Mokelumne River Inter-Regional Conjunctive Use Project (IRCUP)

Technical Memorandum: IRCUP Work Plan

DRAFT

Prepared for:

Mokelumne River Forum

In coordination with:

California Department of Water Resources
Division of Planning and Local Assistance
Conjunctive Water Management Branch

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MOKELUMNE RIVER FORUM

MOKELUMNE RIVER INTER-REGIONAL CONJUNCTIVE USE PROJECT (IRCUP)

WORK PLAN

DECEMBER 30, 2007

1. Introduction

1.1 Background and Context

Mokelumne Inter-Regional Conjunctive Use Project

The Mokelumne River Inter-Regional Conjunctive Use Project (IRCUP) is a proposal by the Mokelumne River Forum to conjunctively manage a portion of the Mokelumne River water supplies. The basic project concept is to store a portion of available surface water supplies in the Eastern San Joaquin Groundwater Basin for subsequent regional and inter-regional use to meet diverse needs of the project partners. The overall concept is based on the premise of a three-way groundwater banking, exchange and transfer agreement where the IRCUP would provide greater water supply sustainability, reliability, and drought protection benefits in [1] Alpine, Amador, and/or Calaveras counties (Counties of Origin), [2] San Joaquin County[1], and [3] East Bay Municipal Utility District (EBMUD).

Mokelumne River Forum

The Mokelumne River Forum (Forum) was formally established in June 2005 through a Memorandum of Understanding (MOU). The MOU commits participants to a collaborative process aimed at defining mutually beneficial and regionally focused water supply solutions to meet diverse water supply needs and resolve associated conflicts. MOU participants are identified below.

- Alpine County,
- Amador County,
- Amador Water Agency,
- Calaveras County Water District,
- Calaveras Public Utility District,
- Central San Joaquin WCD,
- City of Lodi,
- City of Stockton,
- Department of Water Resources,
- East Bay Municipal Utility District,
- Jackson Valley Irrigation District,
- Mokelumne River WPA,
- North San Joaquin WCD,
- San Joaquin County,

[1] The IRCUP project would be a component of the Eastern San Joaquin County Groundwater Banking Authority's overall Integrated Conjunctive Use Program for the Eastern San Joaquin Basin (ICU Program).

- Stockton East Water District, and
- Woodbridge Irrigation District.

In addition to these signatories, the Forum is committed to an "open door" policy, inviting other involved or potentially affected organizations and interest groups to participate in the collaborative process. Examples of such groups include:

- California State Legislature,
- Calaveras County,
- Central Delta Water Agency,
- Delta Keeper,
- Foothill Conservancy,
- Nature Conservancy,
- Natural Heritage Institute,
- San Joaquin Farm Bureau,
- South Delta Water Agency,
- San Joaquin County Flood Control Agency,
- San Joaquin County Resource Conservation District,
- Stanislaus County, and
- Upper Mokelumne River Watershed Council.

Foundation of the IRCUP Concept

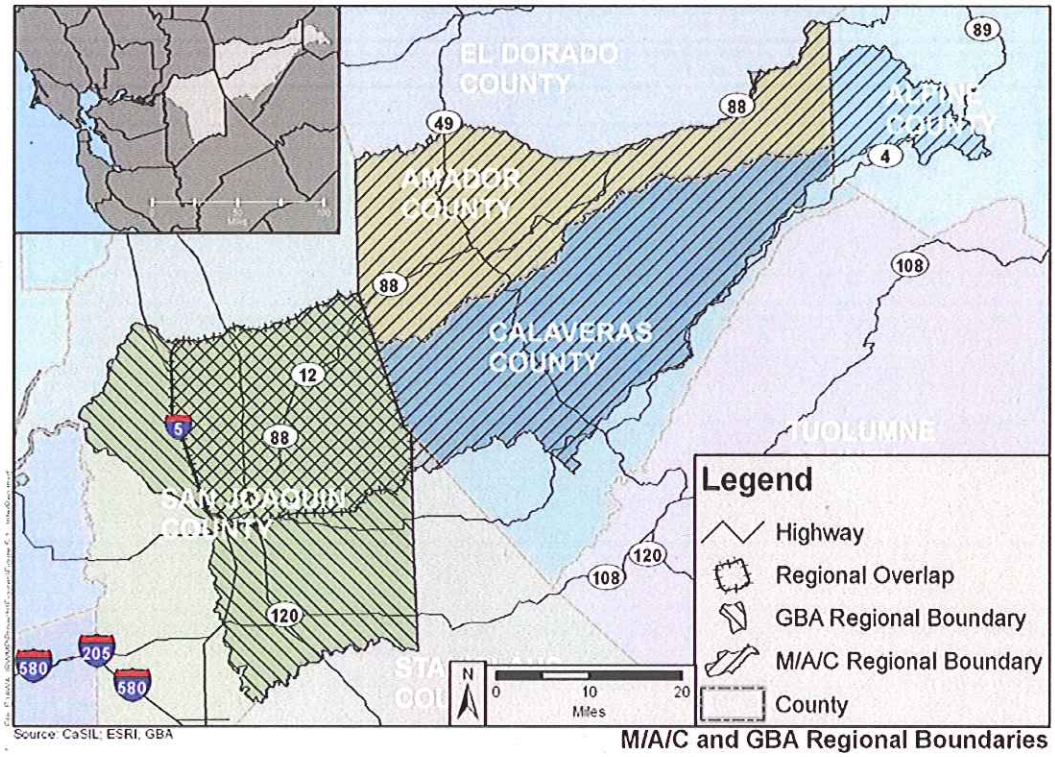
Since the latter part of 2006, the Forum has focused increasingly on exploring options for coordinating water resource planning efforts across regional boundaries. Forming the foundation for this focus are the findings and recommendations of two key, partially overlapping, IRWMP (Integrated Regional Water Management Plan) efforts in the Mokelumne River watershed: [1] the Northeastern San Joaquin County Groundwater Banking Authority's (GBA) IRWMP (2004), and [2] the Mokelumne/Amador/Calaveras (M/A/C) IRWMP for Foothill/Sierra Region (2006). The planning areas for these IRWMPs are illustrated in Figure 1.

While each of these IRWMP efforts are aimed at meeting water supply needs in their specific geographic regions, both recognize and recommend pursing unique opportunities to "leverage" available Mokelumne River water supplies through inter-regional conjunctive management (e.g. increase ability to meet needs/demands—especially in dry years, improve efficiency, resolve conflicts, solve problems and provide economic benefits).

Thus, the Forum is moving forward with investigating the IRCUP concepts, including those identified in the GBA and M/A/C IRWMPs, to determine feasibility based on water rights, institutional and legal requirements/challenges, facility requirements, size/yield, benefits/costs, and other factors.

It should be noted that while the IRCUP provides an overall and over-arching planning concept and process for a long-term viable water supply to the region, the participants may develop and implement individual project(s) that may take advantage of short-term funding opportunities that may become available from the State and/or Federal sources. However, in order to maintain appropriate level of coordination and consistency amongst the parties and to maintain consistency among the project benefits, yields, and costs, the goal of the Forum would be to develop the individual projects in the context of overall IRCUP.

Figure 1. Planning Areas for the Mokelumne IRCUP



1.2 Purpose and Scope of This Work Plan

This Work Plan is intended to guide the Forum's IRCUP planning effort through a series of increasingly detailed planning steps--exploring alternatives and assessing feasibility(from all relevant standpoints), with the ultimate goal of identifying a preferred/proposed project (or projects) and preparing an associated implementation plan.

The Work Plan is organized into four parts: Scope of Work, Team/Expertise Requirements, Schedule, and Budget (Sections 2-5, herein, respectively). The Scope of Work describes phasing and tasking according to the following outline (with presentation of team/expertise requirements, schedule and budget information reflecting this same structure):

Project Planning

Phase 1: IRCUP Base Concept Plan

- Surface Water Supply Assessment;
- Institutional, Legal and Economic Relationships and Requirements;
- IRCUP Concepts;
- IRCUP Goals and Objectives;
- IRCUP Concept Plan Report; and
- Milestone 1: Participating Agency MOU—IRCUP Concept Plan (including fundamental requirements, goals & objectives, and framework for agreement on governance, financing and other key issues).

Phase 2: Alternatives Analysis and Feasibility Study

- Part 1: Reconnaissance Study
  - IRCUP Elements
  - Preliminary Alternatives
  - Reconnaissance-Level Analysis and Screening
  - Potentially Feasible Alternatives (including checkpoint on potential near-term actions)
  - Reconnaissance Study Report
  - Milestone 2: Participating Agency MOU—IRCUP Alternatives for Feasibility-Level Study and Decision on Near-Term Actions
- Part 2: Feasibility Study
  - Engineering Feasibility—Design, Construction & Operation
  - Governance/Institutional Framework Requirements & Feasibility
  - Legal/Regulatory Requirements & Feasibility
  - Economic Feasibility
  - Permitting Feasibility
  - Synthesis and Decision: Preferred Alternative/Proposed Project
  - Feasibility Study Report
  - Milestone 3: Participating Agency MOU—Agreement on IRCUP Preferred Alternative

Phase 3: CEQA (and NEPA if required) Compliance

- Preparation Notices and Initial Consultations
- Draft EIR (or EIR/EIS)
- Public Review and Hearings
- Final EIR (or EIR/EIS)
- Decision Documents

Phase 4: IRCUP Implementation Agreement and Project Implementation Plan

- Milestone 4: Participating Agency Agreement—Governance/Institutional Framework, Financing Plan, Approach to & Responsibilities for Implementation
- Project Implementation Plan
  - Governance Plan
  - Final Project Design & Phasing
  - Contracts, Agreements and Regulatory Mechanisms
  - Project/Element-Specific CEQA (/NEPA) Compliance
  - Permitting
  - Land Requirements/Acquisition (as necessary)
  - Construction
  - Operations and Maintenance

Facilitation and Outreach

- Project Participants
- Other Significant Stakeholders
- General Public

2. Scope of Work

2.1 Overview

The IRCUP planning effort will be organized into two major Task Groups: Project Planning and Facilitation & Outreach.

Project Planning will proceed through four generally sequential phases of work, each of which serves as the foundation for the next, and involves a differing mix of team expertise requirements. The Work Plan identifies four specific milestones (a point at which project participants must assess and agree on findings to date and reaffirm their participation in the form an MOU or other agreement) to assist the Participants in documenting and accomplishing the program.

The four project planning phases are described generally below, with more detailed tasking presented in Section 2.2.

1. **IRCUP Base Concept Plan** — This initial phase of work will provide the foundation on which project participants can agree to commit the resources (time and money) necessary to proceed through a full IRCUP planning program. In order to establish this foundation, fundamental questions must be answered, concepts must be defined, and at least preliminary (conceptual) agreement must be reached related to: water supply availability, water rights, water accounting, institutional/governance relationships, economic elements/relationships, basic environmental commitments, and IRCUP form and function. Each of these areas of concern will be addressed in preparing the IRCUP Base Concept Plan and the associated MOU. The intent will be to [1] clearly define the basic contributions, roles, concerns and requirements of project participants, [2] outline solutions (or, at minimum, the approach to finding solutions) for all key (potential "show-stopper") issues, and [3] conceptually define IRCUP development and operation (including concepts regarding near-term actions and longer-term phasing). Assuming success in each of these regards, an IRCUP Concept Plan MOU (Milestone 1) will be executed, reflecting participants agreement to proceed into more detailed planning.

2. **Alternatives Analysis and Feasibility Study** — This phase of work is structured around exploration of alternative approaches to and configurations for an IRCUP, with the goal of identifying a preferred project for implementation. Work will proceed through two levels of detail:

    - **Reconnaissance Study** — There are many potential combinations of project elements that could be assembled to accomplish an IRCUP. These elements include assessment of water supply availability, various potential diversion points, recharge and/or in-lieu use locations/schemes, options for additional surface storage capacity to help manage available water supply, extraction locations, treatment facilities, and required/associated conveyances. Not all elements or potential combinations of elements will warrant feasibility-level study. Thus the Reconnaissance Study is designed to identify all potentially feasible elements, determine how these elements can be assembled into project alternatives (including minimum pilot project and scaled development to increase capacity over time), and identify those alternatives that warrant more detailed, feasibility-level study. Work during this part of Phase 2 planning will be based primarily on general project design concepts and will use existing information to compare and screen alternatives. Nevertheless, all critical perspectives will be considered, including engineering, institutional, legal/regulatory, economic, and environmental. The Reconnaissance Study effort will culminate in a report and a participating agency MOU reflecting agreement on the alternatives for feasibility-level study (Milestone 2).

- **Feasibility Study** — The alternative(s) identified in the Reconnaissance Study that appear most promising will carried into feasibility-level analysis. This work defines the projects and gathers environmental and other necessary information at a level of detail sufficient to confidently determine if one or more projects can and should be pursued for full implementation. Feasibility will be assessed from all critical standpoints: engineering, institutional, legal, regulatory, governance, economic (funding, cost/benefit), and environmental permitting. The Feasibility Study will culminate in a report and an associated participating agency MOU agreeing on a preferred alternative (Milestone 3).

3. **CEQA (and NEPA, if required) Compliance** — Preparation of an EIR (Environmental Impact Report pursuant to CEQA) will be required as part of the project planning and approvals process. If the preferred alternative [or other alternative(s) being considered] involves federal participation (funding, facility use or other action) an EIS (Environmental Impact Statement pursuant to NEPA) will also be required[2]. In such a case, the environmental document will be a combined/joint EIR/EIS. While both the Reconnaissance and Feasibility Studies in Phase 2 will include environmental analysis sufficient to reveal potential fatal flaws in the alternatives from the standpoint of environmental impact or mitigation requirements, the CEQA/NEPA process provides the formal, regulatory oversight regarding environmental compliance.

4. **IRCUP Implementation Agreement and Project Implementation Plan** — The final phase of work defined in this Work Plan will begin with participating agency deliberations and decisions regarding whether or not to proceed into full IRCUP implementation. If, based on the results of Phases 2 and 3, project participants mutually agree that an IRCUP is feasible and beneficial, an Implementation Agreement will be prepared and executed (Milestone 4). Included (or referenced) within this agreement will be a detailed Implementation Plan, defining the project and describing the work effort for final design, construction, and operation, as well as necessary contracts, agreements, regulatory mechanisms, etc.

The **Facilitation and Outreach** task group provides necessary facilitation and decision support for the project participants throughout the IRCUP planning process, and defines important junctures for conducting outreach efforts with other affected organizations and interest groups (stakeholders) and the general public. The Forum fully understands the critical importance of these efforts to a successful outcome for the IRCUP.

2.2 Project Planning

Phase 1: IRCUP Base Concept Plan

As noted above, the IRCUP Base Concept Plan will provide the foundation on which the full IRCUP planning program is based. In addition to conceptually defining the IRCUP in terms of form, function and operation, it will address and resolve (or adequately set the stage to resolve) critical, overall questions regarding water supply, water rights, water accounting, institutional relationships/governance, legal issues, economics, and other participant requirements and expectations. The IRCUP Concept Plan will be the subject of an MOU (Milestone 1) among project participants, formalizing their agreement on project concepts, approach to issues, goals and objectives, and fundamental relationships and expectations. Work in Phase 1 will proceed through the following task sequence:

[2] Federal involvement could occur in association with some potential IRCUP elements (e.g. the current Farmington Program or proposed MORE Water Project, as listed in Section 2.1).

Task 1.1 Surface Water Supply Assessment

Available surface water supply for conjunctive management will be specified through two inter-related lines of investigation: **water rights and river hydrology**. The intent is to define IRCUP water supply in terms of [1] surface water availability (how much, when and where), [2] how/what water rights will be used, and [3] which agencies would get what water, when and under what circumstances that water is available. More than one potential scenario in these regards may be identified through the water rights and hydrologic analysis.

Related to water rights, work to date has identified the following perspectives on source of supply for conjunctive management, which should be used as a starting point:

- Existing water rights — Currently unused increments of existing water rights or contracts, including consideration of changes over time based on growth in demand within right-holders' service areas.
- Existing water rights — Potential water availability through Mokelumne River storage system re-operation.
- Additional surface water rights secured by Amador County and Calaveras County water purveyors through their 1927 State Filings in accordance with Water Code Section 10500, et seq.
- Mokelumne River Water and Power pending water rights applications (1990)
- Other new and/or additional water rights

To meet requirements for hydrologic analysis, project participants will need to agree on the simulation model to be used (i.e. MOKESIM or EBMUDSIM).

Overall, this water supply analysis should not only provide an inventory of potential sources of water for conjunctive management; it should also critically evaluate and define potential real-world scenarios for water availability and conjunctive management. In the latter regard, relevant questions related to water right holders' concerns and requirements should be identified and the implications of various water supply assumptions/sources for potential project concepts/alternatives should be defined. Also, this analysis will form the basis for any necessary water rights applications and defining the water supply for conjunctive management in the ultimate IRCUP.

Task 1.2 Institutional, Legal and Economic Relationships and Requirements

The institutional, legal and economic basis on which water right holders and project sponsors will agree to participate must be defined at the outset. The intent is to define and at least conceptually resolve critical issues regarding governance, other institutional relationships, legal and regulatory framework and economics before committing participant time and financial resources to full IRCUP planning. This task, therefore, will [1] identify all potentially "fatal flaw" institutional, legal and/or economic concerns and/or participant-specific requirements (must-haves in any IRCUP), and [2] at least conceptually ("in principle") define solutions to these concerns and requirements. Full and complete solutions to all issues and concerns are not expected at this stage in the planning effort; however, participants must be able to agree that solutions are possible and understand the general outlines of those solutions. Key perspectives identified to date in this regard include:

- Contractual mechanisms to protect water rights over the long term (in addition to what protections currently exist)
- Proposed IRCUP governance structure, roles and responsibilities
- Water quantity and quality accounting framework and systems
- Regulatory and contractual changes needed to permit storage, recovery and distribution

- Fiscal/economic and cost/benefit relationships, responsibilities and requirements (e.g. cost allocation and cost sharing formula)
- Environmental requirements and commitments

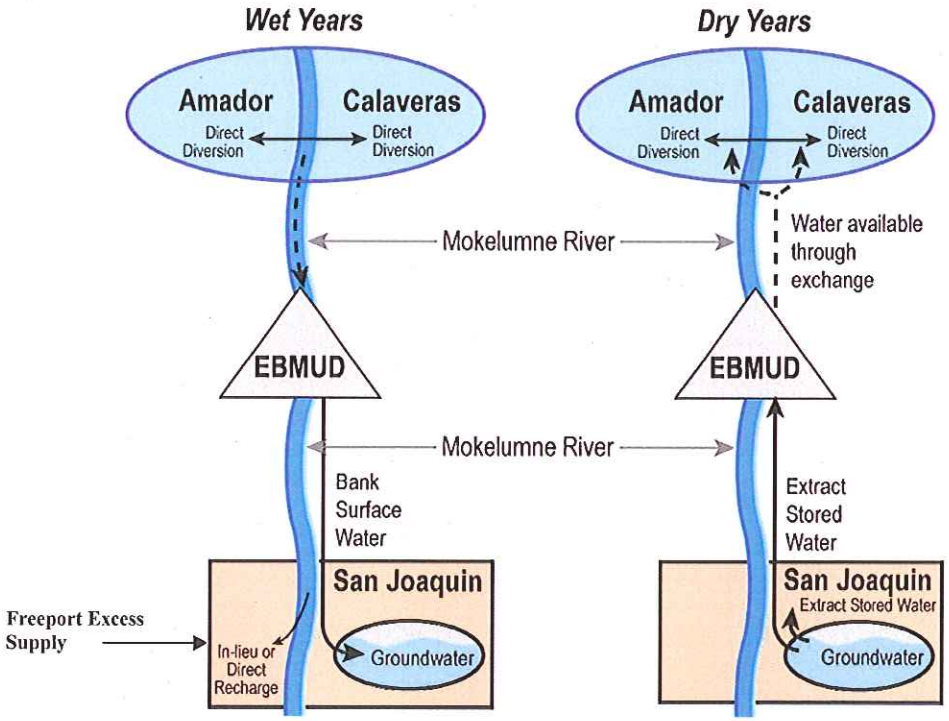
Task 1.3 IRCUP Concepts

The range of IRCUP concepts will be defined, based on differing water supply scenarios (i.e. emerging from Task 1.1) and increments of facility development. Investigation and description of potentially valid concepts should consider:

- Concept(s) based on existing infrastructure (no new surface storage, existing conveyances—including a possible pilot project)
- Concept(s) based on expanded "on-Mokelumne" surface storage (e.g. Bear River Reservoir and/or Pardee expansion)
- Concepts(s) based on new "off-Mokelumne" storage (e.g. Duck Creek Reservoir)
- Concepts requiring new or already proposed major conveyances (e.g. Freeport and Aqueduct)
- Scalability — Inter-relationships/phasing courses through concept alternatives
- Wet, normal/average, and dry year operations – description of delivery, storage, recovery, and transfers

The range of concepts to be investigated will be illustrated in schematic drawings, with narrative descriptions as necessary. An example of a schematic drawing from the Forum's previous effort is shown below for illustrative purposes.

Figure 2. Conceptual Schematic of the IRCUP



Task 1.4 IRCUP Goals and Objectives

Tasks 1.1 through 1.3 will provide the background necessary to define and adopt IRCUP Goals and Objectives. As in any study of this nature, goals and objectives are necessary as basic guidance in defining and comparing alternatives, and ultimately selecting a preferred solution. It is expected that the goals and objectives defined in this task will be the source of both exclusion and evaluation criteria in performing alternatives screening and decision-making later in the process (i.e. Reconnaissance and Feasibility Studies). Goals and Objections will be established for:

- Quantified conjunctive water supply
- IRCUP development (e.g. objectives related to near-term actions and project phasing)
- IRCUP operations (description of bank deposit and withdrawal, and resultant effects on surface water supplies and groundwater levels)
- Institutional relationships and guarantees
- Legal/regulatory framework
- Fiscal/economic relationships and requirements
- Physical/engineering requirements
- Environmental requirements
- Stakeholder and public process

Task 1.5 IRCUP Concept Plan Report

The results of Tasks 1.1 through 1.4 will be documented in an IRCUP Concept Plan Report. The report will include findings and conclusions related to water supply, institutional, legal and economic relationships/requirements, IRCUP conceptual project description(s), and IRCUP goals and objectives. It will be prepared in a form suitable for incorporation by reference into a participating agency MOU governing the overall IRCUP effort and setting the stage for the next phases of planning.

It is expected that this report will follow a typical "draft-review/revision-final version" sequence of preparation steps.

Task 1.6 Milestone 1—IRCUP Concept Plan MOU

The culmination of Phase 1 will be an IRCUP Concept Plan MOU agreed to by the project participants. Based on and incorporating the findings and specifications of the Concept Plan Report, this MOU will define and govern the planning process moving forward and solidify key agency relationships, requirements and expectations.

Phase 2: Alternatives Analysis and Feasibility Study

Task 2.1 Reconnaissance Study

This phase of work will define the "universe" of potentially feasible IRCUP alternatives and perform reconnaissance-level screening to identify those alternatives that warrant being carried forward into full feasibility study. Preliminary alternatives will be:

- Candidate combinations of water supply, diversion points/facilities, use of surface storage for regulation, recharge and/or in-lieu use locations/facilities, recovery and treatment locations/facilities, and associated conveyances,
- Organized into scalable (phased) development programs, beginning with a potential pilot project and illustrating potentially feasible volume/capacity expansion steps building to full-scale development (i.e. capacity to manage the maximum volume of available surface water supply). In this regard, the Reconnaissance Study effort will incorporate a checkpoint aimed at reviewing proposed initial steps (targets of opportunity) by one or more agencies—

proposals to move forward immediately with pilot efforts that will build toward (and not undermine) the larger IRCUP program.

Work in the Reconnaissance Study will proceed through the following task sequence:

Task 2.1.1 IRCUP Elements ("the menu")

Available options will be identified and generally defined for each major element of an IRCUP (both existing and potential new, as appropriate). IRCUP elements are listed below.

A. Sources and increments of surface water supply — defined as follows:
   - Sources (right-holders and applicants)
   - Annual volume increments by source
   - Seasonality and flow rates by source, by increment
   - Reliability (all years, wet years, etc.)

B. Diversion points and facilities — options noted to date include:
   - Above Pardee
   - Pardee Reservoir
   - Camanche Reservoir
   - Lower River diversions (existing, enlarged, new)

C. Additional storage volume (supply regulation) — options noted to date include:
   - Bear River Reservoir enlargement
   - Pardee Reservoir enlargement
   - Duck Creek Reservoir (i.e. included in the proposed MORE Water Project)
   - Transfers

D. Recharge and in-lieu locations — e.g. the Farmington Program area

E. Recovery locations

F. Treatment facilities (needs and locations yet to be evaluated/determined

G. Conveyances Routes and Facilities — including the following connections, as appropriate:
   - Element(s) A/B to D
   - Element(s) A/B to C
   - Element(s) C to D
   - Element(s) E to participant distribution systems
   - Specific existing and proposed routes/facilities noted to date that could provide one or more of these conveyance connections include:
     - Several natural river/stream courses and sloughs (e.g. Duck Creek, lower Calaveras River, Mosher Slough, Mormon Slough, Potter Creek)
     - EBMUD Mokelumne River aqueducts
     - NSJWCD irrigation systems
     - WID canal system
     - Freeport Regional Water Project facilities (proposed)
     - Alliance Canal (proposed)

Task 2.1.2 Preliminary Alternatives

From the element lists in the inventory (menu) task above, the range of potentially feasible IRCUP configurations will be defined, matching water supply scenarios with potential diversion points, needed storage, recharge/in-lieu locations, recovery and treatment locations, and necessary conveyances.

Element combinations will be organized as candidate phased development programs, characterizing logical increments of facility development, with each representing a significant increase in IRCUP capacity. A suggested step sequence for this development-increment task is listed below.

1. Pilot project configurations (i.e. existing conveyance capacity, no new storage, generally minimum development and O&M cost).
2. Capacity expansion based on modifying existing or building new diversions and conveyances (i.e. each potential single- or multiple-element pilot project configuration with no new storage).
3. Capacity expansion based on new storage (both "on-Mokelumne" and "off-Mokelumne" storage options and including associated diversion and conveyance development/re-development).

For each potential project configuration at each step in this hierarchy, estimated water supply/management volume and facility conceptual design will be specified at a level of detail sufficient to permit reconnaissance-level analysis and screening.

Based on the findings of this effort, a decision will be made regarding how reconnaissance-level analysis and screening will be conducted. Options in this regard include either (or both) [1] conducting analysis on development programs in aggregate (i.e. integrated combinations of development increments defined under steps 1-3 above), or (and) [2] assessing each development increment as a separate "project" in order to understand differences among step 1 options v. step 2 options v. step 3 options.

Task 2.1.3 Reconnaissance-Level Analysis and Screening

Screening Criteria

Based on the IRCUP Goals and Objectives established in Task 1.4, screening criteria (i.e. fatal flaw break-points, relative performance/desirability/acceptability measures) will be defined by which preliminary alternatives can be compared to determine which warrant full feasibility-level analysis. Working from the Goals and Objectives, screening criteria will be developed, as needed and appropriate, related to:

- Surface water supply (source, volume, timing, reliability, etc.)
- IRCUP operations (relative workability and efficiency in both "bank deposit" and "bank withdrawal" years)
- Institutional structure and relationships (requirements and potential for success in meeting these requirements)
- Legal/regulatory framework (adequacy of existing framework, potential for success in achieving required changes/evolution)
- Fiscal/economic considerations (reconnaissance -level cost and benefit analysis; review of funding feasibility)
- Engineering/physical development (fatal flaw engineering/construction analysis)
- Environmental concerns (fatal flaw environmental impact review)
- Stakeholder/Public acceptance

Data Gathering and Analysis

Each preliminary alternative will be characterized and analyzed at a level of detail sufficient to permit meaningful comparisons of relative performance on the screening criteria defined above. At a reconnaissance level, this means primary reliance on existing, available data (e.g. geotechnical, environmental, conceptual engineering analysis, general institutional/legal/regulatory fatal flaw review, and order-of-magnitude cost/benefit analysis). The overall data gathering and analysis effort will be scoped to support broad-scale comparisons and decisions in a cost-effective and time-efficient manner.

Screening Process

Screening method and tools: A formalized alternatives comparison (decision support) methodology will be developed/selected to assess the relative merits/performance of the preliminary alternatives. A number of such methodologies and tools are available and have been used in comparable prior studies; the most appropriate (credible and transparent) will be selected and applied. Aspects (or tiers) of the screening methodology will include:

- Clear exclusion screen (i.e. fatal flaws)
- Scoring system for evaluation (non-fatal flaw) criteria
- Relative importance testing for evaluation criteria
- Overall scoring system for alternatives comparison

Application of screening method: The project participants will work interactively with the selected screening tool(s) to test differing perspectives on the relative importance of various evaluation criteria, and thus understand which among the preliminary alternatives look most promising from key points of view. It is also expected that such testing will be carried out with other key stakeholder groups (e.g. as listed in Section 1.1).

Task 2.1.4 Potentially Feasible Alternatives and Initial Actions Checkpoint

Based on the results of work with the screening methodology and tools, the project participants will select the alternative(s) that will be carried forward into feasibility-level analysis. This effort will also review and make recommendations regarding any initial, near-term opportunities for project participants to pursue individual elements or pilot projects while the broader IRCUP program moves forward. One result of this review may be agreement by the project participants that one or more initial project elements/increments should proceed immediately while the rest of the overall IRCUP effort evolves. If such action is deemed desirable, a separate work plan for detailed design, environmental compliance, implementation and outreach will be prepared to accommodate this action

Task 2.1.5 Reconnaissance Report

The process, analysis and results of the reconnaissance study will be documented in a Reconnaissance Report, including recommendations (and associated rationale) regarding [1] the alternative(s) to be carried forward into feasibility-level analysis, and [2] any near-term (pilot) actions to be pursued. This report will follow a typical "draft-review/revision-final version" sequence of preparation steps.

Task 2.1.6 Milestone 2—Feasibility Study and Near Term Actions MOU

The culmination of Reconnaissance Study work will be a participating agency MOU formalizing agreement on the overall IRCUP alternative(s) to be carried forward into feasibility analysis and any near-term, pilot actions to be pursued. In the latter regard, if a decision is made to pursue one or more near-term actions immediately, the MOU will include or set the stage for a separate work plan and budget outside of the broader IRCUP effort.

Task 2.2 Feasibility Study

The feasibility-level study will define and analyze the alternative(s) emerging from reconnaissance-level screening in sufficient detail to achieve a high level of confidence regarding the composition/elements, characteristics and requirements of each candidate alternative. Tasks 2.2.1 – 2.2.5, below, together address the key lines of investigation for this analysis.

Upon completion of detailed analyses in Tasks 2.2.1 – 2.2.5, the participating agencies will decide which, if any, alternative will be pursued through the formal CEQA (/NEPA) process and into permitting and full implementation. As/if necessary, the decision-making process will use the same type of decision-support tools/methods described above in Task 2.1.3 of the Reconnaissance Study. In any case, the criteria used in and rationale for a Preferred Alternative decision will be fully documented in the Feasibility Report, and will be formalized in the Milestone 3 MOU (Preferred Alternative, Task 2.2.8).

More detailed descriptions of work in the Feasibility Study task sequence is provided below.

Task 2.2.1 Engineering Feasibility--Design, Construction, Operation and Maintenance

Each candidate alternative emerging from the Reconnaissance Study will be defined in greater detail, at a level adequate to understand and analyze (by phase/increment of development, as appropriate):

- Required elements/facilities (e.g. diversion, conveyance, storage, etc.—existing or new)
- Facility location, design and sizing
- Construction methods and requirements
- Potential yield
- Annual (wet, dry, average) operation scenarios and requirements (both surface and groundwater)
- Maintenance requirements and life cycle characteristics

Within this task, comparative analysis will be conduced for the alternatives related to constructability, efficiency, safety, reliability, and other physical/engineering parameters, as relevant. However the design/description of the alternatives must also be adequate to allow analysis and comparison of alternatives from the equally critical feasibility perspectives represented in Tasks 2.2.2 – 2.2.5 (i.e. governance/institutional, other legal/regulatory, economics, and environmental).

Task 2.2.2 Governance/Institutional Framework Requirements & Feasibility

For each alternative (to the extent that implications and requirements might differ between alternatives) the proposed governance framework and associated procedural, accounting, and staffing/support requirements will be specifically defined (optional approaches/solutions may also exist within each project alternative). Aspects to be articulated include, but are not limited to:

- Project ownership
- Project development roles and responsibilities
- Operations and maintenance roles and responsibilities
- Governing body (composition/representation, method of formation, rules and procedures)
- Voting rights of participating agencies and roles/rights of other stakeholders
- Water accounting system(s)
- Staff/facilities/logistic support
- Reporting requirements

As relevant, comparative analysis will be conducted to describe key differences (relative feasibility, advantages and disadvantages) among governance/institutional framework options (within or between alternatives).

Task 2.2.3 Legal/Regulatory Requirements & Feasibility

Other contracts, agreements and/or regulatory mechanisms necessary to enable the alternatives will be identified, evaluated and compared for relative feasibility, advantages and disadvantages. These may include [1] contracts and agreements among the Forum Participants and/or between the IRCUP governing body and other entities that are affected by the project (e.g. related to water rights, joint use of facilities, and/or environmental mitigation), or [2] local or state enabling legislation or other regulatory changes need to facilitate the project (e.g. changes in the San Joaquin County groundwater export ordinance).

Task 2.2.4 Economic Feasibility

The economic feasibility analysis will consider two major perspectives: Cost/benefit ratio and funding/financing.

In the first regard, cost estimates will be prepared for the alternatives, including costs for planning and design, construction, operation, maintenance, management and administration. Based on these estimates, the alternatives will be compared from the standpoints of overall and participating agency-specific cost/benefit ratio. While both of these standpoints are important, the latter is of particular importance to individual agency decisions regarding [1] generally whether or not to participate to implementation, and [2] which alternative would be most beneficial.

In the second regard, the relative feasibility of funding/financing the alternatives will be evaluated. Options for funding planning, design, construction, and operation and maintenance (O&M) of the project will be defined, including State and Federal sources of capital funds and mechanisms for raising local capital and O&M funds.

Task 2.2.5 Permitting Feasibility

Relevant land use and environmental permitting requirements will defined for each alternative. Sufficient analysis of each alternative will be conducted to determine the relative feasibility (and cost—e.g. for environmental mitigation) of obtaining all necessary permits.

Task 2.2.6 Synthesis and Decision: Preferred Alternative/Proposed Project

The results of Tasks 2.2.1 – 2.2.5 will be considered in aggregate to identify which (if any) of the feasibility study alternatives best meets the goals, objectives and screening/performance criteria established for the IRCUP.

To the extent necessary, [1] the goals, objectives, and screening/performance criteria articulated in the reconnaissance study work will be reconsidered and updated to reflect the additional detail emerging in the feasibility-level analysis, and [2] decision-support tools will be applied (in a process comparable to that described above for the reconnaissance study—Task 2.1.3) to assist the participating agencies in comparing the relative merits of the alternatives.

The intent is to identify which alternative is most feasible and decide whether that alternative will be pursued into the environmental compliance process and ultimately to implementation. The phase "to the extent necessary" is used in this context because it is not possible to predict either how many alternatives (or variations of alternatives) will be carried through feasibility analysis or how straight-forward (readily apparent) a determination will be regarding which is most feasible or "preferred". Thus, the complexity of the decision process cannot be foreseen.

Task 2.2.7 Feasibility Report

The process, analysis and results of the feasibility study will be documented in a Feasibility Report, including identification of (and associated rationale for) the preferred alternative (if any) to be carried forward into environmental compliance, permitting and implementation. The description of the preferred

alternative will include definition of all phases of development, from initial/pilot action(s) to full IRCUP development.

As with all other report products anticipated in the work plan, the Feasibility Report will follow a typical "draft-review/revision-final version" sequence of preparation steps.

Task 2.2.8 Milestone 3—Preferred Alternative MOU

Assuming that the result of the Feasibility Study is clear identification of and decision on a preferred IRCUP, the participating agencies will formalize their decision in a "Preferred Alternative" MOU. This MOU will describe all key aspects of the preferred IRCUP alternative and signal/authorize initiation of Phase 3 work.

Phase 3: CEQA (and NEPA, if required) Compliance

After work on the Feasibility Study reaches its conclusion (aimed at identifying a preferred project or projects), work will begin to prepare the required EIR (or EIR/EIS), documenting potential environmental impacts of the proposed project and defining approaches to mitigating those impacts.

In the context of the overall IRCUP planning effort described in this work plan, by the time Phase 4 EIR (or EIR/EIS) preparation begins, analysis of environmental issues and potential impacts will have been started and continued through both the Reconnaissance and Feasibility Studies (Phases 2 and 3). The intent will be to have already identified potential environmental "fatal flaws" in alternatives and screened out those alternatives, eliminating them from further consideration.

Requirements for the CEQA (and NEPA) process are clearly defined in associated state (and federal) guidelines. For the purposes of this work plan, including outlining schedule expectations, the task sequence for preparing and processing an EIR (or EIR/EIS) is summarized below. For this IRCUP work plan, it is relevant to note that CEQA (and NEPA if required) compliance may involve a tiered combination of a main, programmatic EIR (EIR/EIS), with subsequent project-specific environmental documents. It is uncertain (perhaps unlikely) that a sufficient level of detail will have been reached with all elements or phases of the proposed IRCUP project to enable construction-level analysis and specification of mitigation measures in the document prepared under this work plan. While the intent will be to prepare the EIR (EIR/EIS) at a sufficient level of detail to enable permitting and construction (especially for a pilot project), the ability to achieve this level of detail is uncertain. Thus, the Phase 5 Implementation Plan effort anticipates the possible/probable need to prepare subsequent, project-specific environmental compliance documents.

Task 3.1 Preparation Notices and Initial Consultation

Required by both CEQA and NEPA, initial consultation with responsible agencies, involved stakeholders and the public assists in defining the scope of analysis for the environmental document and range of issues to be addressed. For CEQA, this involves a Notice of Preparation; for NEPA, if required, a Notice of Intent is prepared. All input received is considered in preparing the Draft environmental document.

Task 3.2 Draft EIR (or EIR/EIS)

This is a central piece in conducting impact and mitigation analysis and documenting the results. CEQA and NEPA guidelines clearly define the content of the document, including consideration and comparison of alternatives, and the spectrum of environmental considerations to be addressed.

Task 3.3 Public and Agency Review Process

The Draft EIR (or EIR/EIS) is distributed to agencies and the public for review and comment regarding completeness and adequacy of analysis and validity of conclusions. During the agency and public review

process, public information meetings and formal public hearings are conducted (expected in this project effort).

Task 3.4 Final EIR (or EIR/EIS)

The Final EIR (or EIR/EIS) focuses primarily on response to all comments received on the Draft document. Clarifications or minor revisions to the Draft document itself may also be included as necessary.

Task 3.5 Decision Documents

Upon publication of the Final EIR (EIR/EIS), completion of the process is formalized. Pursuant to CEQA, steps and documents include: Certification, Findings, Statement of Over-riding Considerations, and Notice of Determination; for NEPA, the main decision document is the Record of Decision (ROD).

Phase 4: IRCUP Implementation Agreement & Project Implementation Plan

Task 4.1 Milestone 4—IRCUP Implementation Agreement

Upon completion of the Phase 3 CEQA (and NEPA if required) process, project participants will have all needed information for a decision on whether to proceed into full IRCUP implementation. Thus, the first task after completion of Phase 3 will be to make this decision. If the participants agree that the IRCUP should be pursued, an MOU or other appropriate agreement will be executed, formalizing this decision and either incorporating or commissioning preparation of a full Implementation Plan.

Task 4.2 Project Implementation Plan

Assuming a Task 4.1 decision to move forward with the IRCUP, a Project Implementation Plan will be prepared. This Plan is essentially a next level of work plan, detailing the work effort, product requirements, budget and schedule to finalize/formalize/achieve:

- **Governance Plan and Agreement**—Following from and formalizing work on a governance/institutional framework—including formation and composition of a governing body, rules and procedures, voting rights and other participant representation, water accounting system(s), staff support, other aspects. (Note: This element of project implementation may be part of the IRCUP Implementation Agreement anticipated in Task 4.1).
- **Final Project Design**—Final engineering design of all project elements and solidification of project phasing.
- **Contracts, Agreements and Regulatory Mechanisms**—Including:
  - Developing and executing other necessary contracts and agreements among the Forum Participants and between the IRCUP Governing Body and other entities that are affected by the project (e.g. related to water rights, joint use of facilities, and/or environmental mitigation).
  - Pursuing and required local or state enabling legislation or other regulatory changes need to facilitate the project (e.g. changes in the San Joaquin County groundwater export ordinance).
- **Project/Element-Specific CEQA (/NEPA) Compliance**—Tiering from the CEQA (/NEPA) process of Phase 3, and addressing detailed construction-level impacts and mitigation (as necessary).
- **Permitting**—Applying for and obtaining all necessary environmental and other federal, state or local permits required for Project implementation.

- **Land Requirements/Acquisition**—Acquiring necessary land rights, including (as appropriate) fee title, easements or rights of way for Project storage, conveyance, recharge, extraction, and treatment facilities.
- **Construction**—A detailed plan for construction of IRCUP facilities, by phase.
- **Operations and Maintenance**—O&M plans and programs for the facilities, along with monitoring program to ensure and track project success and long-term benefits.

2.3 Facilitation and Outreach

Facilitation and outreach efforts will be conducted at three distinct levels:

1. **Forum Signatory Agencies — Dialogue, Cooperation and Decision-Making**

   It will be critical to maintain an atmosphere of open dialogue, consensus building, and cooperation among Forum members/project participants throughout the project. It is this group, meeting regularly throughout the project planning effort, that will be responsible for all project work and decisions, and for ensuring appropriate involvement by other key stakeholders and the general public. High-level facilitation and decision making support for this group is assumed on a continuous basis, with special emphasis on the milestone decision points described above.

2. **Other Key Stakeholders**

   Informational and decision-support workshops are anticipated with other key stakeholder groups (e.g. as listed in Section 1.1) at key junctures in the planning process. As shown on the project schedule (Section 4, Figure 1), these workshops would be scheduled to gain input and insight related to decisions the signatory agencies must make with each major milestone in the process, including: Concept Plan, reconnaissance screening and short list of feasibility study alternatives, selection of a preferred project, exploration of environmental impact and mitigation requirements, and implementation planning.

   These stakeholders may also participate in both meetings/activities with the core Forum (signatory agencies) group throughout the process and all outreach efforts aimed at the general public.

3. **General Public**

   The general public will be kept informed and engaged throughout the process. Public outreach tools are likely to include a website, newsletters/pamphlets, public information meetings, and workshops. In the latter two regards, as shown on the schedule diagram, key junctures for informational meetings or workshops include reconnaissance screening, feasibility study alternatives, selection of a preferred project, exploration of environmental impact and mitigation requirements, and implementation planning.

3. Team/Expertise Requirements

The project participants will need to assemble capable teams of managers and experts for each phase of project planning and to conduct the three levels of facilitation and outreach. To a great extent, the types of expertise required will be remain consistent throughout project planning and implementation. However, lead-role expertise will vary somewhat by planning phase. The following table illustrates the types of variation in leadership emphasis expected through the planning program.

Phase	Collaborative Process	Conflict Resolution	Decision Support	Legal	Planning	Engineering-Design	Engineering-Geotech	Engineering-Hydrologic	Economic	Environmental
	Facilitation & Outreach			Technical						
1 IRCUP Base Concept Plan	●	●	○	●	○	○	○	●	○	○
2 Alternatives Analysis and Feasibility Study										
Reconnaissance Study	○	○	○	○	●	●	○	●	○	○
Feasibility Study	○	○	○	○	○	●	●	●	○	○
3 CEQA (/NEPA) Compliance	○	○	○	○	○	○	○	○	○	●
4 Implemenation Agreement & Plan										
Implementation Agreement	●	●	○	●	na	na	na	na	na	na
Implementation Plan	○	○	○	●	○	●	○	○	○	○

Expertise

Key:

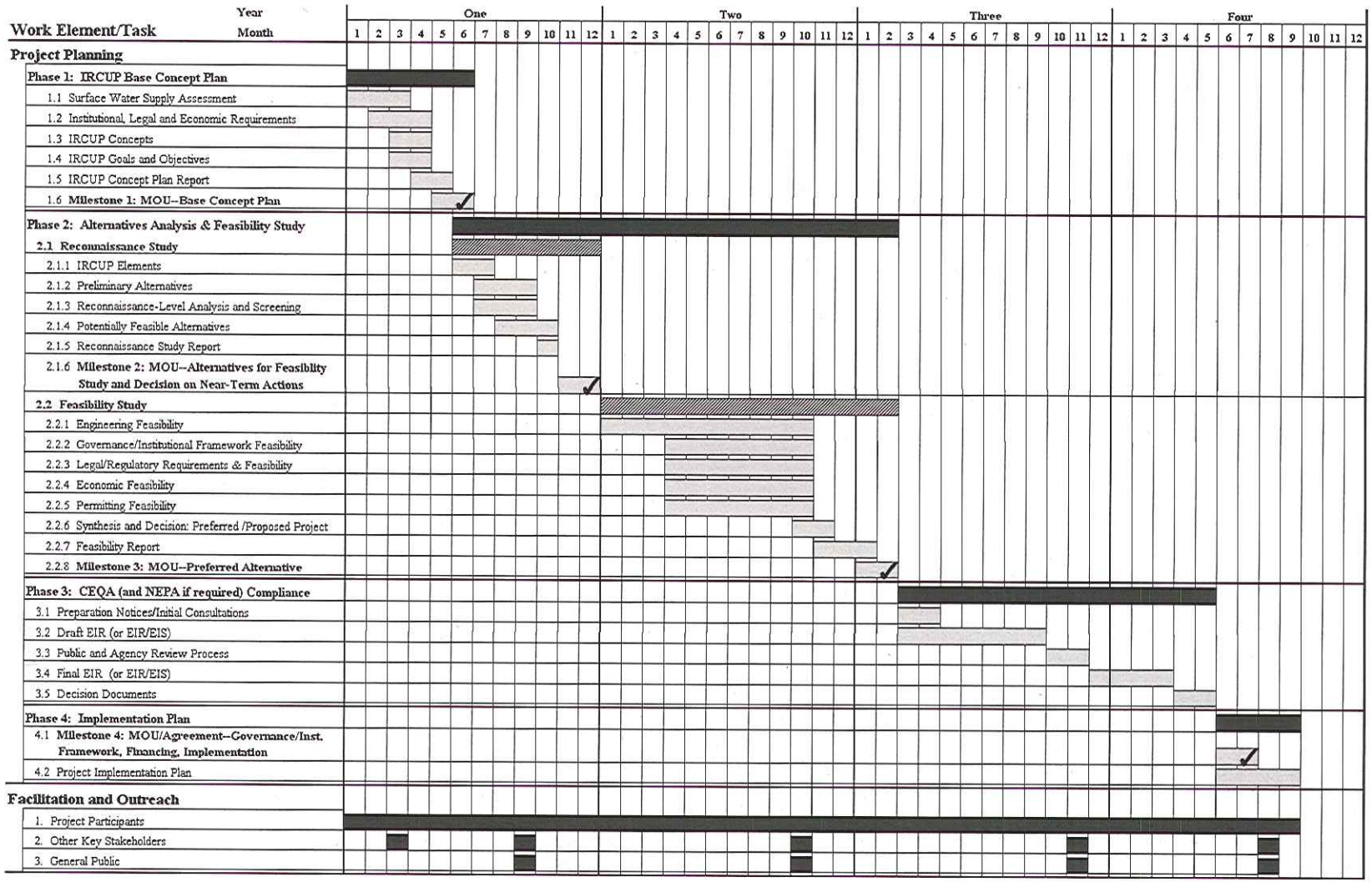
● Management/Lead Role
○ Key Support Role
○ Minor Support Role
na Not Applicable

4. Schedule

The anticipated schedule for the IRCUP planning effort described in the above Scope of Work is illustrated on Figure 3. This schedule is based on current understanding of project requirements; the time duration shown for any given task may vary based on circumstances encountered during the study effort.

As shown on the schedule, the Base Concept Plan effort is expected to take approximately 6 months to complete. Both the identification of alternatives for feasibility-level analysis and any decisions on near-term actions would be accomplished within the first year of the effort. Overall, work through the Feasibility Study, to a decision on a preferred alternative, is expected to span approximately 2 years. Then, upon a decision regarding a preferred alternative and assuming project participants elect to proceed with the IRCUP, the environmental compliance process and preparation of a detailed implementation plan is expected to take another 18 months. Thus, the full effort presented in this Work Plan would span a three and one half to four year duration.

Figure 3. Work Plan Schedule



5. Budget

Budget estimates for the IRCUP planning effort are shown on Table 1. In reviewing Table 1, it will be noted that a cost range is shown for each major task. This is necessary due to uncertainties regarding the number and complexity of issues to be resolved, the alternatives to be studied at both the Reconnaissance and Feasibility levels, and whether or not there will be federal involvement in the project. These estimates are based on current understanding of project requirements. Actual cost for individual tasks may vary once study realities become better understood. However, as with schedule, the overall "bottom line" range of cost shown is believed to be a relatively accurate portrayal of funding requirements.

Table 1. Work Plan Budget

Work Element/Task	Low Estimate	High Estimate
Project Planning	**$ 1,925,000**	**$ 4,000,000**
Phase 1: IRCUP Base Concept Plan	**$ 200,000**	**$ 350,000**
1.1 Surface Water Supply Assessment	$ 45,000	$ 85,000
1.2 Institutional, Legal and Economic Requirements	$ 45,000	$ 85,000
1.3 IRCUP Concepts	$ 40,000	$ 70,000
1.4 IRCUP Goals and Objectives	$ 25,000	$ 40,000
1.5 IRCUP Concept Plan Report	$ 30,000	$ 40,000
1.6 **Milestone 1: MOU--Base Concept Plan**	$ 15,000	$ 30,000
Phase 2: Alternatives Analysis & Feasibility Study	**$ 1,265,000**	**$ 2,530,000**
2.1 Reconnaissance Study	**$ 250,000**	**$ 500,000**
2.1.1 IRCUP Elements	$ 30,000	$ 60,000
2.1.2 Preliminary Alternatives	$ 30,000	$ 70,000
2.1.3 Reconnaissance-Level Analysis and Screening	$ 100,000	$ 200,000
2.1.4 Potentially Feasible Alternatives	$ 20,000	$ 40,000
2.1.5 Reconnaissance Study Report	$ 50,000	$ 100,000
2.1.6 **Milestone 2: MOU--Alternatives for Feasibility Study and Decision on Near-Term Actions**	$ 20,000	$ 30,000
2.2 Feasibility Study	**$ 900,000**	**$ 1,800,000**
2.2.1 Engineering Feasibility	$ 500,000	$ 1,000,000
2.2.2 Governance/Institutional Framework Feasibility	$ 50,000	$ 100,000
2.2.3 Legal/Regulatory Requirements & Feasibility	$ 30,000	$ 50,000
2.2.4 Economic Feasibility	$ 50,000	$ 100,000
2.2.5 Permitting Feasibility	$ 120,000	$ 240,000
2.2.6 Synthesis and Decision: Preferred /Proposed Project	$ 30,000	$ 70,000
2.2.7 Feasibility Report	$ 100,000	$ 200,000
2.2.8 **Milestone 3: MOU--Preferred Alternative**	$ 20,000	$ 40,000
Contingency (10 Percent)	**$ 115,000**	**$ 230,000**
Phase 3: CEQA (and NEPA if required) Compliance	**$ 400,000**	**$ 1,000,000**
3.1 Preparation Notices/Initial Consultations	$ 5,000	$ 10,000
3.2 Draft EIR (or EIR/EIS)	$ 300,000	$ 800,000
3.3 Public and Agency Review Process	$ 10,000	$ 25,000
3.4 Final EIR (or EIR/EIS)	$ 60,000	$ 120,000
3.5 Decision Documents	$ 25,000	$ 45,000
Phase 4: Implementation Plan	**$ 60,000**	**$ 120,000**
4.1 **Milestone 4: MOU/Agreement--Governance/Inst. Framework, Financing, Implementation**	$ 30,000	$ 50,000
4.2 Project Implementation Plan	$ 30,000	$ 70,000
Facilitation and Outreach	**$ 325,000**	**$ 500,000**
1. Project Participants	$ 200,000	$ 300,000
2. Other Key Stakeholders	$ 75,000	$ 100,000
3. General Public	$ 50,000	$ 100,000
Totals	**$ 2,250,000**	**$ 4,500,000**