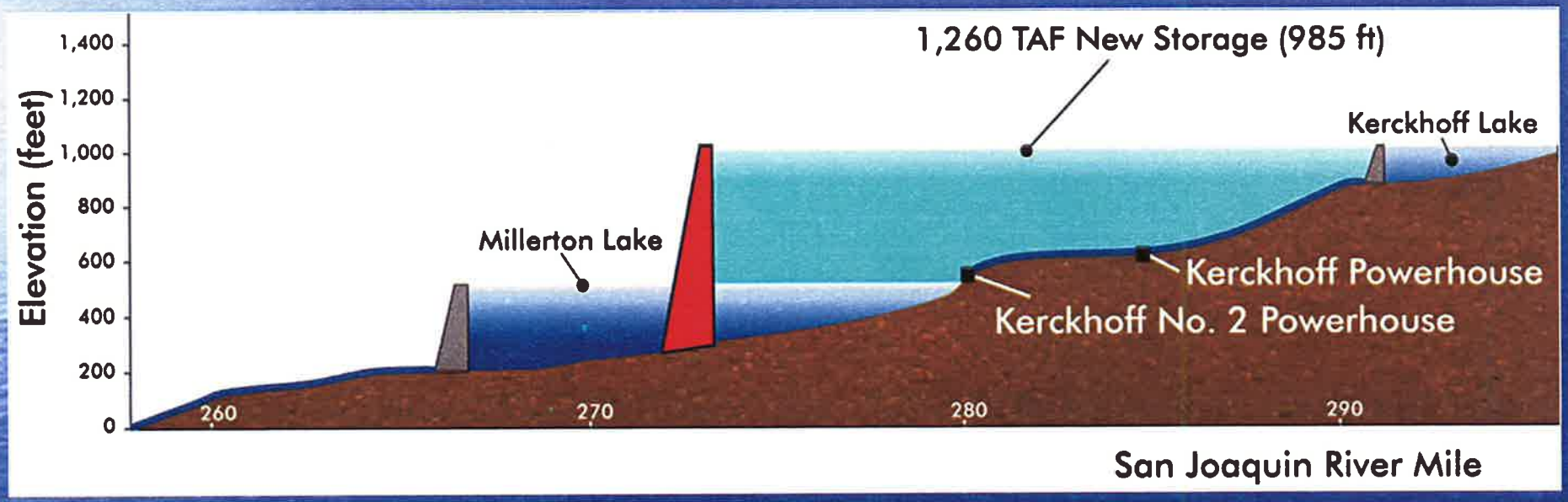
Power Replacement Features:

- 7 mi tunnel extension to facilitate on-site power replacement
- 160 MW new PH

Intake and Outlet Works:

- Selective level intake structure
- Left abutment diversion tunnel converted to outlet works

Temperance Flat Dam would be constructed in the upper portion of Millerton Lake with water depths ranging from 100-200 feet



- Requires additional large cofferdams
- Requires power replacement

Temperance Flat Particulars

- Nearly 1.3MAF storage capacity
- Dam built in existing reservoir
- Relatively benign footprint
- Neutral Hydropower impact, possible peaking
- Cost estimates are declining significantly
- 150kaf for Friant Division
- 0 – 100+kaf for SOD contractors, delta integration
- Cost per a/f dependent on integration/public benefits

Benefits to:
Friant Water Contractors

- Approximately 150,000 Acre Feet additional average annual water supply
- Replaces majority of water potentially lost To SJR River Restoration (est. of 200kaf/year) Saving thousands of jobs and nearly $300MM in average annual crop production
- Enhances groundwater and conjunctive use programs (WQ improvement also a regional benefit)

Storage Benefits for: San Joaquin River Restoration and delta ecosystem

- Enhance cold water for Salmon below Friant
- Flow management for fisheries
- Flexibility in delta operations
  - Pump shifting
  - EWA type water
  - Flood protection for SJR and delta improvements
- Mitigate climate change effects (Floods)

Storage Benefits for: Delta Export Water Agencies

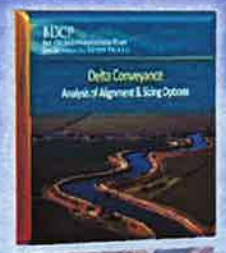
- Additional Storage in Wet Years to balance against dry year shortages
- Emergency Supply-Storage south of Delta
- Enhance Water Quality for urban users

Challenges of Surface Storage

- Cost: $2-3 Billion estimate – includes temperature and hydro generation replacement components
- State Water Bond to fund public benefits
- Federal funding component
- Partnering with Export and other Interests
- Environmental legal challenges

San Joaquin River Settlement

- No Channel Work Initiated Yet – Restricts Releases
- Salmon Reintroduction Possibly Next Spring
- Full Restoration Flows Starting 1/1/14
- About a Third of Released Water Recaptured
- Estimated Average Annual Water Supply Impact of 200,00 a.f.
- Challenges of Recapture in Delta
- RWA Wet Year Water at Reduced Cost
- Groundwater Program Financial Assistance
- FKC/MC Rehab to Design Capacity
- Federal Funding Challenges - $900M Budget - $100M Spent



New Delta Conveyance
Tunnel Alignment

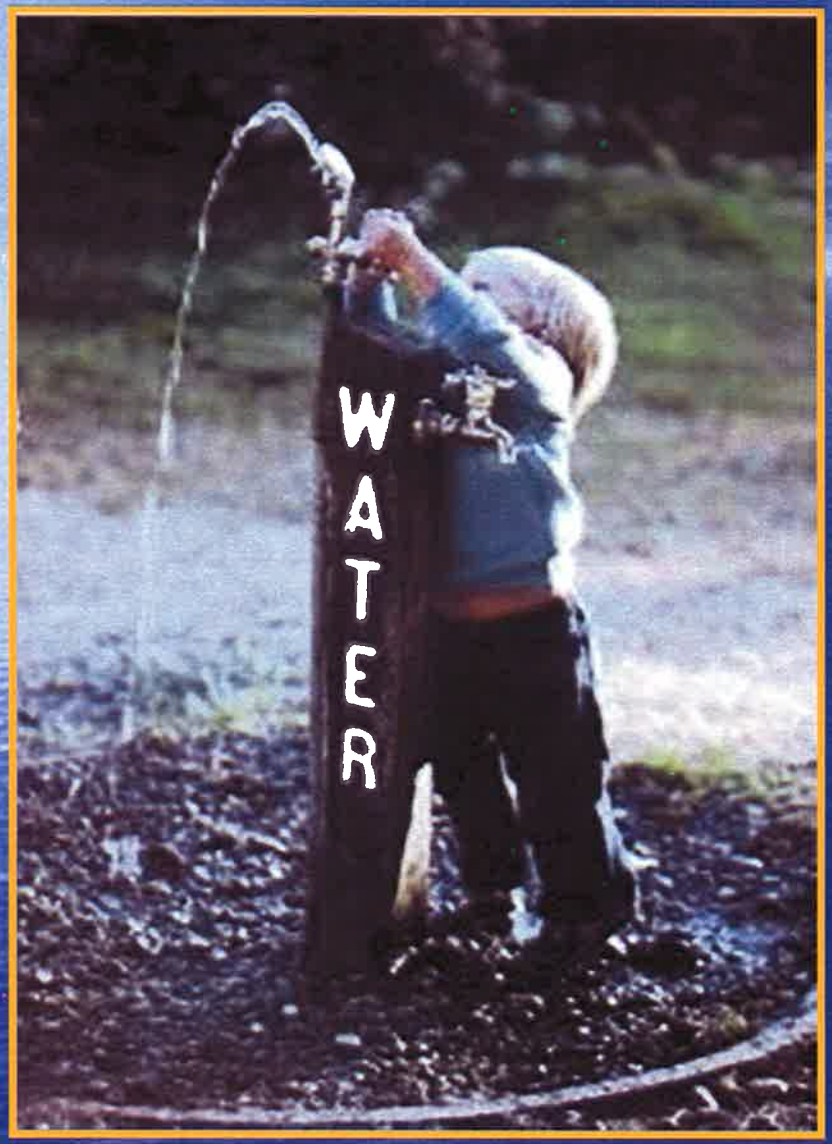
Importance of the Delta to Friant

- 884,000 AF of Exchange Water, which if not met, could come from Friant Supplies
- 128,000 AF of Cross Valley Supplies in Friant Division
- 200,000 AF of SJR Settlement Recirculation Water
- Equitable allocation of costs relative to Benefits

2014 State Water Bond

Key areas of interest:

- Funding for delta resolution
  - Ecosystem
  - Water Supply
- Support for Regional Management Plans
- Storage Development
- ACWA proposal maintains key elements and reduces Bond from $11.4B to $8.2B



Questions?

Council Workshop

City of Fresno Water Supplies

Presented by:
Robert Saperstein, J.D.
June 19, 2014

Brownstein Hyatt Farber Schreck

Water Law and Policy

- General Legal / Policy Framework
- Fresno Water Supply Portfolio
- Policy and Politics
  - Statewide Drought Response
  - Fed, State; Location, Location, Location
  - Local Overlay, Land Use Policy
  - Partners and Stakeholders
  - Prop 218 – Rates

2

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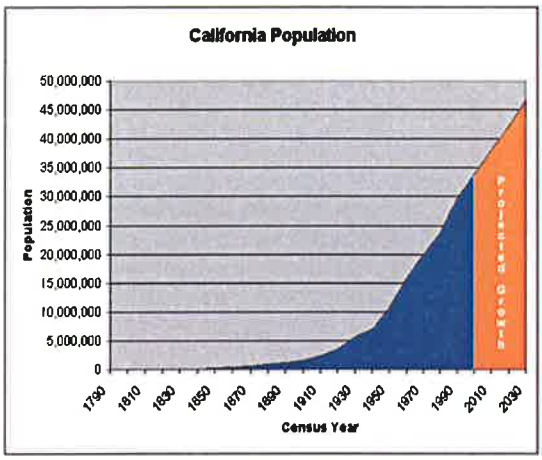
California Population Growth

- 2050 Projection
  - Double 1990
  - ~60 million



3

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CA Plumbing System

- Central Valley Project (CVP)
  - ~7 MAFY
  - Incomplete storage
- State Water Project (SWP)
  - 2.5 MAFY (> 4.1 Tbl A)
  - 29 contractors
  - ~60% reliability
- Colorado River
  - 5 MAFY (4.4 plan)
  - 15 v. 16 MAFY total

4

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CA Plumbing System

- Bay – Delta
  - Choke Point
  - Endangered Species
- Delta Bypass: Tunnel of No Love

5

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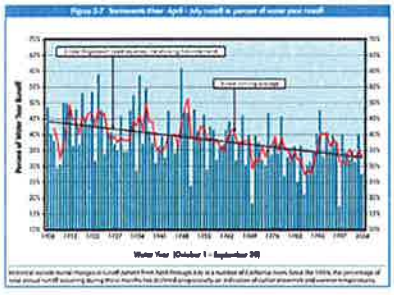
Climate Change: Declining Seasonal Storage

- Reduced snowpack – rain, not snow
  - Reduced runoff and storage
- Earlier snow melt
  - Increased flooding
- SWP / CVP / CO River declining yield?
- Increase groundwater use / overdraft
- More frequent shortages?



6

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Water Law Framework – California

- Dual Regulatory / Legal System
- Surface Water
  - State Water Resources Control Board
- Groundwater
  - Local regulation only
  - State now proposing GW framework
- Federal, state and local overlay
  - ESA, CWA, SDWA, . . .

Discussing Water Rights, A Western Pastime

7

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City Portfolio

- Surface Water
  - Central Valley Project (Friant – CVP)
  - Kings River (FID)
- Groundwater
  - Network of ~250 groundwater wells
- Recycled Water
  - City control

8

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City – FID Agreements

- "Conveyance" or "Cooperative" Agreement
  - Kings River water to City
  - Conveyance of City CVP water
  - Recharge & direct use
  - Vintage 1976
- Recycled Water Exchange Agreement
  - Exchange RW for FID CVP / Kings River Water
  - 1 RW : 0.46 FID water
  - Vintage 1974

9

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Extraordinary Drought Response

- Governor's Drought Declarations
- SWRCB Curtailment Junior Water Right Holders
  - May be extended to some Senior Rights
- Exchange Contractor Priority
  - Rights to up to 840,000 AFY
  - Normally supplied from Delta
  - FIRST EVER CALL ON FRIANT SYSTEM
  - Bureau claimed Force Majeure
  - FWA Litigation

10

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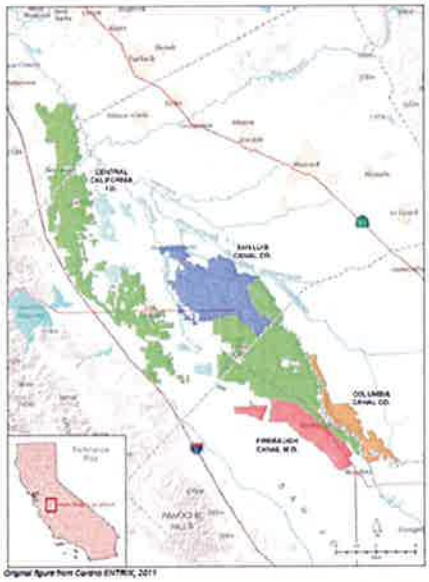

Original figure from Corona ENTRIX, 2011

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Water Crisis

or

Water <u>Management</u> Crisis?

12

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