



— BUREAU OF —
RECLAMATION

Overview of the Central Valley Project and the State Water Project

Preamble: Modeling for LTO Operation and Actions

National Academies Review of the Long-term Operations
of the Central Valley Project and State Water Project

Meeting 2

February 28, 2024

Purposes

Planning “What Ifs”

- New or Modified Facilities
- Operational Strategies or Regulations
- Climate and Sea Level Change
- Interested Party Outreach

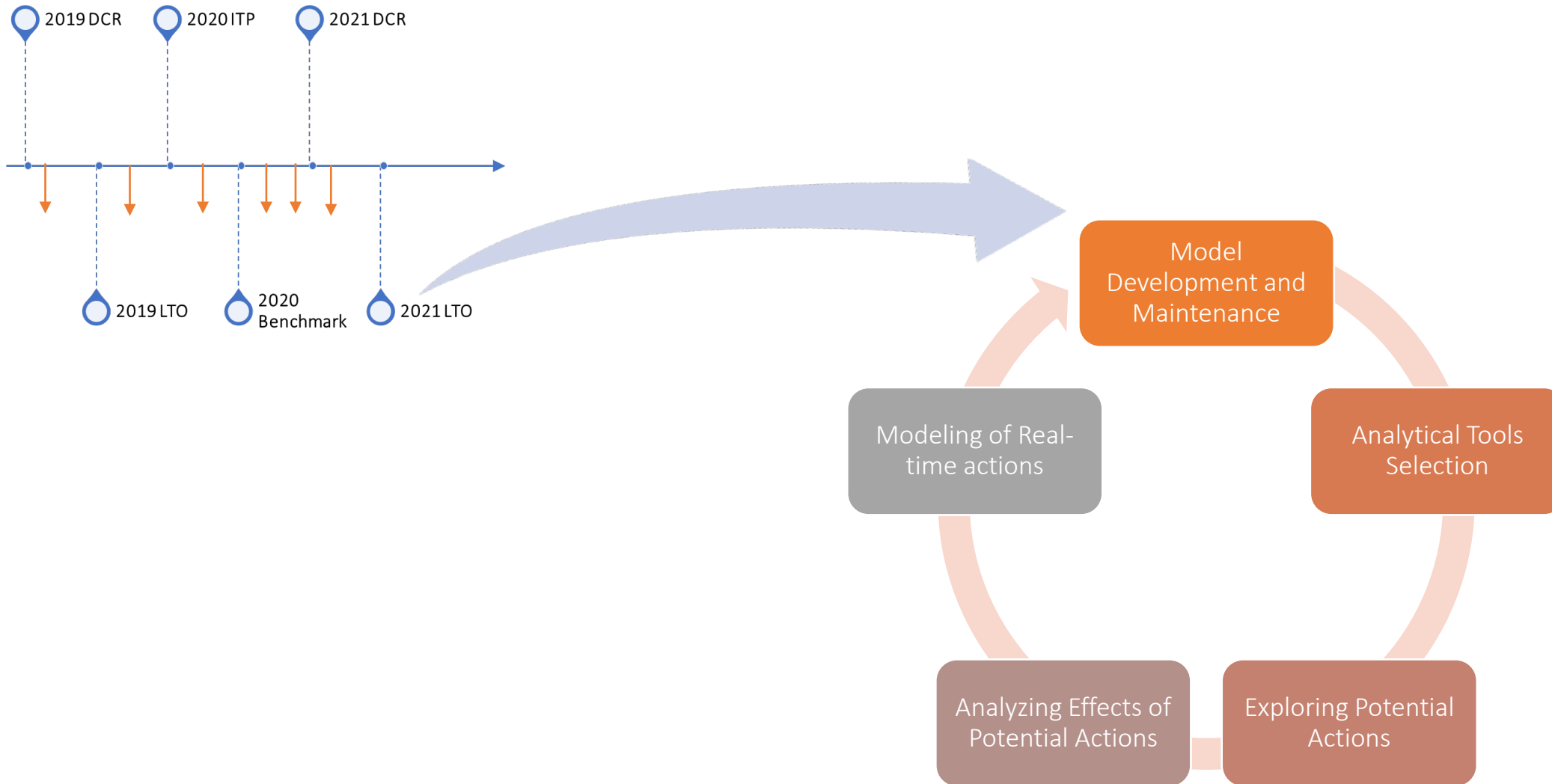
Analyzing Long-term Effects of Alternative Actions

- Suite of models for various resource areas
- Interested Party Outreach

Real-Time Operations

- Pulse Flows
- Temperature Management
- Redd Dewatering
- Entrainment (OMR)
- Salinity (X2)
- Gate Operations
- Drought Actions
- Outreach within implementing agencies

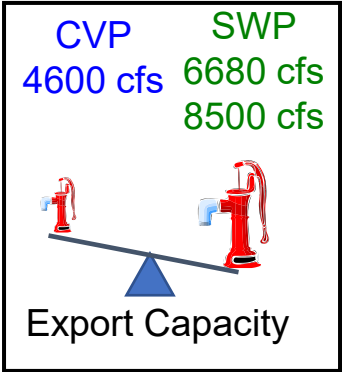
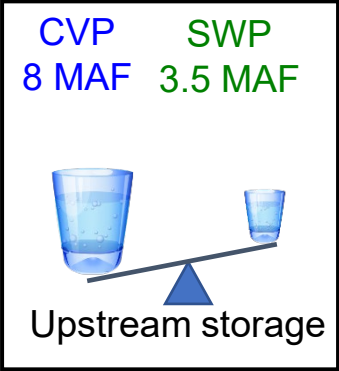
The "Modeling" Cycle



CalSim

- Evaluates water supply reliability of the CVP/SWP
 - At a consistent level of development (land use and population determine demands)
 - Under specified regulatory criteria
 - With specified facilities (storage and conveyance)
 - Over a range of hydrologic conditions provided by an historical timeseries
- Comparison is the best way to use CalSim results
 - Baseline Scenario vs. Alternative Scenario
 - Differences between model runs can depict the effect of facilities, regulations, operations, climate change, etc...
- Operations planning model, not a predictive model
- Due to evolving historical conditions – regulations, demands, facilities
 - CalSim is not “calibrated” (a 2004 exercise did produce a calibrated version for demonstration)

Project Features and Hydrologic Input



Trinity
2.4 MAF

Shasta
4.5 MAF

Oroville
3.5 MAF

Folsom
1.0 MAF

Banks PP Jones PP
10,300 cfs 4,600 cfs

Trinity

Avg inflow = 1.3 maf
Storage = 2.4 maf

Shasta

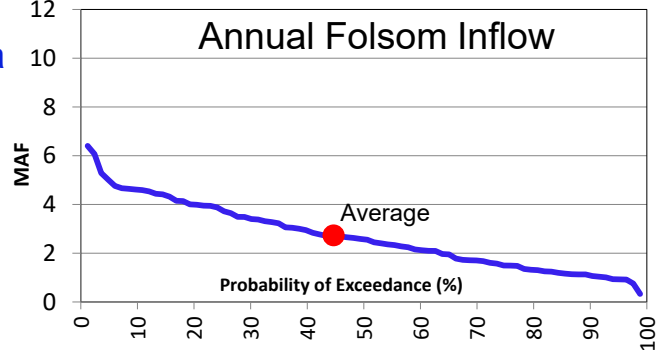
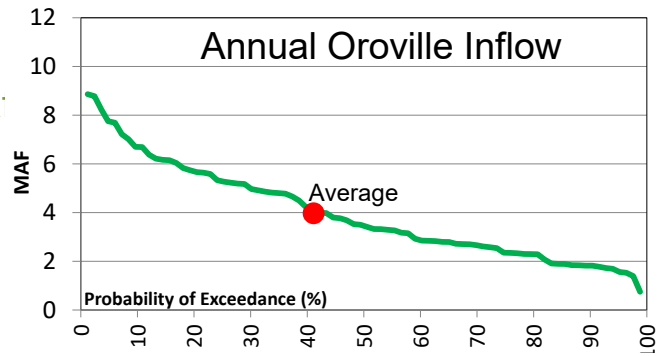
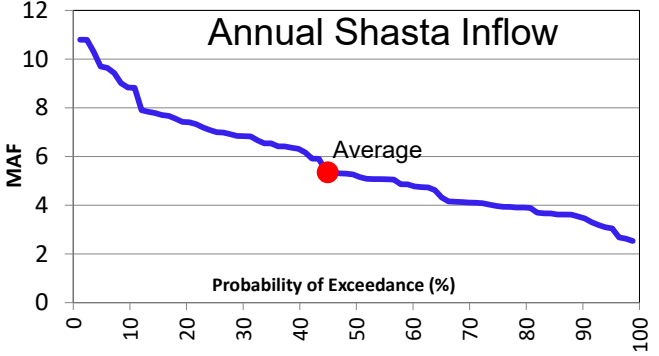
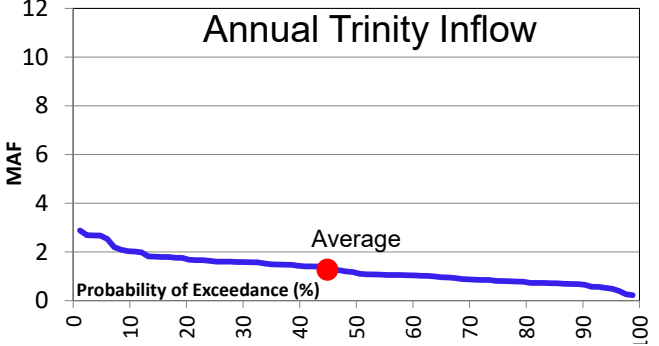
Avg inflow = 5.7 maf
Storage = 4.5 maf

Oroville

Avg inflow = 4.0 maf
Storage = 3.5 maf

Folsom

Avg inflow = 2.7 maf
Storage = 1.0 maf

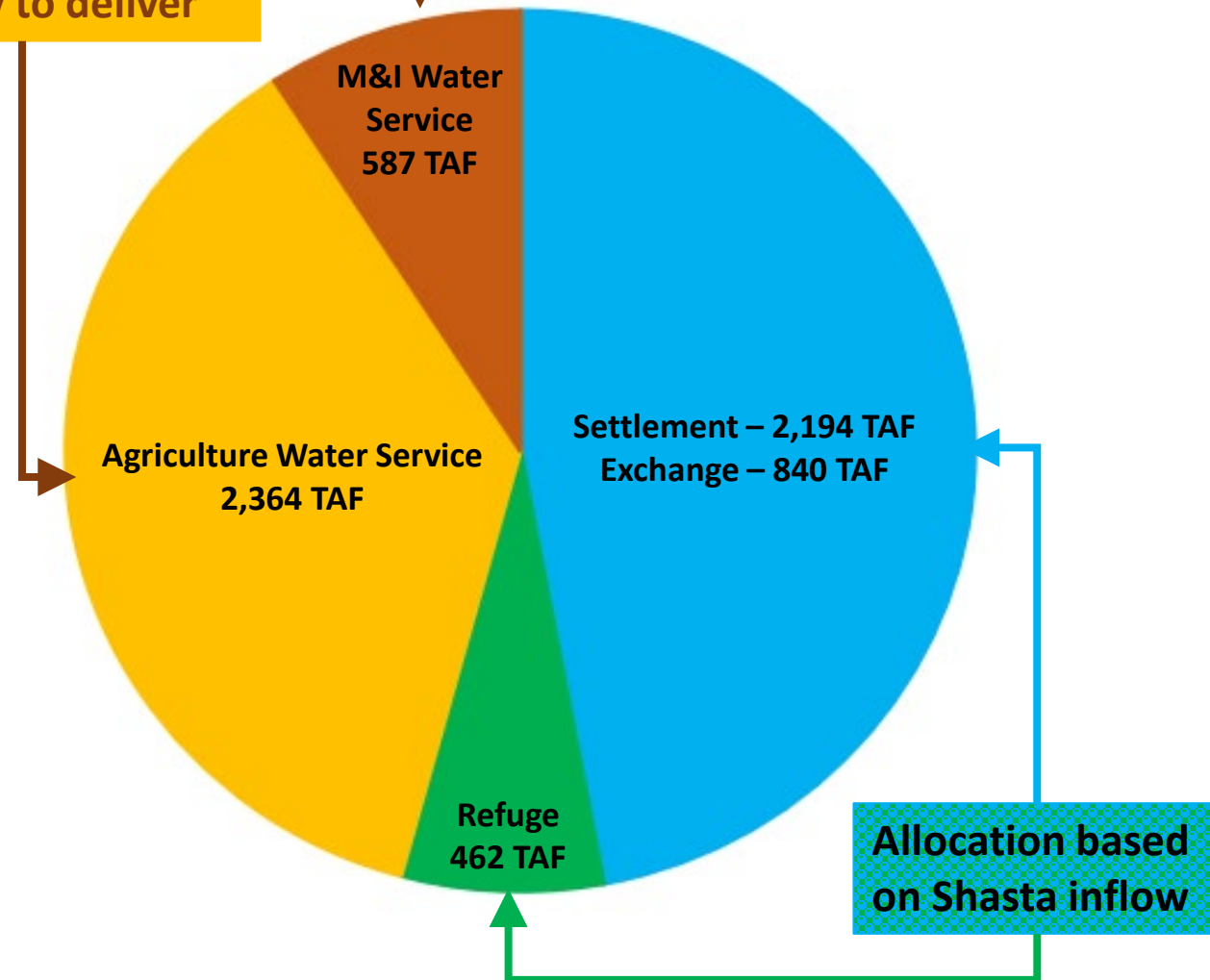


Project Obligations

- Flood Control
- Legislation and Senior Water Rights
 - Instream Flows
 - Refuge Contracts
 - Sacramento River Settlement Contractors
 - San Joaquin River Exchange Contractors
- Regulatory Criteria
 - SWRCB D-1641
 - Biological Opinions – USFWS, NMFS
 - Add'l SWRCB/FERC/Other standards
- Coordinated Operations with the State Water Project
- Water Supply
 - CVP M&I Service Contractors
 - CVP Agricultural Service Contractors

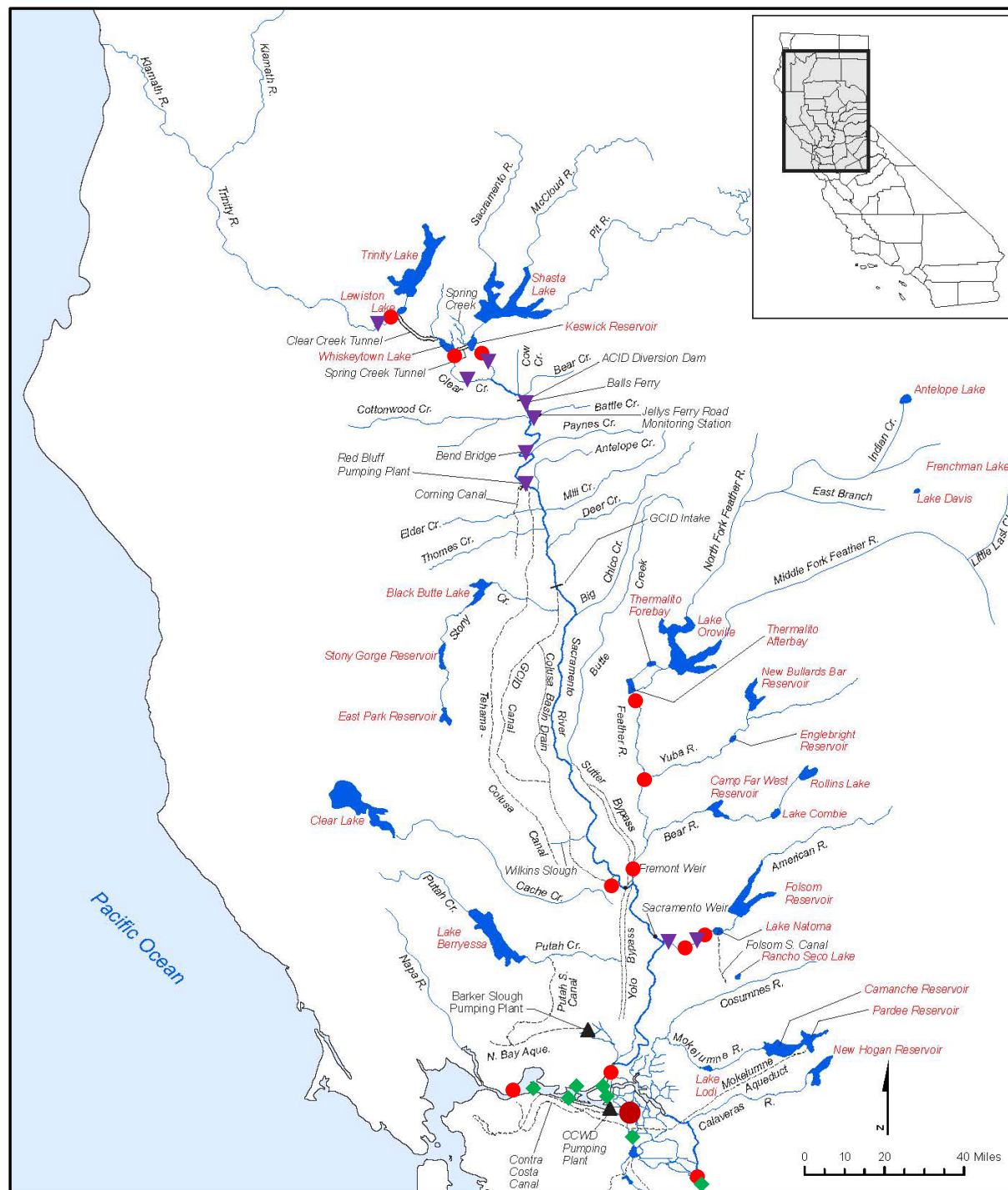
Allocation based on
available water supply
and ability to deliver

CVP Contract Summary



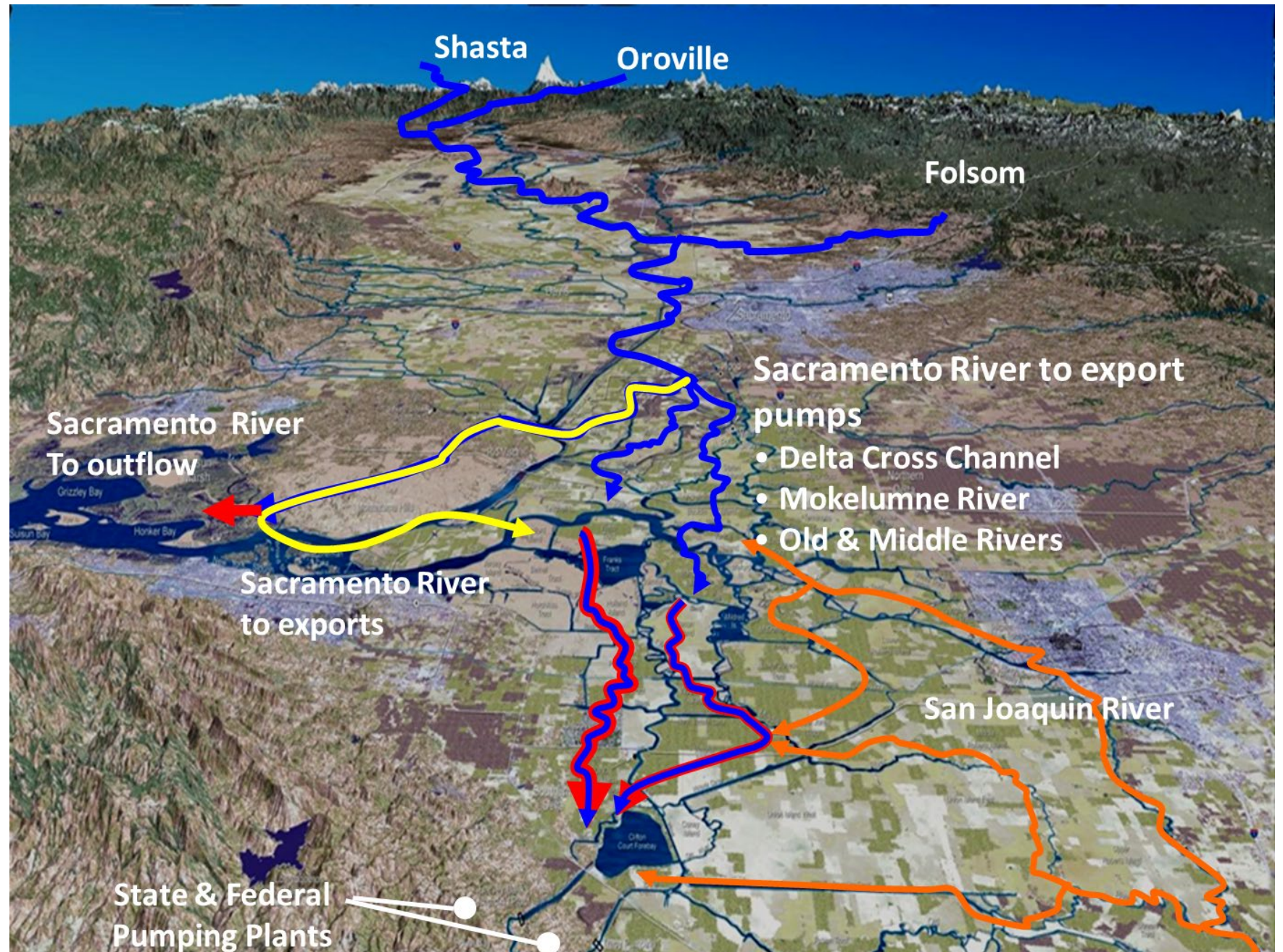
Settlement/Exchange Contracts do not include Schedule II water rights or Tri-Dams
Includes assumptions on split between agricultural and M&I amounts for mixed use contractors. M&I does not include dry year contract for up to 133,000 acre-feet with EBMUD. Graphic Design courtesy of MBK Engineers

Project Obligations



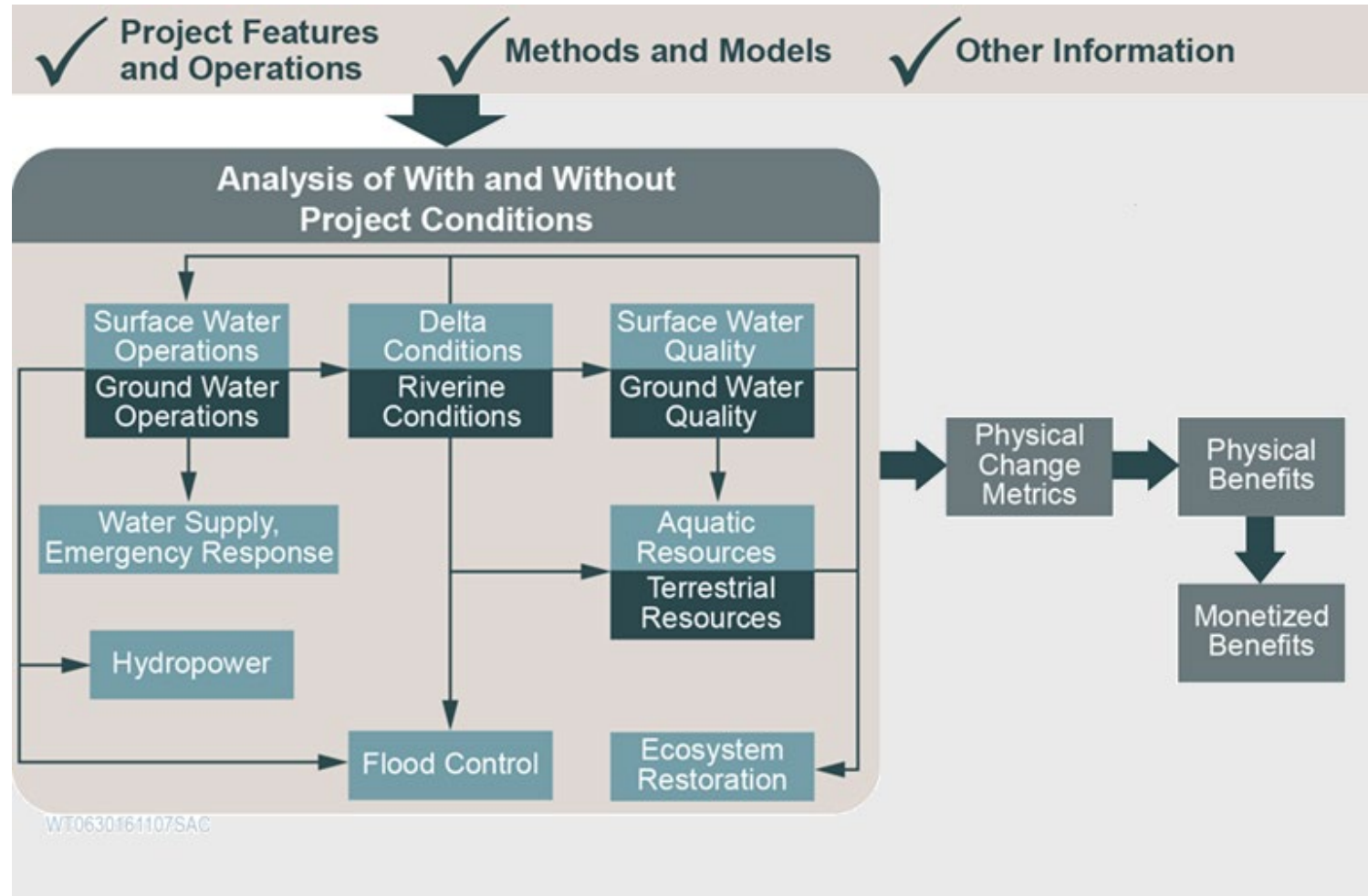
- Flow requirement
 - ▲ Temperature Requirement
 - ◆ Water Quality Requirement *
- *There are more locations in the Delta than shown here.
- Other regulatory requirements such as OMR, DCC, D1641 SJR 1:1

Project Obligations



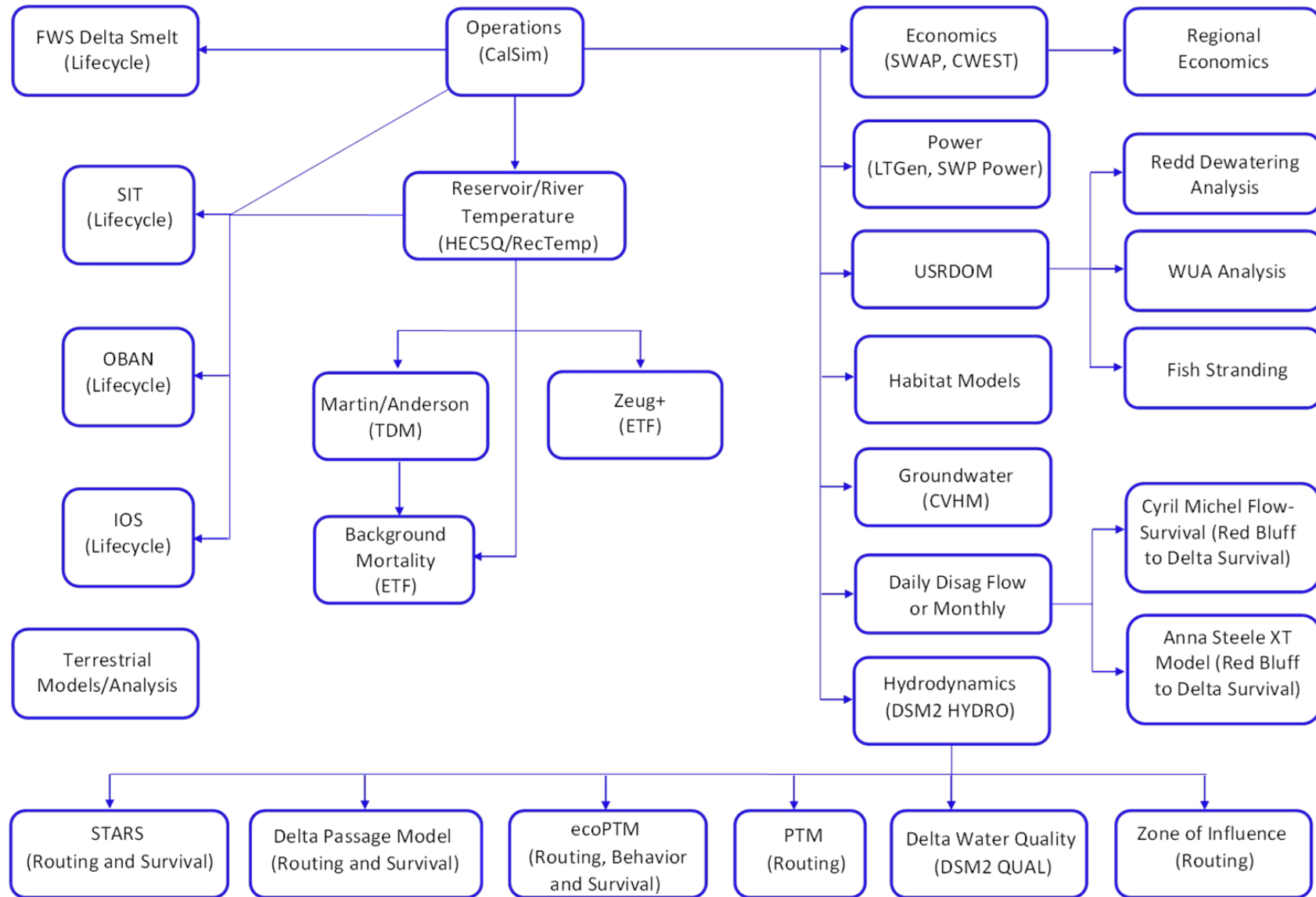
Typical Planning Analysis Framework

- Surface Water Operations: CalSim3
- Delta Conditions: DSM-2
- Surface Water Quality (Water Temperatures): HEC-5Q



Source: WSIP Technical Reference Document.

LTO Modeling Framework



Derya Sumer , Bay Delta Office Modeling Division
Manager

dsumer@usbr.gov

www.usbr.gov/mp/bdo



— BUREAU OF —
RECLAMATION

Climate Change Data Development

