Bureau of Reclamation
Mid-Pacific Region

California Department
of Water Resources

Upper San Joaquin River Basin Storage Investigation

Workshop 1

May 29, 2002

Agenda

- Welcome and Introductions – Bill Luce and Mark Cowin
- Workshop Purpose and Ground Rules – Charles Gardiner
- Investigation Overview – Jason Phillips
- Participant Roles – Coral Cavanagh
- Phase I Approach – Bill Swanson
- Lunch
- Planned Technical Activities
  - Modeling – Yung-Hsin Sun
  - Engineering – David Rogers
  - Environmental – Bill Swanson
- Next Steps and Meeting Review

Workshop Purpose

- First Workshop
  - Introductory Presentations and Discussion
- Project Overview
  - CALFED Context
  - Planning Objectives and Roles
  - Planned Activities and Schedule
- Initial Input
  - Problems to Address
  - Process and Roles

Workshop Ground Rules

- Commit to Being Fully Present
  - No cell phones, pagers, voicemail, etc.
  - Ask for what you need from the meeting process and participants
- Honor Our Time Limits
  - Keep comments and discussion concise
  - Stay focused on the topic – Use the parking lot for other issues
- Respect Each Other
  - Listen carefully to other team members
  - Respond to ideas and issues, not individuals
- Support Constructive Discussion
  - Suggest improvements and solutions
  - Build on others' ideas – Use "and" instead of "but"

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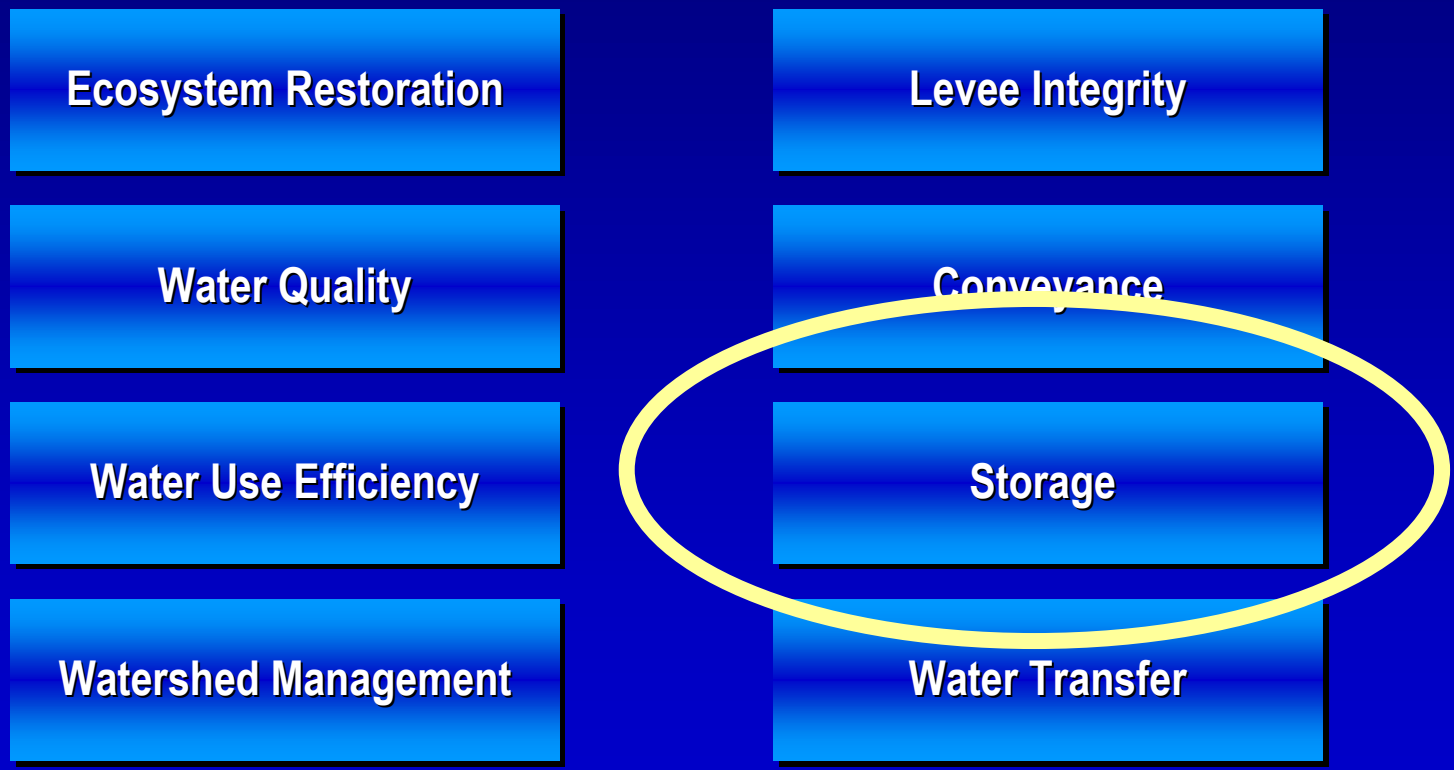
INVESTIGATION OVERVIEW

- Background
- Investigation Focus
- Relationship to Other Projects and Programs
- Investigation Schedule

CALFED PROGRAMS
Overview

"Develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system."

CALFED PROGRAMS
Programs Established in Record of Decision



CALFED PROGRAMS
Goals of Storage Program

- Improve water supply reliability
- Provide water for environmental needs
- Provide flows timed to maintain water quality
- Protect levees through coordinated operations with flood control reservoirs

CALFED PROGRAMS
Storage Options

- Surface storage projects to be pursued
  - In-Delta storage
  - Expand Shasta Reservoir
  - Expand Los Vaqueros Reservoir
- Surface storage requiring further consideration
  - Sites Reservoir
  - Additional storage in Upper San Joaquin watershed
- Groundwater storage and conjunctive use
- Groundwater management

UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION – Objectives that May Be Addressed by Increasing Storage

- Contribute to restoration of San Joaquin River
- Improve water quality in San Joaquin River
- Improve water quality of urban deliveries
  - Facilitate conjunctive water management and water exchanges
- Assist in solving other regional problems

Upper San Joaquin River Basin Storage Investigation – Measures Considered

- Enlarge existing storage facilities
- Add new surface storage
- Expand conjunctive management

UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION – Relationships to Other Programs

- Interaction with Other CALFED Programs
  - Other Surface Storage Investigations
  - Conjunctive Management Investigations
  - Other CALFED Programs

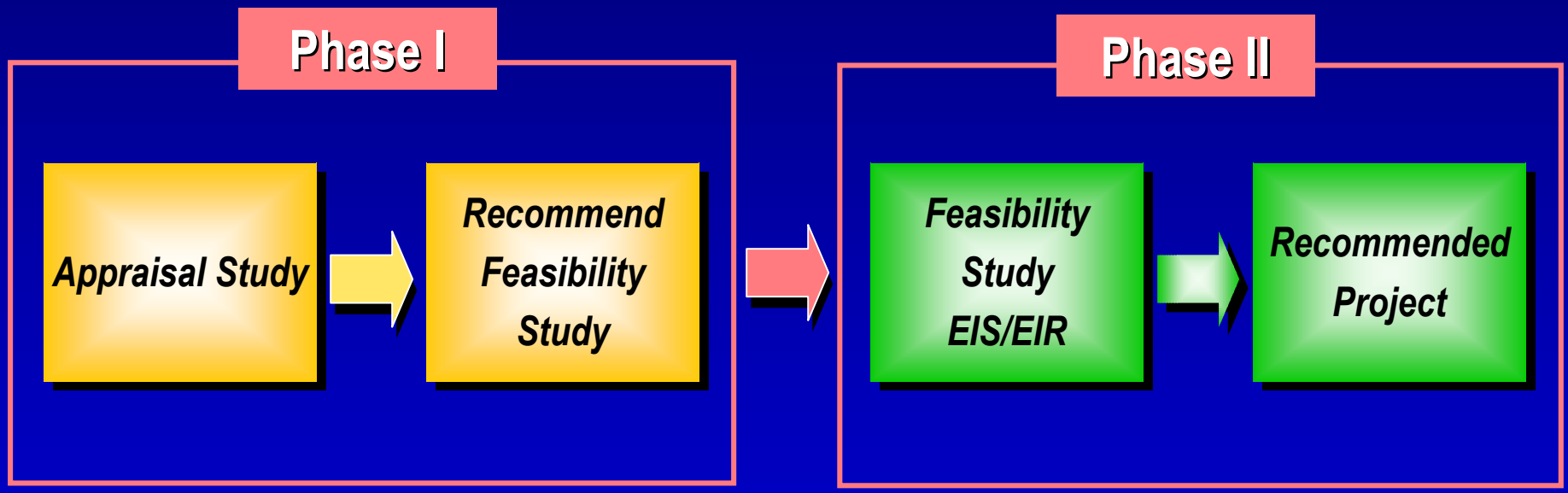
UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION – Relationships to Other Programs

- San Joaquin River Restoration Water Supply Plan
  - FWUA/NRDC ongoing study
  - USJRBSI will focus on storage, which is a portion of options identified in San Joaquin River Restoration Water Supply Plan
  - USJRBSI will review and incorporate technical work and applications, where available
  - USJRBSI has broader goals, alternatives focused on new storage

UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION – Relationships to Other Programs

- Sacramento and San Joaquin River Basins Comprehensive Study (USACE/Rec. Board)
  - Shares some objectives with USJRBSI
  - May result in projects that would benefit both programs
- CVP Yield Replacement
- Others (e.g. VAMP)

UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION – A Two-Phase Investigation Approach



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Roles

- Stakeholder Participants
  - Local Expertise and Input
- Planning Team
  - Provides Opportunities to Participate
- What You Can Expect
  - Interaction
  - Information
- What We Ask From You
  - Principles of Participation
    - Attend, Share Ideas, and Learn
  - Comments and Suggestions

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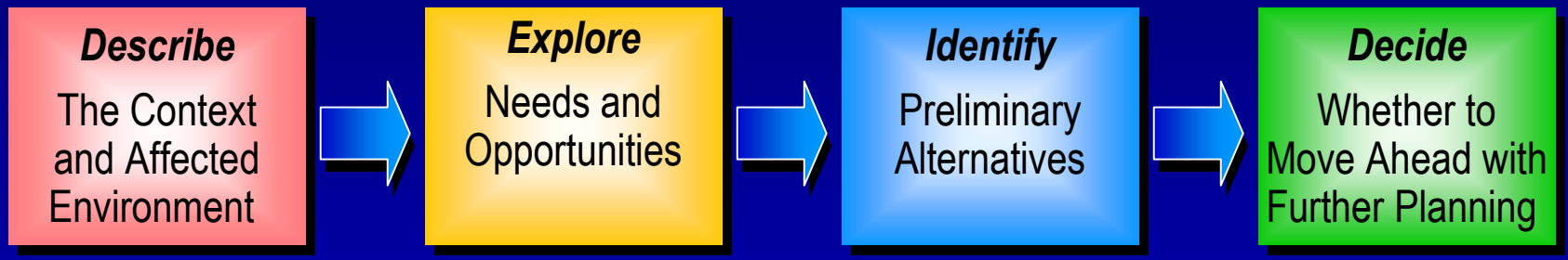
PLANNING APPROACH
Focus of the Phase I Investigation

- Consider increasing water supplies through the enlargement of Millerton Lake or a functionally equivalent storage program
- Coordinate with other Federal, State, and Regional programs and projects
- Recommend continued study
  - If a Potential Project appears viable
  - With Federal and State interests
  - With identified potential project partners
- Define scope of feasibility study and impact analysis

PLANNING APPROACH
Phase I Approach



- Problems
- Objectives
- Constraints
- Existing Conditions
- Future Conditions

- Opportunities
- Management Measures
- Test for Functional Equivalence

- Preliminary Alternatives
- Applying Continuation Criteria

PLANNING APPROACH
Problems – Local and Regional

- Water Supply
- Ecosystem Conditions
- Operational Flexibility
  - Conjunctive Management
  - Water Exchanges

PLANNING APPROACH
Problems – State-wide

- Water Supply
- Ecosystem Conditions
- Delta Water Quality and Quantity
- CVP/SWP Operational Flexibility

PLANNING APPROACH
Planning Objectives – Local and Regional

- Increase Water Supply
  - River Restoration
  - Conjunctive Management
  - Water Exchanges

PLANNING APPROACH
Planning Objectives – State-wide

- Contribute to State Water Supply
  - Delta Water Quality and Quantity
  - CVP/SWP Operational Flexibility
- Contribute to State Ecosystem Restoration

PLANNING APPROACH
Planning Constraints

- Authorities, Regulations, Programs, and Groups
  - Federal authorities and regulations
  - State authorities and regulations
  - Regional and local MOUs and agreements
- Guidance Tool – Understand how these constraints may affect investigation

PLANNING APPROACH
Planning Constraints – Examples

- Federal authorities and regulations
  - CVPIA, NEPA, etc.
- State authorities and regulations
  - Area-of-Origin Statues, CEQA, etc.
- Regional and local MOUs and agreements
  - San Joaquin River Management Agreement, Mammoth Pool Agreement, etc.

PLANNING APPROACH
Define Existing Conditions

- Historic and Current Water Uses
  - Hydrology
  - CVP Contracts
  - Facility Operations
- Environmental Issues
  - Regulatory Requirements
  - Existing Habitat
  - Cultural Resources
  - Recreation

PLANNING APPROACH
Define Future Without-Project Conditions

- Planning Horizon
- Future Water Demands
  - Irrigation
  - Municipal & Industrial
  - Restoration
- Other CALFED or Local Programs

PLANNING APPROACH
Management Measures to be Considered

- Surface Storage
  - Enlarge Conservation Storage in Existing Facilities
  - Construct New Surface Storage
- Conjunctive Management
  - Enhance Existing Conjunctive Management
  - Initiate New Conjunctive Management

PLANNING APPROACH
Qualifying Criteria for Management Measures

- Contribute to CALFED Objectives
  - Address Regional Problems
  - Contribute to State-Wide Needs
- Contribute to Other Objectives
- Functional Equivalence

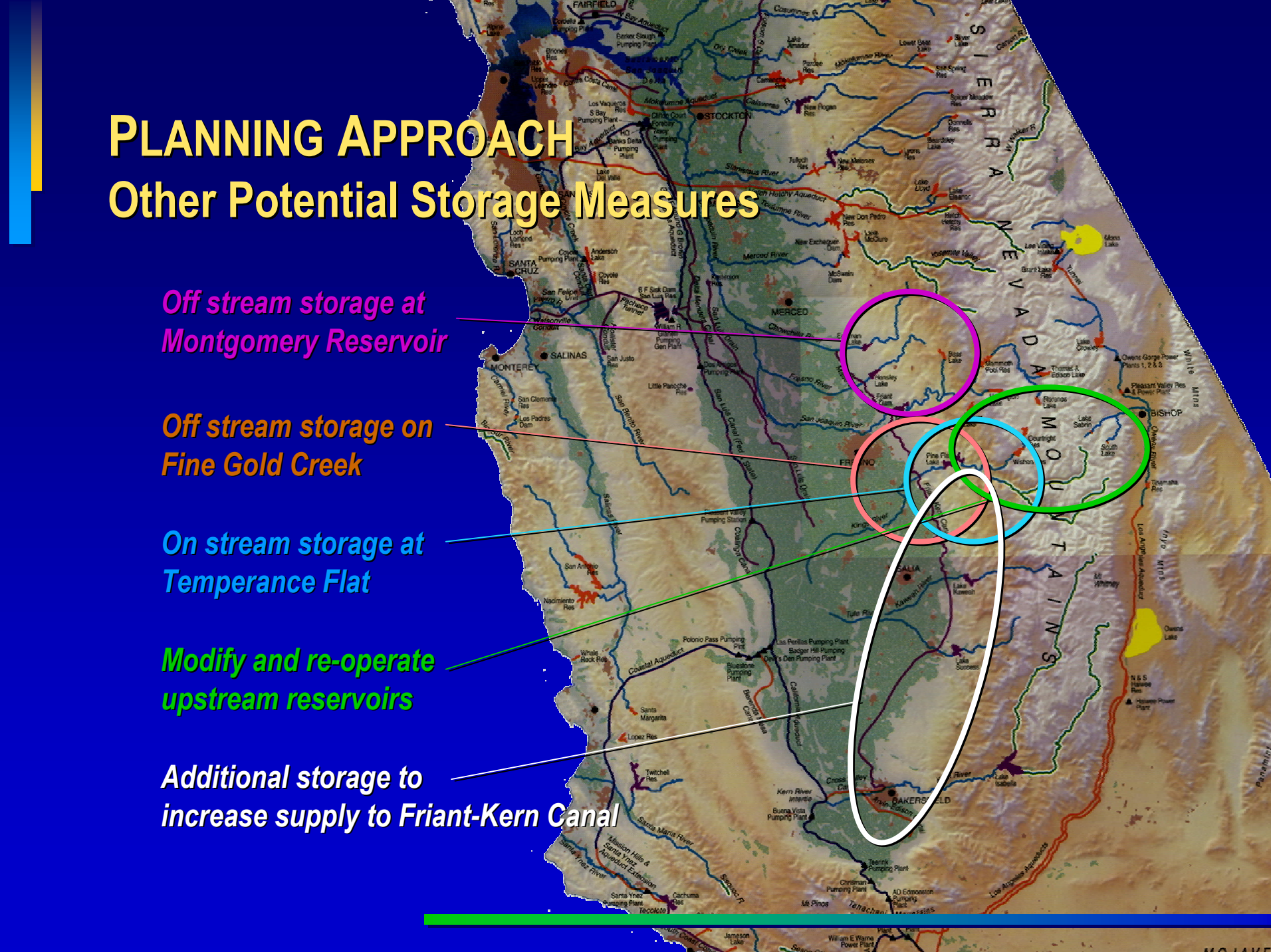
PLANNING APPROACH
Defining Functional Equivalence

- Potential Accomplishments of Enlarged Millerton Lake
  - Restoration Water Supply
  - Enhanced Conjunctive Management
  - Enhanced Water Exchanges
  - Increased Flood Protection
  - Hydropower Generation
  - Recreation
- Stakeholder Participation to Identify Ranges

PLANNING APPROACH

Example of Measures – Enlarge Friant Dam

PLANNING APPROACH
Other Potential Storage Measures



PLANNING APPROACH
Continuation Criteria

- Meet CALFED Objectives
  - Water Supply Benefits
- Consistent with Federal Principles and Guidelines
  - National Economic Development
  - National Ecosystem Restoration
- Consistent with State Planning Guidelines
- Identified Non-Federal Sponsor(s)

PLANNING APPROACH
Phase I Schedule

- Summer 2002
  - Field Reviews
  - Describe Existing Conditions
  - Develop Without-Project Conditions
  - Modify CALSIM II Model
  - Identify Storage Measures
- Fall 2002
  - Initial Review of Storage Measures

PLANNING APPROACH
Phase I Schedule

- Winter / Spring 2003
  - Develop Preliminary Alternatives
  - Evaluate Preliminary Alternatives
- Summer 2003
  - Phase I Investigation Report
- Fall 2003 (If Warranted)
  - NOI / NOP for Feasibility Study EIS / EIR

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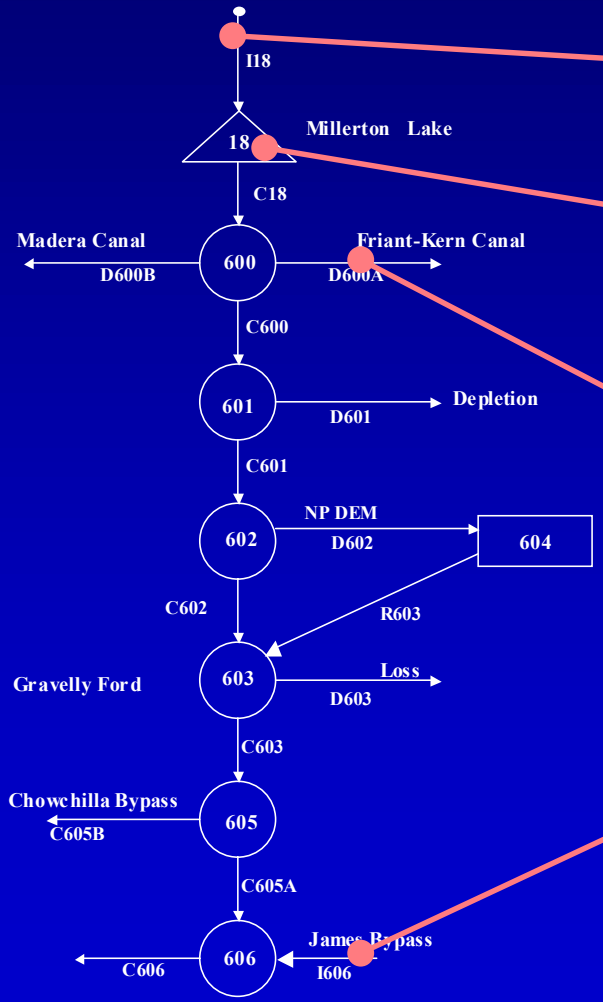
HYDROLOGIC MODELING APPROACH
Existing CALSIM II Features



Millerton Inflow: Preprocessed Flows Based on Historical Records

Millerton Lake: Flood Operation Without Forecast-Based Dynamic Storage Allocation

F-K Canal: Preprocessed Delivery Used as Demand; No Distinction Among Class I, Class II and Section 215 Waters

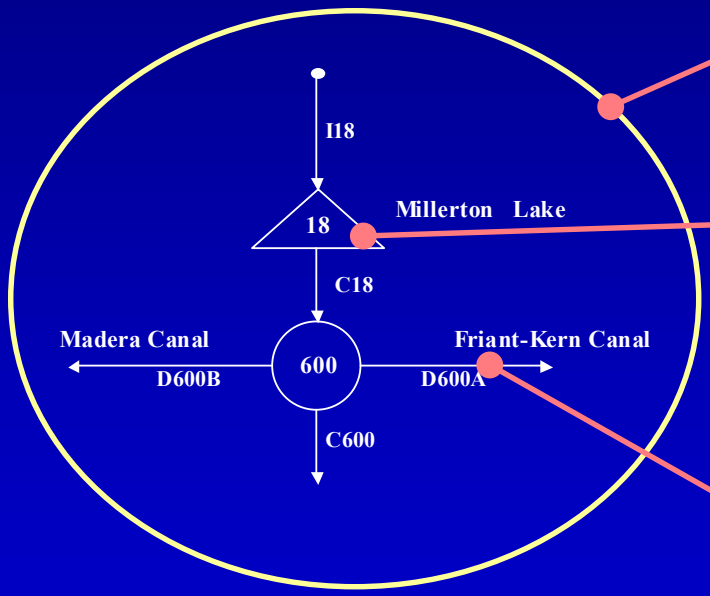
James Bypass: Preprocessed Flows Based on Historical Records

HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Revise Millerton Lake Operation Logics
- Add Potential San Joaquin River Facilities
- Add Potential Merced River Facilities
- Add Existing and Potential Tulare Lake Basin Facilities

HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Revise Millerton Lake Operation Logics



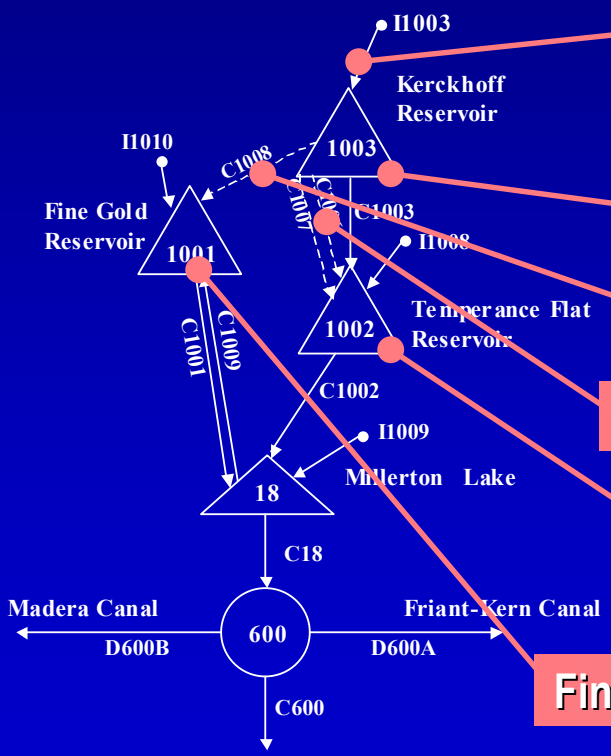
Based on the BASE MODEL Developed Through NRDC/FWUA Recent Study

Dynamic Flood Operation Based on USACE's Flood Control Manual

More Realistic Delivery Allocations to Class I, Class II, and Section 215 Waters

HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Add Potential San Joaquin River Facilities



Upstream Inflows and Potential Facilities Evaluated by USAN

Kerckhoff Reservoir (Extended Model Boundary)

Diversion Tunnel to Fine Gold Reservoir

PG&E Power Generation Facilities (K1, K2)

Temperance Flat Reservoir

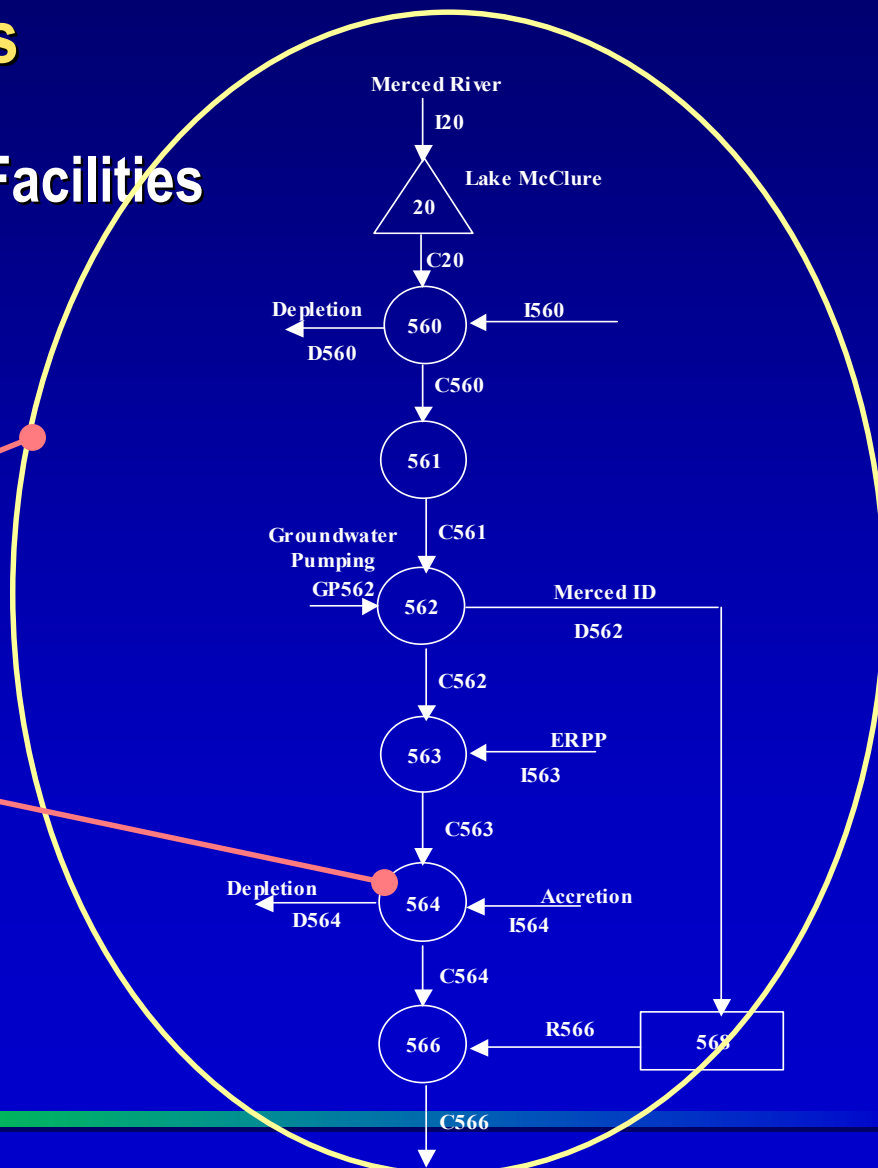
Fine Gold Reservoir and Pump Storage Operation

HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Add Potential Merced River Facilities

Existing CALSIM II Features in the Merced River Basin above Dry Creek Confluence

Dry Creek Confluence

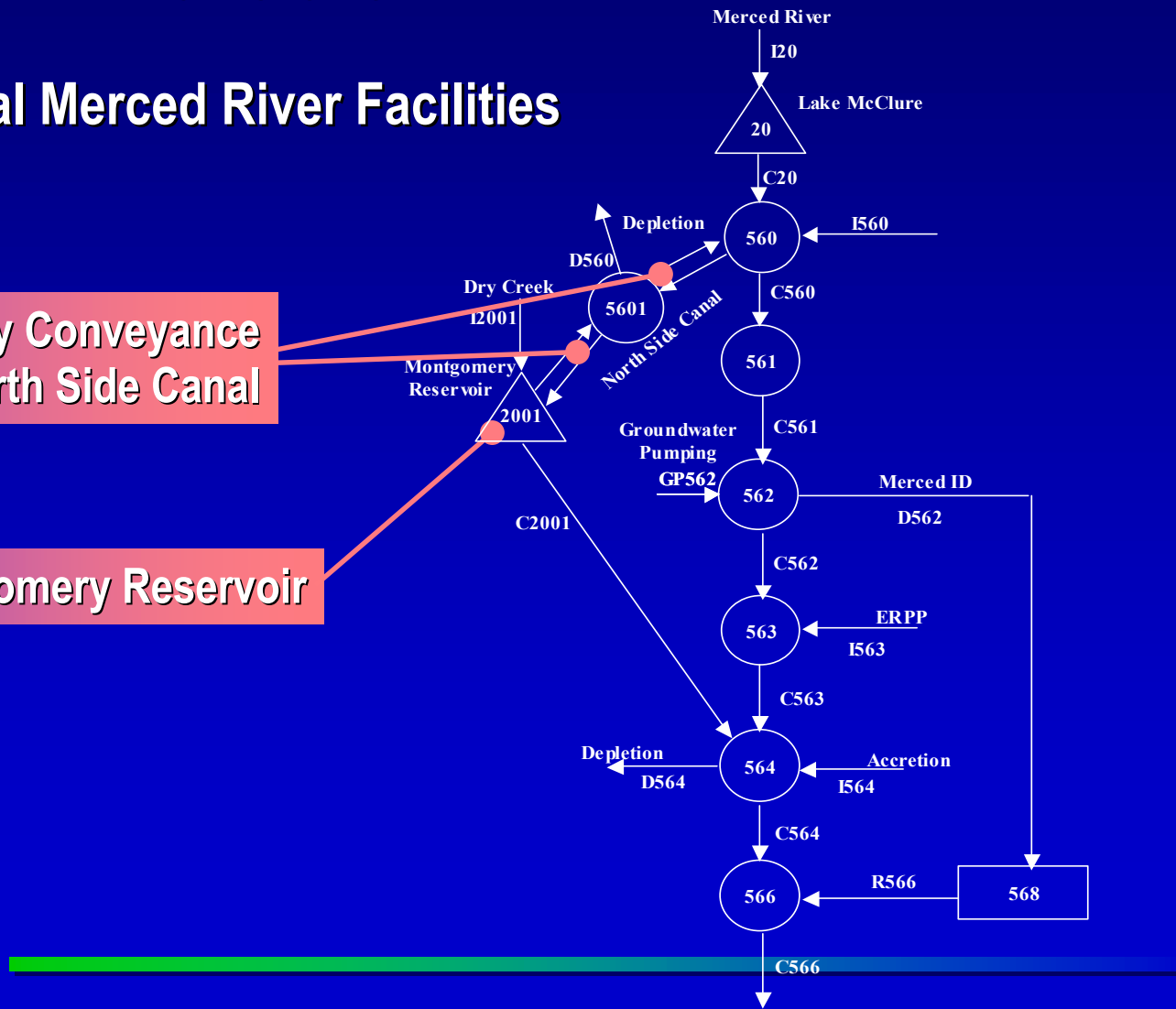


HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Add Potential Merced River Facilities

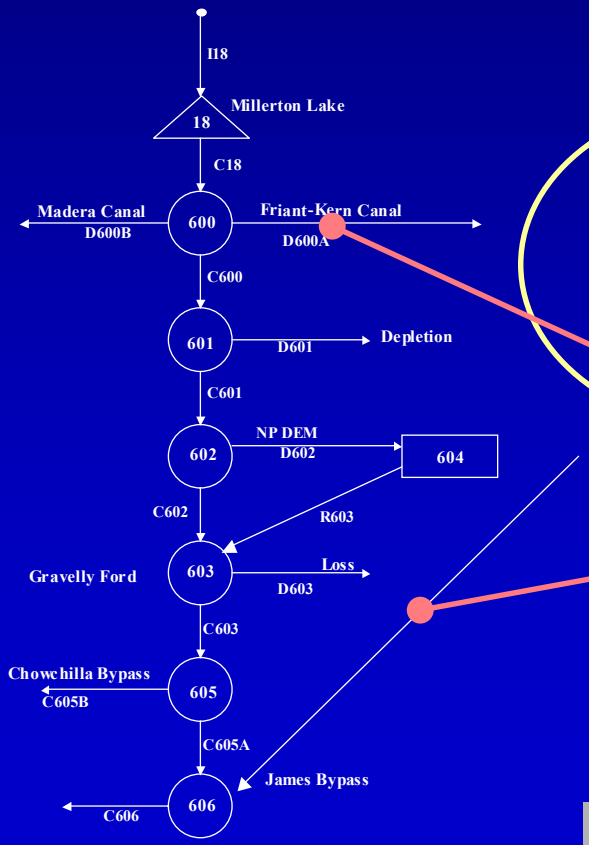
Two-way Conveyance Through North Side Canal

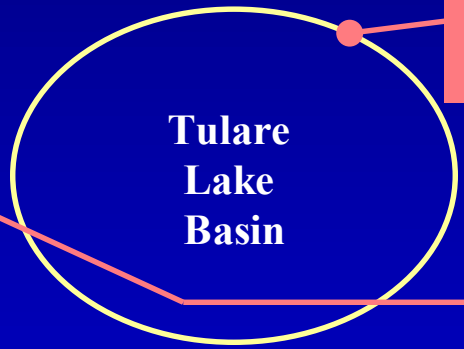
Montgomery Reservoir

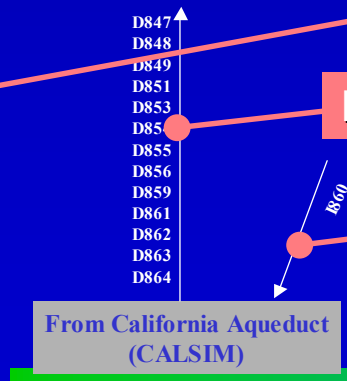


HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Add Existing and Potential Facilities in Tulare Lake Basin







Existing CALSIM II Does not Model the Operations in Tulare Lake Basin

Preprocessed Friant-Kern Canal Deliveries

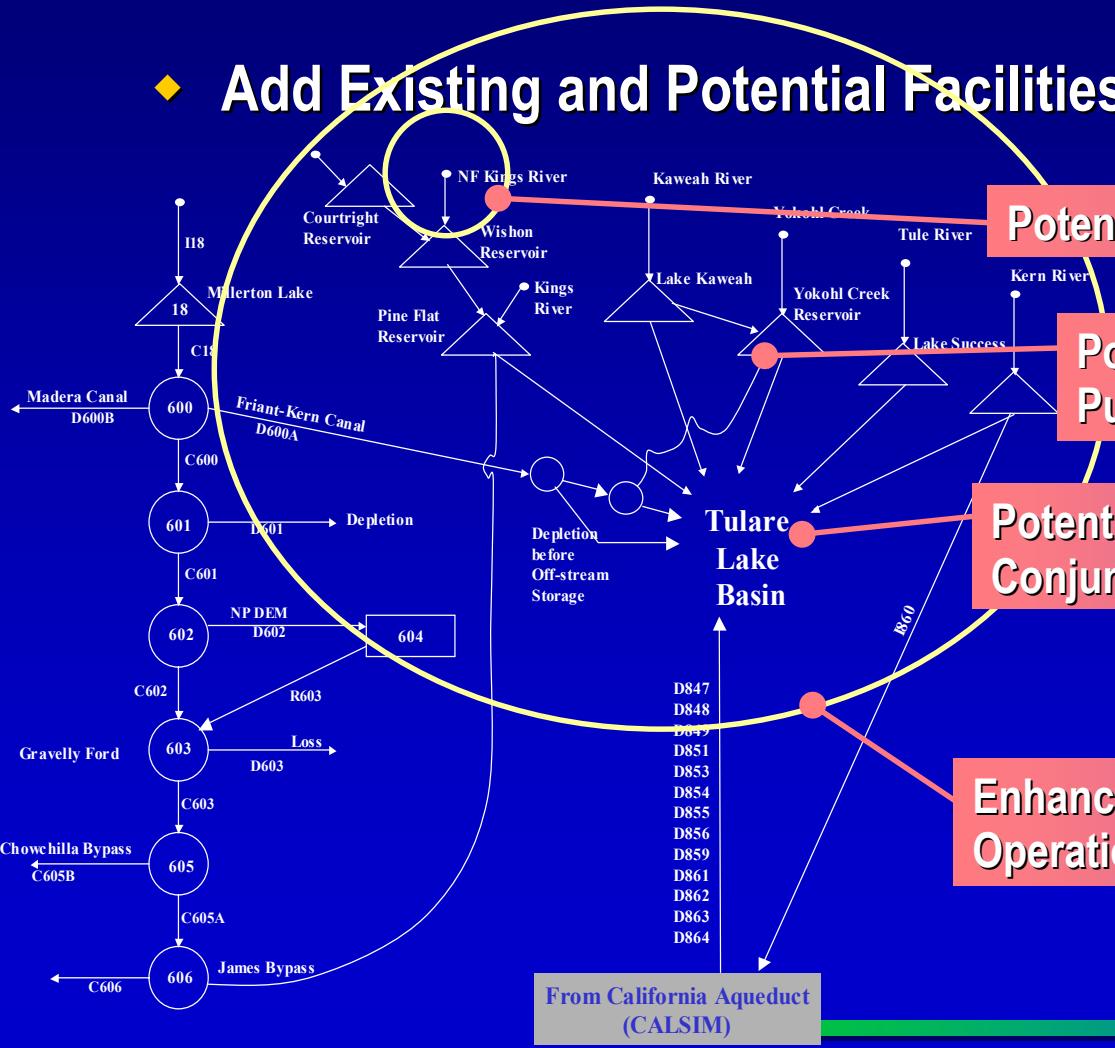
Preprocessed James Bypass Outflows

Preprocessed California Aqueduct Deliveries

Preprocessed Kern River Intertie Inflows

HYDROLOGIC MODELING APPROACH
Proposed CALSIM II Revisions

- Add Existing and Potential Facilities in Tulare Lake Basin



Potential Upstream Storage Measures

Potential Off-stream Storage and FKC Pump Storage Operation

Potential Groundwater Conjunctive Use Measures

Enhanced Resolution for the Operations in the Tulare Lake Basin

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TECHNICAL STUDIES IN PHASE I INVESTIGATION
Surveying and Mapping

- Recent Aerial Photography
  - 5 - foot contours for reservoir areas
  - 2 - foot contours at potential dam sites
- Other Existing Information

TECHNICAL STUDIES IN PHASE I INVESTIGATION
Storage Site Considerations

- Site Features
  - Access
  - Layout
- Ranges of Sizes
- Dam Design Options
- Potential Additional Features
  - Hydropower
  - Tunnels

TECHNICAL STUDIES IN PHASE I INVESTIGATION
Cost Considerations

- Initial Costs
  - Construction
  - Borrow
  - Disposal
- Annual Costs
- Local Availability of Resources

TECHNICAL STUDIES IN PHASE I INVESTIGATION
Constructability

- DSOD Coordination and Approval
  - Seismic Design Requirements
  - Flood Routing During Construction
  - Spillway Design
- FERC Requirements for Power Features

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TECHNICAL STUDIES IN PHASE I INVESTIGATION
Environmental Review

- Objectives
  - Appraisal Description of Existing Conditions
  - Potential Impacts due to Storage Site Construction
  - Qualitative Mitigation Requirements
- Approach
  - Literature Review
  - Site Observations
  - Focus on construction-related issues

TECHNICAL STUDIES IN PHASE I INVESTIGATION
Environmental Review

- NDDB Review
- "Gross" Estimate of Habitat Types
- Likely Effects on Existing Facilities
- Cultural Resources Issues
- Unique Environmental Characteristics

TECHNICAL STUDIES IN PHASE I INVESTIGATION
Potential Benefits

- Regional and Local VS Statewide
- Quantifiable VS Qualitative
- Potential Benefit Categories
  - Water supply (Ag, M&I, Restoration)
  - Water quality (M&I, Restoration)
  - Hydropower
  - Flood damage reduction
  - Recreation

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