

# Progress Report

January 2005 thru December 31, 2009

Submitted to:

California Department of Water Resources  
Division of Integrated Regional Water Management

Pursuant to Agreement No. 4600004499

PROPOSITION 50, the Water Security, Clean Drinking Water,  
Coastal and Beach Protection Act of 2002  
Chapter 8 Integrated Regional Water Management Planning Grants

Eastern San Joaquin  
Integrated Regional Water Management Plan

Submitted by:

Northeastern San Joaquin County Groundwater Banking Authority



Submitted May 1, 2010

# Project Summary Sheet

Grantee: Northeastern San Joaquin County Groundwater Banking Authority

Project Title: Eastern San Joaquin Integrated Regional Water Management Plan

Project Description:

The purpose of this IRWMP is to define and integrate key water management strategies to establish the protocols and course of action for implementation of the Eastern San Joaquin Integrated Conjunctive Use Program (ICU Program). The ICU Program will implement a comprehensive, prioritized set of projects and actions that when implemented will meet adopted Basin Management Objectives and provide regional benefits to area stakeholders.

Project Completion Date:	April 14, 2010
Proposed Total Project Cost:	\$889,131
Actual Total Project Cost:	\$
Grant Amount:	\$498,468



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## Progress Report

The Authority submits this Progress Report to the DWR Division of IRWM for work completed between January 1, 2005 through December 31, 2009, pursuant to Agreement No. 4600004499, and funded through the Proposition 50 IRWM Planning Grant. A summary of the tasks completed are included below as well as a list of attachments.

### Element 1: Alternative Screening, Selection, and Prioritization

The primary objective of Element 1 is to screen the potential projects and management actions and select a list of the most promising projects that can meet the GBA's long-term objectives. We expected that the projects and/or management actions selected in this Element would require detailed feasibility studies and environmental documentation prior to implementation.

Plan Element 1 includes the following principal sub-elements:

- Element 1a – Define Objectives and Management
- Area <sup>27</sup> Element 1b – Establish Regional Management Priorities
- Element 1c – Alternatives Development and Screening
- Element 1d – Modeling and Impact Assessment

#### 1a – Define Objectives and Management Area

The overall objective of the IRWMP was to provide reliability and sustainability of the water resources in the GBA Management Area. The Management Area consists of the non-Delta portion of the San Joaquin region.

#### 1a1 – Define Purpose and Need

Development of the IRWMP purpose and need engaged GBA members to provide their input during meetings held in the early stages of IRWMP development. The initial discussion took place during the January 12, 2005 GBA Coordinating Committee where Dr. Mel Lytle, Water Resources Coordinator, presented key words recommended for the purpose statement which included:

- Reliable
- Long-term
- Sustainable
- Economic, social and environmental viability

The discussion group responded with several renditions of a purpose statement and with some comments that the purpose and need should also specify all of San Joaquin County's water resources.



At the following meeting on January 26, 2005, Dr. Lytle presented the following statement for discussion:

*Define and integrate key water resource strategies to establish the protocols and course of action for implementation of the Eastern San Joaquin Integrated Conjunctive Use Program.*

Development also continued through February with one last discussion during the February 23, 2005 GBA Coordinating Committee Meeting whereas “Dr. Lytle talked about the iterations of the purpose, mission statement of the Plan, the objectives, etc.”

Taking into consideration the accumulated input of the GBA members, the purpose was established in Chapter 1 of the IRWMP to read as, “The purpose of this IRWMP is to define and integrate key water management strategies to establish the protocols and course of action for implementation of the Eastern San Joaquin Integrated Conjunctive Use Program.” To reflect the need, the IRWMP further states that “the ICU Program will implement a comprehensive, prioritized set of projects and actions that when implemented will meet adopted Basin Management Objectives and provide regional benefits to area stakeholders.”

### **1a2 – Define Regional Planning and Management Group**

The issue of Regional Planning and Management Group was first introduced during the January 12, 2005 GBA Coordinating Committee Meeting. Water Resources Coordinator Dr. Mel Lytle led the discussion and recommended that “...the group should include the GBA and member agencies plus those additional stakeholders who respond to the invitation to participate. The list of invitees is quite large and includes all those invited to participate in the BMO development process.”

Considering the input taken from the January meeting and GBA Staff analysis, the Northeastern San Joaquin Groundwater Banking Authority (GBA) was determined as the appropriate regional planning and management authority of the water management area. The GBA consists of agencies overlying the Basin with a common interest in protecting the health of the Basin. The GBA also provides a consensus based forum which enables stakeholders to develop projects with maximum benefits to all parties involved and the region as a whole.

Thus far, accomplishments and tasks of the GBA include:

- Development of the San Joaquin Count Water Plan and Groundwater Management Plan
- Assistance with the filing, acquiring, and retaining rights and filings of member agencies
- Conducting water monitoring programs and special studies throughout the territory, including the joint USGS/DWR/GBA saline water investigation.
- Preparation of applications for grant funding.
- Acts as a clearinghouse for water resource data.
- Represents GBA member interests in regional forums.



- The GBA has prepared this Integrated Regional Water Management Plan to plan water supplies and use in the region through 2030.

The GBA continues to collaborate with member agencies and other stakeholders throughout the region to increase the social, economic, and environmental viability of the San Joaquin region and beyond.

### 1a3 – Describe Management Region

Management region development began in early January 2005. At the January 12, 2005 GBA Coordinating Committee Meeting, “It was agreed the focus area should be the Eastern San Joaquin Basin. Some comments reflected a concern regarding including only parts of Stockton and Lathrop, that is, those sections currently part of the GBA region.”

At the following Coordinating Committee Meeting on January 26, 2005, “Dr. Lytle presented nomenclature to help distinguish three concepts to be used throughout the Plan and Plan discussions. The nomenclature include “groundwater management area,” “basin operation area,” and “basin operations zone.”

The nomenclature was further discussed on February 9, 2005 for consideration. “It was noted if these are utilized to delineate geographic areas they may include a different area than if they are delineating an implementation area. Depending on how they are utilized, there may be overlap.” In addition, Dr. Lytle suggested the following terms:

- Inter-regional – GMA relating to areas outside boundaries
- Intra-regional – relationships within the GMA boundaries
- RTA – Regional Integration Area – area of influence which at minimum should be contiguous areas to provide context for planning
- PBA – Potential Benefit Area – that portion of the state of CA that may benefit from the development of the Easter Basin Integrated Conjunctive Use Program – helps define broader benefit from projects and influences competitive edge

During the following Coordinating Committee Meeting on February 23, 2005, it was discussed that

By defining the areas and our relationships to those areas outside of the GMA, we would be able to demonstrate the potential benefits we could bring to other regions and sensitivity to the impacts of our actions. In this respect, we may be able to better relate our planning activities to other things that are going on in the state. The **Regional Integration Area** would be the area of the State that we are actively coordinating with to develop the IRWMP and implement projects. The **Potential Solution Area** would be the area of the State that we would look to work with to secure the water and partnerships necessary to solve our water problems.

During the GBA Coordinating Committee meeting on May 25, 2005, Dr. Mel Lytle encouraged further discussion on “issues based on how they affect a geographic region



or how they affect a specific project area.” For the most part, the discussion centered on “conjunctive use and groundwater banking in helping to resolve the overdraft issue.”

After several months of discussion, Dr. Lyte presented the DRAFT Section 2, *Region Description* developed by GBA Staff at the June 22, 2005 Coordinating Committee Meeting. Agencies were asked to submit comments through July 27, 2005.

In the final draft of the IRWMP, The Eastern San Joaquin Region Water Management Area (WMA) was identified by the GBA as the “portion of the San Joaquin region which overlies the Eastern San Joaquin and Cosumnes Sub-Basin and coincides with the adopted Groundwater Management Area. To ensure that every parcel in the WMA is represented, all unorganized areas will be included in the San Joaquin County Flood Control and Water Conservation District. Figure 1 depicts the GMA with overlying GBA member agencies and stakeholders.



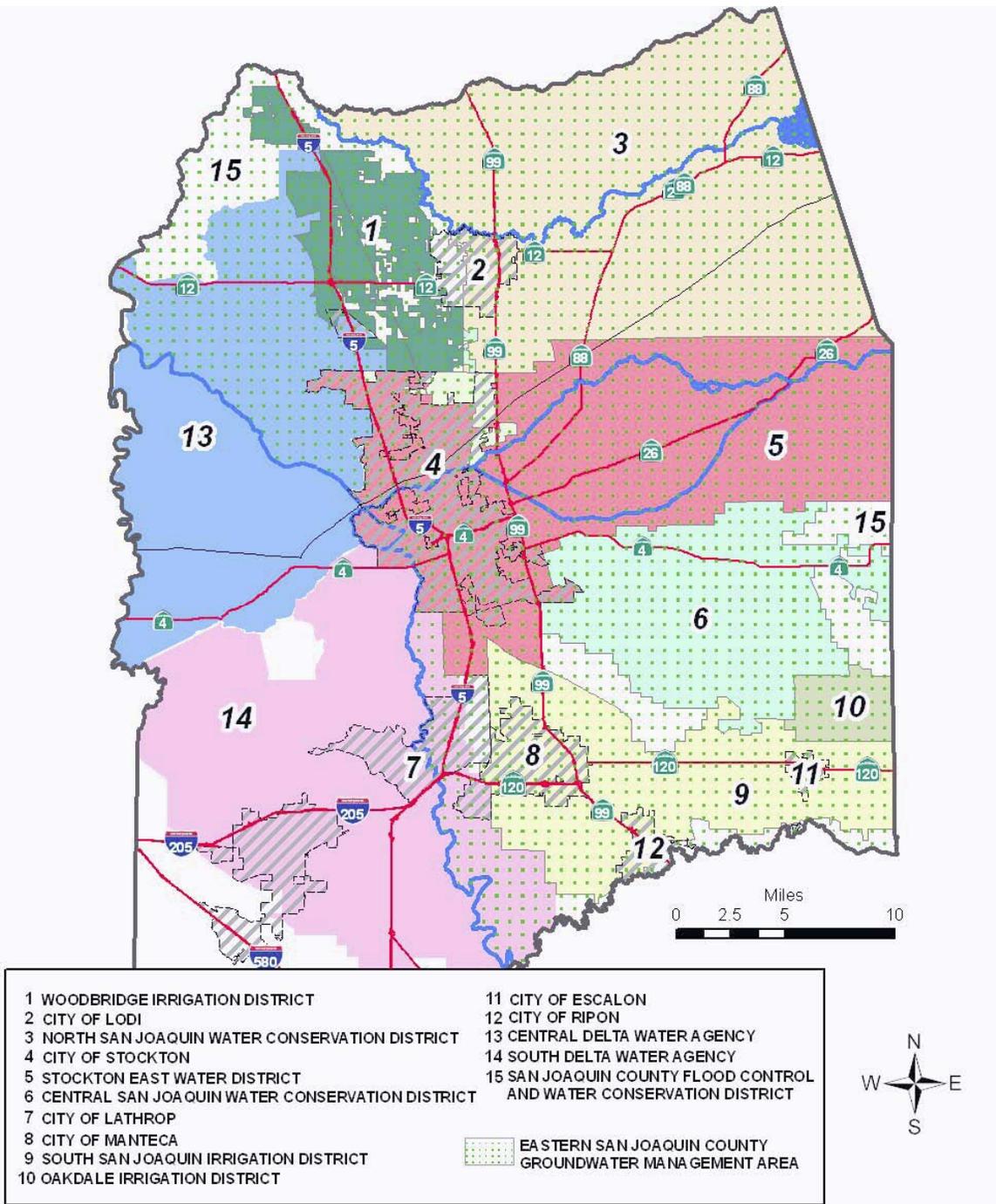


Figure 1 Overlying agencies within the Groundwater Management Area

1a4 – Define IRWMP Plan Objectives

Proposed IRWMP Plan Objectives were initially introduced during the January 26, 2005 GBA Coordinating Committee Meeting. During this meeting, the following were reviewed:



- Review Water Balance and Overdraft
- Develop Basin Operation Criteria
- Assess Regional Water Management Strategies
- Develop Evaluation Criteria
- Explore Potential Impacts and Benefits
- Develop Financing Plan
- Address State and Federal Water Resource Priorities
- Prioritize Projects
- Generate an Implementation Schedule
- Complete Programmatic CEQA Analysis

The objectives were also a topic during the February 23, 2005 Meeting. Bookman-Edmonston Consultant “Mark Williamson suggested advocating for something less quantitative and to specify the objectives in terms of meeting the needs. The needs are perhaps to sustain water supply, stop saline intrusion, to make it affordable to generate revenues, and look at a variety of solutions to meet those objectives.”

Gathered from the meetings, GBA members and other stakeholders had expressed numerous issues that should be addressed or considered in the development of the IRWMP. These issues include:

- Groundwater overdraft
- Saline groundwater intrusion
- Degradation of groundwater quality
- Subsidence and irrecoverable basin storage capacity
- Environmental quality of the community
- Health of the Sacramento-San Joaquin Delta
- Supply reliability during multi-year droughts
- Competing urban, agricultural, and environmental water demands
- Planned urban growth
- Recreational opportunities and access
- Expansion of agriculture into areas historically un-irrigated
- Groundwater management and governance
- Sustainability of economies dependent on sufficient water supplies of adequate quality
- Limited opportunities to develop new surface water sources
- Complexity of cooperation involving numerous local, regional, State, and Federal agencies
- Flood protection
- Funding and financing

These issues framed the development of the IRWMP objective which is to address the issues listed above that are impacting the management area provided in a means that is consistent with the Plan Purpose.

### **1b - Establish Regional Management Priorities**

The San Joaquin region has endured a condition of critical overdraft since the 1960s.



Steady urbanization has both increased and hardened demand, making drought response increasingly difficult. As groundwater levels have dropped, connate saline water underlying portions of the Delta have migrated into drinking water aquifers, making them unusable and requiring construction of replacement wells. As identified in the Water Management Plan and Groundwater Management Plan, **reliability** and **sustainability** of the County's water supplies are critical priorities. In addition, **flood control, recreation, and maintenance of habitat** are key issues of concern. There are also **time-critical opportunities** for project development that are tied to actions of other parties that must be made priorities so these opportunities are not lost.

To establish regional management priorities, we:

- Summarized stakeholder issues from existing planning documents into White Paper for dissemination to stakeholders for discussion and review
- Identified issues that stakeholders have in common to define key areas of focus
- Summarized key water management issues at **Public Workshop 1** and solicit stakeholder and public input
- Coordinated planning efforts with other agencies, both within the planning area and within the region

An initial effort of this sub-element was to confirm the GBA's Fundamental Objectives and to ensure they were closely tied to the identified priorities. The fundamental objectives and priorities provide a clear description of what GBA must accomplish to effectively manage the water resources in their service area over the next twenty years. The product from this effort is a stakeholder-supported statement of fundamental objectives.

A stakeholder-driven process was being used in conjunction with generalized modeling to establish an appropriate operating range for the groundwater basin, and to quantify approximate quantities of water. The generalized modeling used the regional Dynflow model under 2030 development conditions. Recharge was assumed to be spread uniformly over the most heavily overdrafted portions of the Management Area, rather than in specific project-defined areas. Efforts focused on quantifying additional water supplies necessary to maintain water levels experienced in historically high- and low-level years 1986 and 1992, respectively.

Products:

- Stakeholder Issues white paper
- Basin Operations Criteria
- Public Workshop 1
- Summary of local and regional planning efforts

### **1b1 – Define Basin Operations Criteria**

The Basin Operations Criteria sets quantitative target groundwater levels and descriptive basin condition levels that were used to monitor and predict changes in basin conditions and determine ICU Program operations in the Groundwater Management Area. Formulation of the criteria consisted of drawing input from GBA



member agencies and other stakeholders and the application of basin simulation modeling.

Discussions regarding Basin Management Operation Criteria first took place during the January 26, 2005 GBA Coordinating Committee Meeting. One of the reoccurring concerns conveyed during this meeting was "...if water is put into the aquifer will the same water be able to be extracted? A framework needs to be developed that helps establish a level of comfort with the banking concept."

At the March 9, 2005 Coordinating Committee Meeting, Dr. Mel Lytle gave an update that "...the Basin Operations Area (BOA) will be amended to reflect recent annexations."

Meanwhile, GBA Staff worked with the engineering firm of CDM to develop the basin operations criteria. CDM Consultant Paul Hossain presented during the April 13, 2005 Coordinating Committee where he discussed the development of the basin operation criteria through the application of modeling. He described that "they run generic recharge simulations to evaluate the quantity of water required to meet target levels. They evaluate regional and local benefits of projects through 15 "key wells." These are not specific projects, but rather simulate adding water through certain wells to see what happens to the basin." Mr. Hossain also presented "...what range of recharge it would take to recharge the basin."

Further discussions continued during the May 25, 2005 GBA Coordinating Committee Meeting, where Dr. Lytle "...talked about the potential importance of conjunctive use and groundwater banking in helping to resolve the overdraft issue. The "operational zone" was the focus of the discussion." "He also stated there is a need to develop recharge and banking project criteria." Dr. Lytle also posed the question whether the GBA can manage conjunctive use operations in the basin.

As GBA Staff continued to work with CDM, Consultant Enrique Lopez Calva provided a demonstration of "decision support tool" software during the June 22, 2005 GBA Coordinating Committee Meeting. He stated that "this is a tool the GBA could use to help define alternatives and to effectively screen them when prioritizing." The main functions of the tool include:

- Information Storage and Organization
- Analysis
- Interpretation (solicit preferences and explore risks)
- Decisions
- Strategies
- Management

New developments concerning basin criteria were conveyed during the August 10, 2005 Coordinating Committee Meeting. "It was suggested there are conditions which enable discussion of storage capacity, local use, regional use, and other uses."

Dr. Lytle reviewed some activities to consider relative to different color-coded conditions. For example:



- Condition Blue – 1960-1986 contours, basin full, regional use permitted as sufficient supplies for all local needs. Areas will exist where there is co-mingling of recharge/injections and also “bubble”
- Condition Green – 1986 contour, full local use, regional use in permitted areas
- Condition Yellow – full local use, regional use is project specific
- Condition Orange – below 1986 contour and first year drought reserve, local transfers encouraged, regional use not recommended
- Condition Red – below 1992 contour and 5 year drought reserve, priority allocations to basin area pumpers, regional use not permitted

The numerous meetings along with coordination with CDM and its modeling application helped to assemble the Basin Operations Criteria established in the final IRWMP which indicates:

Essentially, Basin Operations Criteria are a quantitative management framework used to accurately monitor and predict changes in basin conditions and gauge ICU Program operations with delineated Basin Operation Areas and Zones in the Groundwater Management Area. Within each of these areas, specific groundwater measurement criteria can be established based on historic groundwater levels...

The historic groundwater levels are defined by Pre-1960 elevation; Fall 1986 elevation; Fall 1992 Elevation; Basin Reserve; and Basin Terminal Pool.

## **1b2 – Summarize Stakeholder Issues and Coordinate Planning**

Discussions first took place during the March 23, 2005 Coordinating Committee Meeting, when a list of possible strategies for inclusion in the plan was introduced. The list included:

- Funding/financing mechanisms
- Recycling
- Flood Management
- Wetlands enhancement/creation
- Storm water capture/management
- Environmental habitat protection & improvement
- Desalinization
- Marketing mechanisms
- Collective political will
- Enhanced and protected water quality
- New water supplies
- Groundwater management
- Water supply reliability
- Transfers/exchanges
- Banking
- Public education/outreach



During the April 27, 2005 GBA Coordinating Committee Meeting, some discussion centered on simulations surrounding Stockton East Water District and Central San Joaquin Water Conservation Districts. Results showed that "...the anticipated results without action as the base case getting worse and falling below the 1992 level. It also showed that 200,000 ac/f might bring the level up to that of 1986 in the SEW district if all the water was placed in the deepest part of the depression."

At the July 27, 2005 GBA Coordinating Committee Meeting,

Dr. Lytle reviewed with the group the priorities from the Regional Groundwater Management Plan. A key point for the IRWMP is regional integration, but priorities may be similar. The group offered some suggestions and came up with the following list:

- Reliability
- Quality
- Groundwater management
- Ecosystem management
- Stormwater and flood control management
- Recreation
- Conservation, recycling, reuse
- Economic viability

The collective input from the meetings and Public Workshop 1 (See Task 1b3) generated the community values set forth within the final IRWMP. IRWMP objectives are intended to reflect these values and will be tailored accordingly. See Task 1b3 for the list of community values.

### **1b3 – Public Workshop 1 – Regional Priorities**

Public Workshop 1 was organized to summarize key water management issues and to solicit stakeholder and public input. The workshop was held during the March 23, 2005 GBA Coordinating Committee Meeting where

Dr. Lytle engaged the group in discussion regarding local/agency priorities, countywide, regional and statewide priorities. Some of the agency priorities were as follows:

- City of Stockton---reliability of supply and quality
- Central Delta---water quality is higher priority than supply
- City of Lodi---overdraft, water quality, and saline intrusion
- NESJWCD---overdraft, quality, and flood control

The Countywide priorities that were discussed bared a similarity to the agency priorities.

Finally, regional priorities were agreed upon as follows:

- Water supply
- Groundwater management
- Ecosystem restoration



- Water quality
- Social and economic vitality

The input received from the workshop and the meetings described under 1b2 contributed to the development of established community values. The statement of values as part of the Groundwater Management Plan and Water Management Plan is as follows.

The ICU Program should:

- Be implemented in an equitable manner
- Maintain or enhance the local economy
- Protect groundwater and surface water quality
- Be affordable
- Minimize adverse impacts to entities within the County
- Provide more reliable supplies
- Exhibit multiple benefits to local land owners and other participating agencies
- Maintain overlying landowner and Local Agency control of the Groundwater Basin
- Restore and maintain groundwater resources
- Minimize adverse impacts to the environment, community, and culture
- Protect the rights of overlying land owners
- Increase amount of water put to beneficial use within the San Joaquin region
- Support beneficial conservation programs

### **1c - Alternatives Development and Screening**

In this task, we:

- Defined the **Solution Area**, including associated hydrologic parameters
- Characterized previously identified projects and management actions to a common point of reference
- Defined performance measures to be used for alternatives evaluation
- Formulated complete alternatives designed to achieve the Fundamental Objectives

We conducted a series of stakeholder workshops with the Groundwater Banking Authority (GBA) Coordinating Committee (Coordinating Committee) to define the success criteria and associated metrics. The workshops promoted stakeholder participation through each major step in the process. The sequence of the workshops was designed to allow GBA and stakeholders to work together efficiently to choose the most promising projects and management actions that the GBA should implement.

#### **1c1- Define System & Characterize Projects**

A comprehensive list of projects and actions were developed through a series of stakeholder workshops over 18 months with the GBA Coordinating Committee. Project discussions were initially opened during the September 14, 2005 GBA Coordinating Committee Meeting where Water Resources Coordinator Dr. Mel Lytle presented an



overview of some of the issues that needed to be addressed. The questions he posed to the group were:

- What projects?
- When?
- How selected?
- What screening parameters?
- What basin and design criteria?
- What decision support tools?

Another key Coordinating Committee Meeting took place on September 28, 2005, where Consultant Mr. Petersen, of Peterson Brustad Pivetti, Inc. presented a handout on the Basis of Design for discussion. The Basis of Design contained the following information concerning potential projects:

- Water demand
- Fate of applied water
- Water availability
- Aquifer operations
- Water quality
- Wastewater discharge and recycling
- Flood management and storm drainage
- Conveyance
- Aquatic habitat
- Capital costs
- O & M costs
- Economic analysis

The information gathered on potential projects from various meetings and other sources was organized to reflect key differentiating characteristics which include water quantity and availability, cost, seasonality, among others. Cost information for most projects was based on estimates and data from similar constructed or bid projects. Where cost information is not available, estimates were made using basic unit cost formulae. Project attributes identified the expected beneficiaries and assessed their willingness and ability to pay. One dedicated Coordinating Committee stakeholder workshop (Task 1c) was devoted to confirming that the model attributes correctly represent local and regional issues and potential solutions.

In order to evaluate how groups of projects and/or management actions could perform in the future, individual project characteristics relevant to the performance criteria were described. Relevant information regarding each potential project listed in the Phase 1 report. Where necessary, we estimated project characteristics that are not readily available. Facility layout was developed to a pre-engineering level adequate to derive quantities (e.g. length of pipeline, pump lift, recharge pond acreage) adequate to develop cost estimates on a common basis. Project characteristics were presented to the Coordinating Committee for feedback.

## 1c2 - Define Performance Measures

Discussions regarding performance measures were first held during the September 28, 2005 GBA Coordinating Committee Meeting and led by Mr. Mark Williamson of Bookman-Edmonston. Mr. Williamson stated that

...in simple terms performance measures should help answer the questions, "What am I looking for?" and "How will I know when I've got it?" Once the fundamental objectives are identified, performance measures help judge satisfaction levels with achievement. Evaluation criteria is developed to reflect values and then to weight the values. A performance measure is a comparison of an indicator to some desired standard. Some will be quantitative and some will be qualitative.

Mr. Williamson also presented Draft Performance Measure categories that included:

- Storage levels
- Supply-demand balance
- Economics
- Water quality
- Equity
- Implementability

At the following Coordinating Committee Meeting on November 11, 2005, Dr. Lytle gave a presentation for which he provided an overview of the alternatives review process. Some issues include:

- How are various projects integrated into the plan when they are at various levels of development? How can they be equitably compared?
- STELLA modeling will be utilized in the alternative comparison decision-making. CDM has given an estimate of \$50,000 for this work.
- Zones are being used to consolidate, for the purpose of modeling, agencies into larger groupings. The group suggested the modeling might be focused on four zones rather than five zones. Dr. Lytle stated the separation into five zones allowed for more discreet modeling of saline intrusion.
- The northern boundary of Zone 2 will be adjusted northward to reflect current expansion by the City of Stockton.

Meeting discussions, staff and consultant analysis, and modeling simulation contributed to the development of performance measures. Final development enabled the GBA to screen and select the best combinations of projects and management actions that address key water issues by way of a four step systems approach. The first step was the clear articulation of what the GBA wanted to accomplish. The intended accomplishments were specified in terms of the already-specified Fundamental Objectives together with development of Performance Measures.

## 1c3 - Stakeholder Workshop 1 - Establish Performance Measures



Performance Measures are evaluation criteria that provide a methodology to compare the relative success of alternative solutions for producing the desired results. This led to the next steps of generating alternative solutions, evaluating those alternatives, and ultimately selecting the best alternatives to implement.

Articulation of Fundamental Objectives was completed through the GMP and WMP processes. The objectives listed above were adopted by the GBA as a representative statement of what should be accomplished through the process of IRWMP development.

- Identify key water management **issues**
- Use **issues** to help define problem
- Ways to define problem
  - Define **Fundamental Objectives**
  - Define **Performance Measures**

The Performance Measures identified in the IRWMP provide a set of indicators that were used to decide how effectively alternative solutions provide the desired outcomes.

A Performance Measure is a comparison of an indicator to some desired standard. These measures were crafted to use indicators that satisfy a Fundamental Objective, which in turn addresses one or more underlying Issues. Key to this will be addressing the following questions:

- What indicators are used to determine satisfaction of an Objective?
- What information is needed?
- How do you know the Objective has been satisfied?
- What are the standards of measurement?

**The Performance Measures were applied to predict performance and measure indicators against these standards. The following key questions were addressed:**

- If you make the changes you imagine, are your objectives likely to be achieved?
- If you make these changes, to what degree will your objectives be achieved?
- How do these changes affect the rest of the system?

For this task, we conducted two Stakeholder Workshops. Stakeholder Workshop 1 was held to review key water management issues and how they might be addressed through Basin Management Objectives. Stakeholder Workshop 2 was held to propose a weighting criteria for prioritizing projects.

Building upon the objectives adopted during Task 1a, one stakeholder workshop was held for the development of performance criteria development to compare the relative merits of projects and management actions (or groups of projects and actions) designed to meet the fundamental objectives.



Mr. Mark Williamson of Bookman-Edmonston led the Workshop that took place during the GBA Coordinating Committee meeting on December 14, 2005. Mr. Williamson explained that

there were a number of areas for which performance measures will be developed. They are:

- Storage levels
- Supply-demand balance
- Economics
- Water Quality
- Equity
- Implementability

He stated that within each category, criteria, indicators and standards of measurement are also developed. In addition, “Mr. Williamson distributed a draft of the Performance Measures” with details concerning storage levels, supply-demand balance, economics, water quality, equity, and implementability.

Performance measures confirmed during the workshop were documented and used to develop the screening model.

The next month, Mr. Williamson recapped the Performance Categories at the GBA Coordinating Committee on January 25, 2006,

He indicated in formulating alternatives they will consider projects and management actions that address objectives. The alternatives are grouped under general themes:

- No Action
- Demand-side Focus
- Local Supply
- New Supply
- Saline Water Barrier
- Regional Banking

#### **1c4 - Alternatives Formulation**

For this task, we compiled projects and management actions into several comprehensive alternatives designed to fully meet the Fundamental Objectives. It was contemplated that alternatives be formulated around general themes such as maximizing recharge, minimizing cost, or optimizing water reuse. Additional alternatives were developed as permutations of the initial alternatives. The initial alternatives were presented for information and feedback at **Public Workshop 2**.

A preliminary Screening Model (developed in Task 1c) was available to assist in the preliminary screening of alternatives.



- 1b4 Alternative Evaluation (4 alts)
- 1b4a Identify most promising alternatives for programmatic analysis
- 1b4b Alternatives Technical Memorandum
- 1b4c Alternative Formulation Workshop

**Stakeholder Workshop 2 – Initial Alternatives.** A workshop meeting was conducted to work through the alternatives development process and to display the most promising combinations of projects and management actions. General observations on desirability, reliability, and performance were received from participants. Promising Initial Alternatives were evaluated further in Element 1d – Modeling and Impact Assessment - and in the Programmatic EIR analyses. Products under this task include:

- Map of the Solution Area
- Hydrologic data loaded into Data Management System
- Stakeholder Workshop 1 & resulting Performance Measures
- Stakeholder Workshop 2 & resulting Prioritization Criteria
- Identification of Initial Alternatives
- Public Workshop 2

#### **1c4a – Compile Complete Alternatives**

The alternatives development took many months to complete which involved a series of GBA meetings to acquire input from stakeholders and the collaboration between a number of consultants and GBA Staff. The March 23, 2005 GBA Coordinating Committee Meeting was the first of alternative discussions. Some of the alternatives suggested during this meeting included the following:

1. Maximize infrastructure
2. Acquire new direct diversions
3. Develop conjunctive use
4. Utilize banking
5. Develop a saline intrusion barrier

During the April 27, 2005 GBA Coordinating Committee Meeting,

Dr. Lytle went on to address Program Alternative Options and indicated the group would need to work through the possibilities and determine which ones are viable and which ones to emphasize. Common project elements will be outlined and the need for 200,000 – 250,000 ac/t of water will be reconfirmed. He then explained the methodology for analyzing strategies for developing alternative options. It was noted that existing agricultural conservation practices should be incorporated into the plan as it does not currently describe any that are ongoing.

Alternative discussions were later revived at the December 14, 2005 GBA Coordinating Committee Meeting led by Mr. Mark Williamson of Bookman-Edmonston. He

...noted that alternatives are combinations of projects and management actions that work together to achieve goals. Preferred alternatives could include:

- Maximize demand-side measurements of conservation & reuse
- Maximize use of existing supplies & improved infrastructure



- Maximize Management Area transfers
- Maximize new supply (movement of water into the Management Area)
- Improve saline barrier
- Include groundwater banking and conjunctive use
- Include surface storage

At the January 11, 2006 Coordinating Committee Meeting that followed, Mr. Williamson approached the topic by asking the group to focus on three issues which are:

- Is there anything missing?
- Are there projects and/or actions that should be in all alternatives?
- Are there any projects to set aside for deeper analysis and to understand costs of such analysis?

During the February 8, 2006 Coordinating Committee Meeting, “maps of the basin area were distributed to utilize as working documents for locating alternatives.” Mr. Williamson of Bookman-Edmonston also indicated that “...he needs four alternatives for further analysis in addition to the “no action” alternative.” The alternatives discussed were:

- 2030 No Action
- Demand-Side Measures
- Maximum Use of Local Supplies
- Maximize Use of New Supply
- Saline Water Trench and Desalination
- Regional Water Banking

In the meeting that followed on February 22, 2006, Dr. Lytle reviewed the changes and comments of the five IRWMP alternatives as recommended during the last Coordinating Committee Meeting. He also opened the discussion to hybrid alternatives. As of this meeting the alternatives consisted of:

- 2030 No Action
- Demand-Side Measures
- Use of Local Supplies
- Use of New Supply
- Saline Water Trench and Desalination

During the March 22, 2006 Coordinating Committee Meeting, Mr. Williamson reported that “...staff has done a preliminary analysis for yield.” He reviewed some assumptions and alternatives that seem no longer relevant based on previous discussions.”

At the April 26, 2006 Coordinating Committee Meeting, further details of the saline barrier, demand-side measures, use of local supplies and use of new supply alternatives were discussed. CDM representatives led the discussion on the saline barrier concept who

...gave an overview of the Alameda County Water District (ACWD) Reclamation Project as a framework for discussions about conditions within San Joaquin County.



They discovered, for their purposes, the reverse osmosis technique was the most cost effective so they could reuse the water through desalinization. Their cost is approximately \$400 per ac/ft to import and approximately \$250 per ac/ft to desalinate.

Mr. Williamson discussed the remaining alternatives for which he stated that

...it would be helpful if there were three main alternatives agreed upon for inclusion in the environmental review for purposes of cost efficiency. He indicated they should consist of projects to which the GBA is willing to commit. They can be grouped as near term, phased, and by priority.

Within the alternative described as “Demand-side Focus,” the following were discussed:

- Conservation improvements at 15% of 2005 use
- Maximum reclamation from the Lodi WTP
- Agricultural application of reclaimed water
- Land use controls
- Incentives for surface water use
- Incentives for drought following
- Incentives for land conversion rate change

In the “Local Supply” alternative the following were discussed:

- Reclamation through DWSP
- Stockton DWSP
- Farmington Phase 2
- Improving NSJWCD conveyance
- Alliance Canal
- MORE Water/Lower Mokelumne diversion recharge
- In-lieu strategic pond
- Multi-purpose recharge site
- Small local banking with 60,000 AFY
- Additional transfers from OID, SSJ, etc.

The “New Supply” focus alternative raised the following possible components:

- Reclamation at WMP levels and the maximum at Lodi
- Stockton DWSP at 56,000 AFY (Phase 2)
- Farmington Phase 2
- Alliance Projects
- MORE Water Pardee diversion
- Freeport unassigned capacity (comments referenced the possibility of considering the American River project, Auburn/Folsom South. Dr. Lytle indicated this would require an organization with much more capacity than the GBA and SJC. Dr. Lytle stated he may describe rather than include in alternatives.)
- In lieu, direct field flooding, etc.
- Multi-purpose recharge site



- Surface storage, off-stream Duck Creek

At the May 24, 2006, GBA Coordinating Committee Meeting,

Dr. Lytle distributed a matrix worksheet to help members rate alternatives and performance measures. The worksheet includes the various alternatives, performance measures, indicators, and standards for storage levels, supply-demand balance, economics, water quality, equity and implementability. It was underscored this is a first cut and will need much tweaking including addition of other objectives, weighting, etc. Dr. Lytle offered to give the staff ranking recommendations but the group indicated a preference to doing their own ranking exercise.

During the June 14, 2006 GBA Coordinating Committee Meeting, Dr. Lytle reviewed the alternatives as of the meeting date. First discussing the no action alternative, Dr. Lytle explained that

The no action alternative modeling showed a new basin water level is developed over time. Conditions such as a drought of longer than historical duration and/or global warming would exacerbate the water level decline.

As for the remaining alternatives, Dr. Lytle gave a brief overview. He also indicated that a staff team had looked at some of the promising elements from each of the alternatives and grouped them together into a new “hybrid” alternative.

At the June 28, 2006 Coordinating Committee Meeting that followed, Mr. Williamson “...stated that at the last Coordinating Committee meeting, a fifth hybrid alternative was proposed that would consist of alternatives 3 and 4 which are New Supply and Saline Barrier Focus, respectively.” “The Hybrid includes Phase 2 of the Stockton Delta Water Supply Project, an enhanced Farmington Groundwater Recharge Program, and the MORE WATER Project with its Lower River and Pardee diversion elements. The Hybrid alternative also features a Regional Banking Program involving San Joaquin, Amador, and Calaveras Counties and a saline barrier/banking project.”

In summary, promising alternatives emerged from the ideas and information compiled from meetings and evaluations conducted using the Systems Model. A target net annual recharge of 140,000 to 160,000 acre feet per year was determined to be the level that resulted in acceptable water levels and water level fluctuations according to proposed Basin Operations Criteria. Four program alternatives were further studied and evaluated using the DYNFLOW groundwater model. These four alternatives were carried forward into the Programmatic Environmental Impact Report.

#### **1c4b – Sizing and Cost Estimator Permutations**

Capital and operations costs were taken from existing reports and studies, or were estimated using unit cost factors included in the Basis of Design. Costs were reported in 2007 dollars and are summarized below.



	Total Net Recharge (KAF/yr)	Capital Cost (\$M)	O&M Cost (\$M/yr)	Annualized Cost (\$M/yr)	Unit Cost (\$/AF)
Alternative A	151	\$921	\$10.1	\$68.5	\$460
Alternative B	133	\$712	(\$1.7)	\$43.5	\$330
Alternative C	138	\$584	\$13.7	\$50.8	\$370
Alternative D	148	\$829	\$10.3	\$62.8	\$420

Capital costs ranged from \$584 to \$921 million. Alternative C was the least expensive, and was the only alternative without a new surface storage reservoir. Alternative A was the most expensive, and included Duck Creek Reservoir and new diversions from Pardee Reservoir and the lower Mokelumne River<sup>26</sup>. Alternatives A, B, and C included regional banking components that provided a net water supply and a net revenue stream which reduced net operations costs<sup>27</sup>. Alternative B included a large groundwater bank that would recharge a net average of 53 k acre-feet per year and would produce revenues that would offset other operation costs. These revenues made Alternative B the least expensive on a unit cost basis.

Also shown in Table 7-5 are the land requirements for in-lieu distribution networks, recharge ponds, and field flooding. In-lieu surface water distribution systems would be required for 1,800 to over 10,000 acres for the various alternatives, costing an estimated \$2,400 per acre, for a cost of up to \$25 million in Alternative A. Alternatives C and D would each require nearly four square miles of recharge ponds totaling over \$100 million at an estimated cost of \$40,000 per acre. Land for field flooding would be leased for approximately six months per year.

### 1c4c – Stakeholder Workshop 2 – Initial Alternatives

Stakeholder Workshop 2 took place during the February 8, 2006 GBA Coordinating Committee Meeting. The workshop was held to determine initial alternatives and characterize projects and management actions. Mr. Mark Williamson of Bookman-Edmonston led the workshop and distributed maps of the basin area to utilize as working documents for locating alternatives. Mr. Williamson of Bookman-Edmonston also indicated that "...he needs four alternatives for further analysis in addition to the "no action" alternative."

Alternatives discussed were:

- 2030 No Action
- Demand-Side Measures
- Maximum Use of Local Supplies
- Maximize Use of New Supply
- Saline Water Trench and Desalination
- Regional Water Banking

### 1d – Modeling and Impact Assessment

To choose between potential alternatives, we needed a method to predict performance



with respect to the Fundamental Objectives. To this end, we updated the regional Dynflow screening model to compare expected performance of alternative combinations of projects and management alternatives for the GBA. The model provided a method to “operate” the San Joaquin region’s water system to try to meet future target demands for water considering various structural and management changes to the system.

A major effort in Plan development was the specification, design, and construction of an appropriate screening model. Based on the results of early stakeholder workshops, we determined the appropriate role for a screening model in project evaluation, with consideration given to basin operations, economics, ecosystem maintenance, and other factors. We constructed a node-link model with appropriate detail to reflect the various aquifer units, demand centers, and key issues central to project evaluation. One stakeholder workshop was devoted to confirming that model attributes were correctly representing local and regional issues and potential solutions.

Model operation was simulated at a fixed level of 2030 demand considering the variability of hydrology and imported supply the region will likely face. We used the historical time-series hydrology as presented in the Water Management Plan as a way to approximate the likely variability the region will face in the future. The results of the model provided a time series of outputs that can be evaluated in many different ways, as described below.

This screening model contained sufficient detail to differentiate between the various aquifer units, issues, geographic regions and water management actions. The model incorporated a framework of fixed parameters such as the physical setting, hydrology, and legal constraints. Other parameters specific to alternatives that were evaluated overlaid this fixed framework to test the performance of these alternatives in meeting the Fundamental Objectives. These variable parameters included new facilities, imported water quantities, and various management actions. The model produced time-series outputs that were evaluated in ways consistent with the Performance Measures presented above.

### **1d1 - Implement Data Management Protocols**

The GBA has numerous data management systems existing or in development to support its various monitoring programs. It is imperative for the GBA to implement a data management system as a means to store, archive, and access data in a timely, unambiguous way meaningful to decision makers.

The GBA compiles records of producers, production wells, and annual production. DWR maintains a database to store river flow, water quality and water level data collected by the County, USGS, and water agencies. Significant additional information is anticipated to be collected as part of this Plan to better characterize the groundwater system and the performance of recharge projects.

The GBA also continues with the development of a data management system based on a relational database structure to efficiently compile, store, archive, and access collected



data. The system was designed to provide data for a geographic information system and to accommodate data from additional collection efforts developed through implementation of the IRWMP. The compiled data is available to local water suppliers.

The Modeling Team utilized the Data Management System (see “Data Management” section, above) to ensure that hydrologic and other data are appropriate to the Solution Area and internally consistent.

During the May 24, 2006 Coordinating Committee Meeting, Mr. Brandon Nakagawa, Water Resources Engineer, discussed the importance of data management and its application in determining the best locations for project elements. He

gave a presentation on a method for determining best parcels for recharge, costs for land, conveyance, etc. and the resulting costs per ac/ft. He demonstrated, through a GIS mapping exercise, how one could identify agricultural parcels best suited for direct and in lieu recharge.

Mr. Nakagawa also described data needs which

...include the 2004 Agricultural Commissioners Pesticide Permit Database for data on crop type and intensity, the assessor’s map, ROW, General Plans, etc. The soil type, acreage, crop type and parcel detail form the GIS layers.

## **1d2 - Represent complex relationships between system elements**

Successful completion of alternatives screening required an appropriate screening model to compare expected performance of alternative combinations of projects. We designed and constructed a screening model with adequate detail to differentiate between the various basins, issues, geographic regions, and water management actions. The screening model produced outputs consistent with the identified performance measures. Generalized relationships from the Dynflow model was used to develop a screening model for preliminary review of Initial Alternatives. Examples of these generalized relationships are head-flow relationships between relatively large modeling elements.

In this task, the precise role of the model in project evaluation was established. The general purpose of the screening model was to evaluate and compare different combinations of proposed projects and management actions for the Coordinating Committee. This type of analysis and comparison helped Coordinating Committee members select the range of projects and actions that best address GBA issues and fundamental objectives. The precise design of the screening model and the way it was applied was settled after the first few workshops with the Coordinating Committee. The model reflected regional surface and groundwater hydrology and a regional water budget for the year 2020 based on work from Phase 1. Detailed basin operations, economics, ecosystem maintenance, and other factors were also considered in the model.



Mr. Paul Hossain, representing CDM, presented an update of modeling activities during the April 13, 2005 GBA Coordinating Committee Meeting. Activities included:

Modeling Objectives

1. Evaluate feasibility of maintaining the fall, 1992 and fall, 1986 water levels.
2. Evaluate benefits and impacts of specific projects.
3. Support local and regional planning efforts.

Development of Base Case

It was developed 5 years ago as part of the Regional Water Management Plan so it needed to be updated. The overall simulation approach has been modified. The previous approach was based on simulation of sequential development from 2000 through 2030. The new approach uses a constant level of development evaluated with 30 years of varying hydrology.

Manufacturing and industry demands are based on the SJCWWMP and more recent projections. Land use changes are limited to conversion of agricultural land in urban spheres of influence converted to urban land use.

Base Case Results

The change in storage in wet years (92,000), above normal years (337,100), below normal years (100,500), dry years (125,000) and critical years (151,100) - the Inflows come from deep percolation, net boundary flow and seepage from rivers. The outflows are from agricultural pumping and manufacturing and industrial pumping. In wet years, there is some rebound of the basin, but on average more is still being taken out more than coming in.

**1d3 - Develop Decision Support Tool to aid in analysis**

When comparing diverse alternatives, many traditional modeling tools are too complex, discipline-specific, data intensive, and difficult to adapt to changing needs. A node-link simulation model was constructed to test project impacts and to compare their relative merits. To represent baseline no-action conditions and the effects of the various project alternatives, water balance accounting was incorporated at a scale adequate to reflect the various aquifer units, demand centers, and key issues central to project evaluation. Optimization techniques were also considered as part of model development as appropriate based on the outcomes of Tasks 1a and 1b. The screening model was constructed to facilitate interactive screening workshops with stakeholders. Graphical presentation of output was emphasized while developing the screening model.

We used a simple Integrated System Simulation model such as STELLA for screening of Initial Alternatives. STELLA was designed to be comprehensive, but not to replace more detailed models such as Dynflow. In addition to deriving relationships, heuristic equations, and rule curves from the Dynflow model, the most promising alternatives were fully evaluated using the Dynflow model.

STELLA, a “decision support tool” software was first introduced during the June 22, 2005 GBA Coordinating Committee by Mr. Enrique Lopez Calva of CDM. The main functions of the software included:



- Information Storage and Organization
- Analysis
- Interpretation (solicit preferences and explore risks)
- Decisions
- Strategies
- Management

Mr. Calva also explained that

...the systems model simulates reservoir, surface, groundwater, etc. components of a water resource system. The model is dynamic and demonstrates how the system would respond in a given situation. It includes decision trees and scorecard/ranking software components. The model brings together many attributes and sources of information. It helps the user understand effects on the entire system and it runs quickly.

Development of the STELLA model extended over the next several months between CDM, GBA Staff, and other consulting firms. The next development update was given during the April 26, 2006 GBA Coordinating Committee. As of this meeting, CDM representatives indicated that the model showed that

...the depression is 40 feet below sea level. Over time, the model shows depression becoming 90 feet and the two cones of depression joining. The assumption is only to the 2030 level of development. There are 2 million ac/ft of additional loss in underground water after sixty years.

The model also indicated that

...if you are converting orchards to urban use, you use less water. If you convert vineyards to houses you use more water. When questioned about the deep well disposal of saline concentrate, it was noted this is an expensive alternative, there is risk as it might not perform satisfactorily, it is tightly regulated, and the public may look upon it unfavorably.

Further model development updates were later given during the July 26, 2006 GBA Coordinating Committee Meeting. Ms. Andrea Loutsch of CDM explained that the modeling "...allows quicker analysis than the groundwater model. Finalized alternatives will be fully evaluated by the groundwater model. A 2030 demand forecast was utilized and evaluates five sub-basins."

#### **1d4 - Stakeholder Workshop 3 – Present Screening Model**

We conducted one workshop to present the screening model we developed based on input from Tasks X, Y and Z. The screening model was designed to predict likely changes to the system assuming different combinations of potential projects and/or management actions were implemented. The screening model produced outputs consistent with the performance criteria established in Task 1b. During this workshop, we discussed how the model would be used in the remaining steps of the screening process.



Ms. Andria Loutsch, from the consulting firm of CDM, presented the STELLA model at both the GBA Board and GBA Coordinating Committee meetings on October 11, 2006. Her presentation demonstrated key features of the STELLA model which include:

- Represents hydrologic system more conceptually than groundwater model, but it is wider in scope
- Allows analysis of each alternative's gross effect on groundwater basin volume/level more quickly than detailed groundwater model
- Allows evaluation of changes to alternative configuration "on the fly"
- Single year of demand (2030) evaluated over 22 different hydrologic years (1970 – 1991) –provides probabilistic view of what is likely over different hydrology scenarios
- Evaluates five groundwater subbasins separately

In addition, the following observations were made with the following alternatives when applied to the model:

- No Action – average groundwater levels will be significantly lower than 1986 levels
- Alternative 1 – some improvement towards 1986 levels
- Alternative 2 – appears to meet 1986 levels under the majority of years
- Hybrid Alt – provides more water than necessary to meet 1986 levels, most expensive alternative

#### **1d5 - Alternative Evaluation (3 alts)**

The analyses described above resulted in the identification of approximately three Most Promising Alternatives which best address the Fundamental Objectives and underlying issues. Each Alternative identified a quantity of recharge required to meet Basin Management Objectives in each of the identified management units. Representative projects were evaluated in the modeling effort and rated using the Performance Measures.

#### **1d5a – Identify Most Promising Alternatives For Programmatic Analysis**

During the January 10, 2007 GBA Coordinating Committee Meeting, Mr. Mark Williamson of Bookman-Edmonston reported that "The committee, in conjunction with staff, is writing the plan concurrently with developing the models and performing the modeling activities." He also led the discussion on project alternatives in terms of yield for recharge, banking and extraction and acreage costs.

#### **1d5b – Alternative Technical Memorandum**

#### **1d5c – Public Workshop 2 – Preliminary Alternatives**

#### **1d6 - Determine Environmental Fatal Flaws and Permitting Issues**

We determined whether there were identifiable environmental fatal flaws or permitting issues before moving into the environmental documentation element. We examined Delta water quality impacts through examination of DWR CalSim modeling and other



tools such as “G-Model” salinity estimators. We examined hydrologic impacts from new diversions on minimum instream flow requirements. We identified data gaps and base mapping requirements. Geographic information system (GIS) data from readily available local, state, and federal sources was collected to construct an initial GIS database. Types of data included special-status species, sensitive habitats, flood vulnerability, general plan designations, aerial photographs, cultural resources, infrastructure, geology, and water resources. Finally, we held Focus Group meetings with regulators and potentially affected parties to hear, understand, and document their concerns.

A major concern was raised during the December 12, 2008 GBA Board Meeting. Dr. Mel Lytle, Water Resources Coordinator, led the discussion regarding the Legislative Analyst’s Office Report (October 2008) on the Possible Reevaluation of Groundwater Rights. “The report suggests some significant changes in groundwater rights and therefore is of concern to the GBA. Members of the board and staff believe the GBA should get involved in this issue and submit comments.” GBA Staff presented a draft letter in response to the report in which the Board directed that it be revised according to the comments. The Board also authorized the formation of an advisory committee to defend the GBA’s arguments with the report.

#### **1d6a – Delta Water Quality Analysis**

#### **1d6b – Hydrologic Impacts**

During the February 28, 2007 Coordinating Committee Meeting, Dr. Lytle discussed the topic of adjudication of the Eastern San Joaquin Groundwater Basin. Dr. Lytle stated that at the State Water Resources Control Board hearing for GBA member agency North San Joaquin Water Conservation District, “...Board Member Arthur G. Baggett, Jr. asked staff to look into adjudicating the basin.” GBA Board Member Mr. John Herrick that he had sent a letter in response to Mr. Baggett’s request. “It was suggested GBA staff should meet with the staff of the SWRCB.”

Dr. Lytle also led a discussion concerning groundwater management framework and operations criteria. “He stated there is a need for 140,000 to 150,000 af of additional supply. The big question is can we manage the conjunctive use operations in the basins.” Dr. Lytle also discussed a color code applied to varying groundwater levels and possible scenarios pertaining to the levels.

Dr. Lytle reintroduced the issue of possible adjudication of the Basin during the April 2007 Board Meeting.

Dr. Lytle reviewed the background of the proposal to adjudicate the ESJGB reminding the Board it was a comment made by SWB Member Baggett, Jr. during the NSJWCD hearing. Director John Herrick penned a letter regarding this issue to the State Board and it was included in the Board packet. Dr. Lytle stated this is a pretty serious threat from the SWB and something the GBA needs to pay attention to and take action to avoid. He put forward the staff recommendation to allow staff to also write a letter to the SWB for the Chairman’s signature. He emphasized San Joaquin is not a stand-alone basin, but rather one with multiple connections which would cause virtually the entire Valley to be adjudicated.



Completion of the Draft PEIR was delayed due to Delta issues. During the November 12, 2008 GBA Board Meeting, Dr. Lytle explained that

...the consultants are struggling to understand what is going on in the delta as there are pending rulings. Therefore it is difficult to get their arms around the potential effects of ICU projects. They are trying to develop a strategy for approaching the issues as the rulings may take several years.

### **1d6c – Focus Group Meetings**

The GBA incorporated a stakeholder and public outreach program to generate public support for the IRWMP. A series of workshops were conducted with the Coordinating Committee and the general public over a span of 24 months that included six workshops to ensure stakeholder participation through each step of the screening process. Workshop task topics included the following:

- Public Workshop 1 - Regional Priorities—including an overview of the screening process, and articulation of fundamental objectives
- Stakeholder Workshop 1 - Performance Measures – establish criteria to judge the relative merits of projects and management actions
- Stakeholder Workshop 2 - Initial Alternatives – including characterization of projects and management actions
- Stakeholder Workshop 3 - Present Screening Model
- Public Workshop 2 - Preliminary Alternatives
- Stakeholder Workshop 4 - Exploring Promising Combinations of Projects

### **1d6d – Write Technical Memorandum**

During the October 8, 2008 GBA Board Meeting, Mr. Nakagawa

...said at the last update on the PEIR, the consultants said the draft would be ready for public release in October. They now believe it will be November or December because there is additional work being done. The Groundwater Technical Memorandum which supports why projects are being considered and why the program is so large is important to complete. There are modeling components to this which are necessary to help with supporting data. The surface water memorandum is important as other agencies and jurisdictions will look at this information to determine how the GBA program will affect them.

Mr. Nakagawa gave an update on the contents of the technical memorandum during the November 12, 2008 GBA Coordinating Committee. The contents are as follows:

- Introduction – Purpose and Scope – document ICU program alternative output and support the PEIR
- Model Background
- Existing Conditions – provides baseline of 2006 level of demand. The model period is 1970-2006 x 7
- Future No Action Alternative – this is important as it demonstrates what would happen with no action



- Action Alternatives – Mr. Nakagawa distributed a hand-out containing descriptions of the components of the alternatives
  - Max MORE
  - Big Bank
  - Low Structural
  - South Gulch/No Bank

At the December 10, 2008 GBA Coordinating Committee Meeting,

Mr. Nakagawa noted Alternative B, the “Big Bank” alternative, has been remodeled and the extraction area was spread out to alleviate the decrease in groundwater levels. He then outlined the technical memorandum chapter format for surface water:

1. Introduction and Purpose
2. Data Collection and Review
3. Project-Basis Analysis
4. Alternative Impacts
  - Alternative A 163.5K TAF/yr.
  - Alternative B 149.7K TAF/yr.
  - Alternative C 150.5K TAF/yr.
  - Alternative D 161K TAF/yr.

### **1d7 - Engineering for Preferred Alternatives**

We performed additional engineering for the Most Promising Alternatives. However, project-specific information on recharge performance is not yet available to differentiate performance between projects. For example, infiltration rates for most potential recharge pond sites are not known and consequently all projects are presumed to perform alike, barring differentiating information. Existing data from projects in an advanced stage of study was compiled and used to further define project performance, location and footprint. This information includes soils information, bore hole analysis, infiltration tests, pilot tests performed by the GBA or others, field survey of environmentally sensitive plant or animal communities, real estate and other cost data, pumping tests, or localized groundwater modeling.

We compiled and reviewed important background reports, data, maps, and necessary documentation, including making a first informal contact with state and federal agencies. We also identified significant issues to be addressed, documented known project constraints, and further defined the analysis approach necessary to prepare a defensible EIR and identify the Engineering Preferred Alternative.

### **1d7a- Identify Engineering Preferred Alternative**

Consultant Mark Williamson of Bookman-Edmonston reviewed project alternatives during the GBA Coordinating Committee Meeting on January 10, 2007. He noted that “the target average recharge within the plan is currently noted at 150,000 ac/f per year in order to meet the water balance. This results in a 30,000 ac/f per year average net to the basin through a combination of recharge, banking and extraction.” “In regards to the



acreage costs used as assumptions within the plan to date, they assume an average \$20,000 per acre for agricultural land and \$200,000 per acre for urban fringe land. It was noted when a project design and sighting occurs, they need to look at the actuals to calculate current costs.”

In the following month, Mr. Williamson continued alternative discussions during the February 28, 2007 GBA Coordinating Committee Meeting where he

...asked the group to confirm the accuracy of the “Common Actions” and the “Common Elements” to be included in the alternatives. The following comments were made:

- SEWD and CSJWCD renewals should be assumed
- NSJWCD current situation regarding permit renewal should be noted. It should be left at 20,000 a/f
- DWSP should be noted at 33,000 a/f per year

Mr. Williamson also noted alternatives that include the proposed Duck Creek Reservoir as configured currently yield more water than necessary to meet the purpose and need of the Interregional Conjunctive Use Project.

#### **1d7b - Stakeholder Workshop 4 – Explore Promising Combinations of Projects**

For this task, we presented preliminary findings obtained from the screening model to promote brainstorming of other potential alternatives for meeting GBA’s fundamental objectives. We conducted a Coordinating Committee stakeholder workshop where stakeholders propose and discuss possible combinations of projects and management actions (alternatives) designed to meet agency objectives. We then applied the screening model to predict the likely results of the proposed alternatives so stakeholders can compare the relative merits of each alternative using the agreed upon performance criteria. The product of this task is a matrix of projects and actions that best implements each of GBA’s fundamental objectives.

Based on the screening model results, three alternatives<sup>29</sup> supported by the GBA that best satisfy the fundamental objectives were recommended. Recommendations for additional data and further analyses required that long-term solutions be identified. The steps required to develop a comprehensive water management strategy implementing the best alternatives was presented to the GBA Board.

Products:

- Evaluation of Most Promising Alternatives rated using Performance Measures
- Technical Memorandum documenting potential environmental fatal flaws and Focus Group concerns
- Additional engineering analysis of Most Promising Alternatives and identification of the Engineering Preferred Alternatives
- Stakeholder Workshop 4 – Explore Promising Combinations of Projects

#### **1d8 - Water Shortage Contingency Planning**



This sub-element describes actions to be taken during periods of water shortage. It is expected that San Joaquin region water users would rely more heavily on groundwater during dry periods. This task confirmed that adequate groundwater reserves, extraction capacity, and rationing potential exists for multi-year drought periods.

### **1d9 - Water Conservation and Demand Management Measures**

Urban water conservation programs in California have shown potential water savings are in the order of 10 to 20 percent. In the Region, urban conservation could result in 20,000 ac-ft/year of demand reduction which would reduce reliance on existing supplies by a like amount. Demand management measures (DMM) include distribution system leak-reduction programs, household metering, rebates and other financial incentives, tiered pricing to discourage high use, education of school children and the public and market-enforced transition to water-saving household plumbing devices. Typical costs of such DMMs (excluding meter installation) are in the range of \$2 to \$4.50 per capita per year in California cities. For households not already metered, the installation of a household meter typically costs about \$450.

Urban water purveyors overlying the Basin have for the most part implemented DMMs that are cost effective (as stated above in the summary of Urban Water Management Plans). As the GBA and its member agencies begin to implement larger regional projects, more focus will be given to implementation of more ambitious DMMs. Urban water conservation is considered an essential component to the ICU Program.

### **1d10 - Institutional Plan**

The final task in this Element was to define what agencies and stakeholders would be implicated by implementation of the various alternatives being considered. In particular, we examined:

- Federal involvement (contract rights, Federal facilities, permitting agencies) that might require NEPA documentation
- In-Delta users and Delta exporters
- Adjacent water management activities
- Non-water-supplier stakeholder groups such as the Farm Bureau, Building Industry Association
- Other factors

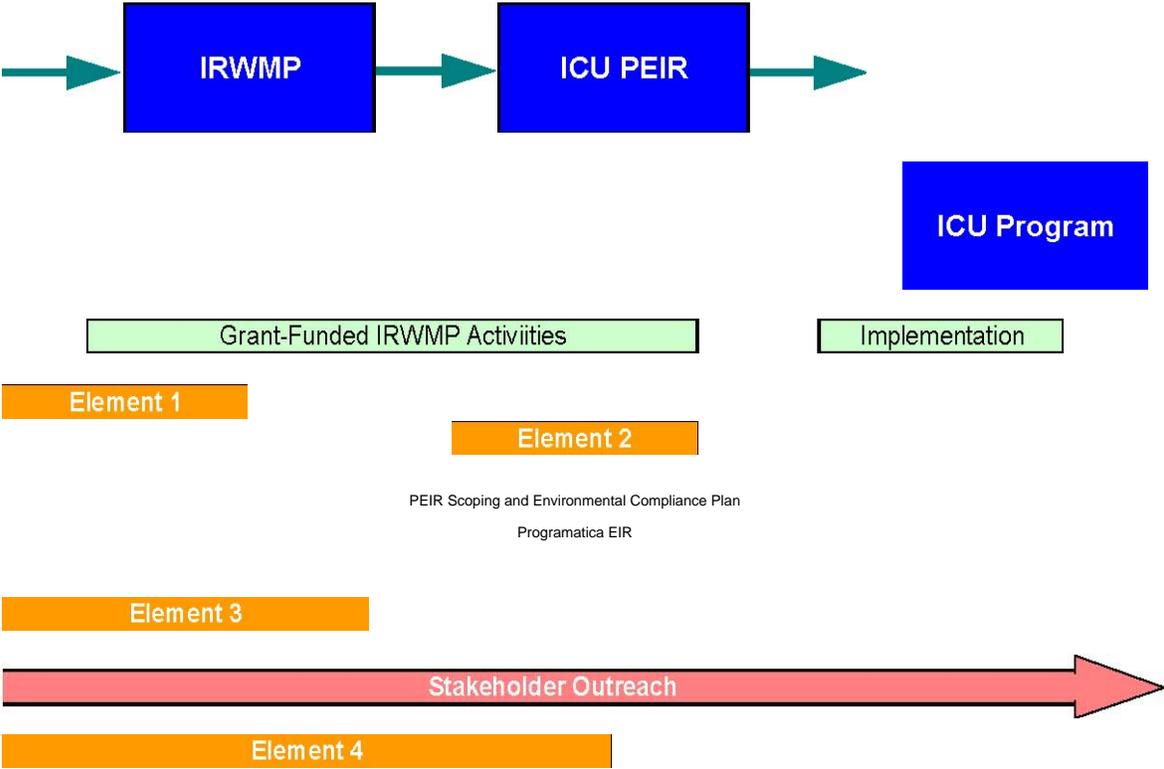
<sup>29</sup> An alternative is a combination of projects and other management actions designed to meet the GBA's long-term objectives.

<sup>30</sup> California Urban Water Conservation Council, 2002, "Memorandum of Understanding Regarding Urban Water Conservation in California"

We will provide a comprehensive listing of involved institutions and a generalized plan for integrating their concerns or involvement into the IRWM Plan. This listing will also provide a qualitative metric for institutional complexity.



Element 2 – Programmatic Environmental Impact Report



Element 2 – Programmatic Environmental Impact Report

2RFP Issue RFP for PEIR, Interview, Select & Contract

At the GBA Board meeting on January 11, 2006, Water Resources Coordinator, Dr. Mel Lytle reported that “Eight firms expressed interest. Two firms (ESA and Jones & Stokes) actually proposed” projects in response to the County’s request for proposal. Dr. Lytle further reported that “The oral interview portion of the selection process will occur on the 19<sup>th</sup> of January. The panel includes a representative from the City of Lodi, Mr. Dante Nomellini, Jr., Mr. Bob Granberg, Dr. Mel Lytle, and Mr. Kevin Kauffman.”

During the February 8, 2006 GBA Board meeting, Water Resources Engineer, Brandon Nakagawa “...reported a unanimous decision on the part of the selection committee to enter into contract negotiations with ESA.” He also reported a contract was to be brought before the Board at the next Board meeting.

On March 22, 2006, Dr. Mel Lytle requested action from the Board to approve a resolution that would allow the County to contract with Environmental Science Associates (ESA) to develop an Environmental Impact Report. The EIR was to be completed by spring 2007. “Director Nomellini moved approval of the resolution with substitution of the term smart integration for smart grow. The motion was seconded by Director Giovanetti and passed unanimously.”



At the December 10, 2008 GBA Board Meeting, Dr. Lytle requested that the Board approve a contract with GEI/Bookman-Edmonston for Professional Consulting Services. Dr. Lytle stated that "...GEI/Bookman-Edmonston have helped staff develop a number of documents and grant applications." The request was approved by a unanimous vote.

Finally, at the December 9, 2009 GBA Board Meeting, GBA Staff requested the extension and increase of the Bookman-Edmonston contract. "Dr. Lytle said this is Mr. Mark Williamson's work as directed by staff. He is helping with the PEIR and the RAP process." In summary, the GBA Board granted the increase and extension.

## **2a - PEIR Scoping and Environmental Compliance Plan**

This task included additional screening of alternatives, environmental scoping, development of a Regulatory Compliance Plan, environmental analysis, and creation of an Administrative Draft, Draft, and Final Programmatic Environmental Impact Report (PEIR). Our initial assumption was that an Environmental Impact Statement (EIS) will not be required to support the IRWM Plan – this assumption was verified as part of the scoping process. This Element resulted in programmatic coverage of IRWMP alternatives that subsequent project-specific environmental documents would reference and "tier off," resulting in overall less complexity and cost.

This element included two principal sub-elements. Sub-element 2a includes alternatives screening, environmental scoping, issuance of the Initial Study and Notice of Preparation, and preparation of an environmental compliance plan which was used to develop a refined scope for the EIR to be produced in Sub-element 2b.

### **2a1 - Notice of Preparation and Scoping Meetings**

This effort comprised of the following three sub-elements:

- 2a1a Prepare Final Program and Alternatives Description
- 2a1b Prepare Final Initial Study/Notice of Preparation (IS/NOP)
- 2a1c Conduct scoping meetings and prepare scoping report.

#### **2a1a - Prepare Final Program and Alternatives Description**

The environmental team reviewed and redrafted the program description and prepared the final description of the program alternatives. The complete program description documents all policies, management programs, and non-structural program components or elements that define the overall IRWM Plan. The final program description was reviewed and approved by the GBA prior to initiating the CEQA scoping process in order to ensure completeness.

#### **2a1b - Prepare Final Initial Study/Notice of Preparation (IS/NOP)**

In order to elicit agency and public input on the scope of the EIR, we will prepare the IS/NOP using the current CEQA checklist and the data compiled and refined alternatives. The primary use of the IS/NOP will be to highlight specific issues or topic



areas that will be evaluated in more detail in the EIR. Once the IS/NOP are approved by GBA and finalized, we will submit the documents to the State Clearinghouse for state agency review. This will initiate the 30-day circulation period as required by the State CEQA Guidelines.

At the August 8, 2007 GBA Coordinating Committee Meeting, Ms. Moulton of CDM reported that

The draft NOP is being prepared and will provide a summary of the proposed program and review of impact issues to be addressed in the PEIR. It is anticipated the NOP will be complete in August with public circulation in September. There is a 30-day public review and comment period required. However, this can be longer if desired and/or needed. Scoping meetings should begin late September or early October. The Notice of Determination is filed after approval of the PEIR.

The next month, the draft NOP was presented during the September 12, 2007 GBA Board Meeting for approval. "Director Steffani moved and Director Panizza seconded a motion to release the Integrated Conjunctive Use Program EIR Notice of Preparation. The motion passed unanimously." However the NOP was not released to the public until the following month.

At the October 10, 2007 GBA Coordinating Committee Meeting, an amended NOP was presented and discussed. Changes to the NOP include:

- Page 1 – The GBA is named as the "lead agency"
- Page 2 – The "Program Study Area" description is updated to be consistent with the IRWMP
- Page 3 – Added a locator map which includes rivers and cities
- Page 4 – South Delta was added to the list of overlying agencies
- Pages 8-11 – Added a description of program alternatives
- Page 9 – Added a generalized map of potential projects (expanded sheet within distributed document)
- Page 12 – Described the difference among the four alternatives
- Page 19 – Added text on climate change

### **2a1c - Conduct scoping meetings and prepare scoping report**

We will conduct two public scoping workshops. The first meeting will be at a midpoint of the 30-day public review period and the second will be towards the end of the public comment period. We will facilitate the meeting by presenting the project description, describing the CEQA process and opportunities for subsequent review, and briefly review the IS/NOP to identify the important environmental issues to be evaluated in the EIR. We will prepare meeting minutes to summarize the public and agency comment and include these in the scoping report.

During the November 14, 2007 GBA Board Meeting, Dr. Mel Lytle, Water Resources Coordinator,



...updated the Board on the progress of the PEIR process. Last week they held two formal scoping meetings. Two people attended from the Council of Governments (COG) and one from EBMUD. The COG comments were regarding adhering to the Habitat Conservation Plan (HCP) Plan.

“Caltrans, Fish & Game, Office of Planning and Research, and the State Clearinghouse provided written comments.”

## **2a2 - Prepare Environmental/Regulatory Compliance Plan**

Based on the assessment of available data, scoping report and public comment, a plan for obtaining required permits and complying with determining applicable regulatory process was developed. Included in this assessment was a determination of the need for a permit under Section 404 of the Clean Water Act or Section 7 of the Endangered Species Act. If the RWMP is found to involve federally significant activities, we will determine whether to prepare an Environmental Impact Statement or development of an alternative compliance strategy.

## **2b – Programmatic EIR**

### **2b1 - Prepare Administrative Draft EIR**

The environmental team prepared the Administrative Draft EIR, met with the GBA to review and incorporate comments, edited the administrative draft to produce the Public Draft, and provided a complete document to the GBA for circulation. The Administrative Draft EIR assessed the potential environmental impacts of the IRWMP, including the site preparation, construction, and operation of the proposed capital facilities. This document allowed the GBA to completely review the proposed project and define for the public how subsequent actions are to be implemented and evaluated following CEQA.

Specific environmental resource topics addressed in the EIR generally parallel those typically required in an EIR. This includes specific sections for each resource topic listed below in the likely order of complexity and importance to the GBA project:

- Water Resources, including groundwater, surface water, and water quality
- Land Use
- Public Services and Utilities
- Biological Resources
- Air Quality
- Geology and Soils
- Transportation and Circulation
- Recreation, and Aesthetics
- Noise/Vibration
- Public Safety (including Toxics)
- Flooding and Drainage
- Cultural and Historic Resources

After the GBA reviewed the Administrative Draft EIR, we met with the Team to discuss



the document prior to incorporating necessary revisions. We prepared and submitted to the State Clearinghouse the Draft EIR and Notice of Completion (NOC).

GBA minutes reveal the following activities to prepare the Draft EIR that took place for nearly two years.

Mr. Brandon Nakagawa, Water Resources Engineer and Ms. Leslie Moulton of ESA announced during the December 12, 2007 GBA Board Meeting, that staff was beginning the development of the draft PEIR. They also noted that “there is still some uncertainty about how staff will address climate change.”

In the following month, Mr Nakagawa reminds the group that “...ESA is in the process of writing the administrative draft.” In addition, he announced that “the initial chapters of the draft will be available for review by the C.C. at the next meeting. Staff is requesting feedback on each chapter as it is drafted.”

ESA representative, Mr. Robert Eckard presented at the February 13, 2008 GBA Board Meeting. He “reviewed the framework of the document and outline of the chapters.” Mr. Robert Eckard also attended the GBA Coordinating Committee Meeting and continued the discussion from the Board meeting. He requested of the members to submit their comments on Chapters 1-3 no later than March 1st.

ESA followed through with another update during the April 23, 2008 GBA Coordinating Committee Meeting. ESA representative Ms. Moulton discussed “areas where there are potential cumulative impacts” and “...additional potentially significant impacts needing more attention at the project level.”

Several months followed with GBA Staff and ESA collaborating to develop the Draft PEIR until Water Resources Engineer, Brandon Nakagawa, updated the GBA Board on November 12, 2008 with the progress. “Mr. Nakagawa stated the timeline will be pushed back. It will probably need to move to a January or February date for completion.” Dr. Lytle, Water Resources Coordinator, added:

...the consultants are struggling to understand what is going on in the delta as there are pending rulings. Therefore it is difficult to get their arms around the potential effects of ICU projects. They are trying to develop a strategy for approaching the issues as the rulings may take several years.

Mr. Nakagawa also presented during the GBA Coordinating Committee that followed where he discussed the contents of the draft PEIR.

Further development on the Draft PEIR had scaled back its completion beyond February as estimated last November. During the April 8, 2009 GBA Board Meeting, Mr. Nakagawa reported on the PEIR progress. He indicated that “they have embarked on a process to look at the effects of in-lieu, recharge, and global warming. The updated schedule pushes for a July public release date. The administrative draft for internal staff review should be received within two weeks. After internal review, it will be released to members for their input.”

In the following GBA Board Meeting on May 13, 2009, Mr. Nakagawa reported:



Staff has received the draft and has reviewed it. The draft will be made available early next week to members of the GBA. Comments need to be received by June 10, 2009. Once those comments are addressed, the draft will be printed and released for the public comment period in July. It will be a 45 day comment period. There will be more than one public meeting. The comment period will end in mid-August. Comments will be incorporated and the final report released by the end of the year.

Considering the size of the Draft PEIR, GBA Staff later determined that they needed more time to review it. Therefore, during the June 10, 2009 GBA Board Meeting, Mr. Nakagawa announced that GBA Staff would move "...the public release forward one month" and that ESA would do a presentation at the next GBA Board meeting. In addition, "there will be notification sent to member agency staff that review of and comments on the draft are desired."

Accordingly, Ms. Leslie Moulton of ESA presented the draft PEIR to the GBA Board on July 8, 2009. She stated that

...there were four alternatives looked at with an equal level of detail. There were a number of impacts under review. Some of them include: groundwater levels and recharge (beneficial), land subsidence (beneficial), well efficiency (beneficial), surface hydrology (beneficial), reductions during banking from pumping (less than significant).

In addition, "there have been substantial recent changes in Delta regulatory status, especially regarding Delta smelt and salmon biological opinions. Revisions are all in flux as new opinions have been issued and are being reviewed. Because of this they could not do a complete analysis."

Ms. Moulton further reported that "the current schedule is certification/NOD between December and February. They are looking to release the draft to the public in August for comments and the start of the 45 day public review period."

Dr. Lytle added that "...the release will happen following approval of the draft by the GBA board at the August meeting."

## **2b2 - Circulate Draft PEIR and Conduct Public Meetings**

We supported the GBA during the public review and comment period and coordinated two public meeting days. Each day would included two meetings, one in the afternoon and one in the early evening, similar to the approach during the NOP comment period.

During the August 12, 2009 GBA Board Meeting, Mr. Nakagawa presented an overview of the draft PEIR in support of requesting approval for its public release. He reported that

...ESA reviewed the four alternatives. They said throughout the PEIR, they have tried to differentiate the alternatives as much as possible. Impacts under review



include groundwater (recharge, land subsidence, well efficiency and surface hydrology) and the effects are beneficial.

Final revisions to the PEIR were scheduled for 8/27 with the draft PEIR scheduled for public release on August 28th. The public review process was planned to take place from August 28<sup>th</sup> through October 16th. To follow, certification was planned for some time between December 2009 and February 2010.

In response to Mr. Nakagawa's request for release, Director Nomellini moved and Director Ferraro seconded a motion to release the report. The motion passed unanimously.

At the following GBA Board Meeting on September 9, 2009, Dr. Lytle announced that "there will be a minimum 45-day comment period. The final PEIR for certification will come back early 2010. The document is approximately 900 pages. The public can also obtain CD copies and the draft will be posted on the website."

During the December 9, 2009 GBA Board Meeting, Mr. Nakagawa gave an update on the public comments received concerning the Draft PEIR subsequent to its release last September.

He stated there were 173 comments submitted from 15 individuals and agencies. Some represent the Duck Creek area, some Calaveras County Water District, with the bulk coming from EBMUD. Concerns about impacts to the Mokelumne River and fisheries were received along with references to access issues. Staff is working on responses to comments received.

## **2b2a – Public Meetings**

## **2b3 - Prepare Final EIR and MMRP**

Upon close of the 45-day comment period, the environmental team will meet with GBA to discuss written and oral public comments and make decisions on the final approach to production of the Final EIR (FEIR). One consensus is achieved, we will prepare an Administrative Draft FEIR and the Mitigation Monitoring and Reporting Program (MMRP) for GBA review and comment. We will incorporate the necessary revisions into the document and submit the Final EIR.

## **2b4 – Findings, NOD, ROD, Certification and Conduct Public Hearings**

The environmental team will support the GBA through certification and during the public hearing to certify the FEIR. This includes drafting CEQA Findings of Fact (Findings), providing notice to commenting agencies, and presenting the final document during the public hearing. Upon certification, we will provide the Notice of Determination.



### 2b3a – Public Hearing

### 2b4 – Findings, NOD, ROD, Certification and Conduct Public Hearings

### 2b5 - Certify Findings, MMRP & FEIR

The Findings, Mitigation Monitoring Plan and Final EIR will be certified by the Board.

## Element 3 – Management Action Plan

### 3a - Strategy Integration

The plan Management Area is a study in contrasts:

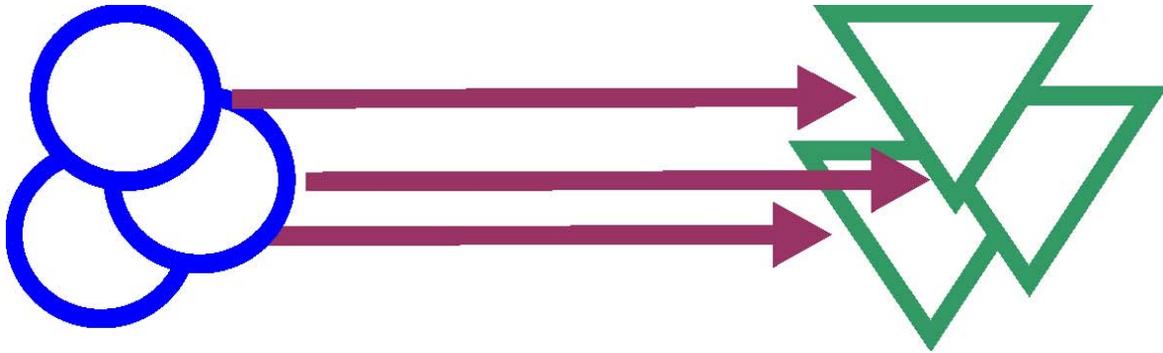
- The area encompasses water-rich water districts as well as districts without a surface water supply
- Some areas have groundwater elevations very close to pre-development levels, and other areas where groundwater levels have continued to drop for four decades
- The area's highly productive though depleted aquifers sit astride the Sacramento-San Joaquin Delta, the switching yard for the majority of California's water supplies
- A major conveyance facility traverses the area carrying Mokelumne River water to the Bay Area. A second such facility conveying Sacramento River water is under development. These conveyances are not paired with storage adequate to meet Bay Area needs.

These contrasting conditions provide substantial opportunities for mutually-beneficial integrated programs that capture surplus supplies from water-rich areas, and use them to replenish depleted aquifers to be used in times of drought. Areas external to the Management Area (in the **Solution Area**) may pay significant portions of the Plan implementation costs to obtain access to stored water in dry years. All of these potentials will be examined in this task. At a minimum, we will examine:

- Water transfer arrangements within the Management Area (e.g. South County Water Supply Project)
- New imported supplies (e.g. Stockton Delta Diversion Project [see "Regional Planning Efforts" section, above])
- Groundwater banking programs (e.g. EBMUD conjunctive use)
- Stormwater harvest programs (e.g. MoreWater Project [see "Regional Planning Efforts" section, above])

Because the Eastern San Joaquin Basin is part of a regional aquifer system, shared both internally and externally of the GBA boundaries, integrated regional solutions are essential to solve key regional issues while avoiding, or minimizing, or avoiding conflict. No one solution is likely to fully address the underlying issues facing the area. An integrated mix of water management strategies (conservation, reclamation, new supplies, transfers, stormwater capture, groundwater banking and management are all expected to be part of this mix.





Strategy development began in early 2007. Water Resources Coordinator, Dr. Mel Lytle first describes development efforts during the February 14, 2007 GBA Board Meeting.

He emphasized fundamental to this effort is assuring components are integrated and that there is a regional focus. He added they are developing a number of strategies to solve water problems regionally and on a local basis. The regional connections are with upstream counties, Southern Sacramento County, Stanislaus County and EBMUD.

At the GBA Coordinating Committee Meeting that followed on February 28, 2007, Mr. Mark Williamson of Bookman-Edmonston spoke of potential impacts to strategy development. "He stated there are some recent activities that should be noted in light of their potential effect on the IRWMP. Some of the developments may impact alternatives and since the environmental work is starting it is important to be clear about the alternatives." Mr. Williamson also noted that "the MORE Project modeling (MOCASIM) is completed and the results need to be considered, as well."

During the April 11, 2007 GBA Coordinating Committee Meeting, GBA members were requested their input. More specifically, Mr. Mark Williamson of CDM asked that other agencies with projects that include environmental benefits/enhancements also write brief summaries for inclusion within the IRWMP exhibits.

Strategy development discussions continued during the May 23, 2007 GBA Coordinating Committee Meeting. Comments from the group "...included concerns about whether a Lyon's Dam project should be included in an alternative or if it would suffice to refer to it as a project akin to one in an alternative. The point of the discussion was that something needs to be added to the IRWMP language so if Lyon's Dam becomes a reality, it is covered by the PEIR."

### **3b - Financing Plan**

Implementation of the IRWM Plan required some agreements between the GBA and other water management entities within the GBA service area about how to finance the projects and management actions. We proposed that these agreements be developed through a focused, cooperative effort to establish a finance framework and financing principles to meet the objectives of the IRWM Plan at a programmatic level.

Talks began during the February 14, 2007 GBA Coordinating Committee Meeting, Ms.

Ginger Bryant of Bryant and Assoc. gave an update that “the larger strategy is to find funding to implement the IRWMP” while also searching for funding for other projects.

At the June 13, 2007 GBA Coordinating Committee Meeting, Mr. Mark Williamson of CDM advised that Prop 50 Round 2 Implementation Grant Guidelines were released.

Comments referenced a two-step process with the first step deadline of August 1. The adequacy of the applicant’s IRWMP will be used as the main criteria for moving to step two. A short list is estimated to be available by November 1 with second-step applications due January, 2008.

Another update soon followed during the June 27, 2007 GBA Coordinating Committee. Mr. Williamson

“...noted the first step of the process is review of the adequacy of the applicant’s IRWMP. The second step involves the merits of the project. The County will work with the City of Stockton on the application. \*It was noted there is a need to reference the coordination effort between the GBA and the City of Stockton in the City of Stockton application.

At the July 11, 2007 GBA Coordinating Committee Meeting, Mr. Williamson summarizes the details of the Prop 50 funding.

Mr. Williamson advised that there is a two-step process for Prop 50 funding. The first step involves the evaluation of an adopted IRWMP by the State. August 1st is the deadline to submit a proposal. If the IRWMP ranks well, the second step is for the State to invite the respective agency to submit a project application for funding. Draft program guidelines for Proposition 84 are tentatively scheduled for release in Spring 2008 and will require that agencies update existing IRWMP’s to remain eligible.

In the meantime, the GBA also prepared a grant application of its own to submit. At the July 25, 2007 GBA Board Meeting, Mr. Nakagawa presented a resolution that authorizes the GBA to submit an application for Prop 50 monies to develop an IRWMP. “He noted there is up to \$21M available for Northern California and there is an August 1<sup>st</sup> deadline.” At the conclusion of the discussion, a motion to support the resolution was approved by unanimous vote.

At the August 8, 2007 GBA Coordinating Committee Meeting, Mr. Nakagawa briefly updated that the grant application was submitted the week prior to this meeting and that the GBA “...received an acceptance notification from DWR.”

During the September 12, 2007 GBA Board Meeting, Mr. Nakagawa reminded that GBA Staff submitted an application for Prop 50 funds on August 1st. He also explained that

there were \$105 million in requests from Northern California. The GBA’s request was for \$7 million. Prop 84 public workshops are noted in the attachments. The closest location is Sacramento on September 25th. There has been some indication IRWMPs will have to be updated in order to qualify for Prop 84 funds.



At the GBA Coordinating Committee Meeting that immediately followed,

Mr. Williamson reminded the group there needs to be a project list developed in preparation for a call-back for the project phase of the Prop 50 application. Some of the projects suggested were the Stockton East fishery at Bellota, City of Stockton's Delta Water Supply Project, North San Joaquin Water Conservation District's system rehabilitation and fish screens, and San Joaquin County's Mickle Grove Park Water Education Project pipeline.

### **3c – Develop Management Action Plan**

This task detailed the actions to be taken to achieve the Basin Management Actions. The GBA was committed to continued inter-agency coordination as IRWM Plan elements were put into action both independently and by implementing agencies. Based on the work completed, it was anticipated that Actions were to be developed in each of the following categories:

- *Monitoring* – Monitoring of water parameters such as water levels, water quality, import quantities, water budgets, etc., plus monitoring of population growth and development, effectiveness of water conservation measures, and land subsidence. Data management will be closely tied to this function.
- *Improved Basin Characterization* – Continued exploration, infiltration rate testing, aquifer characterization, modeling, improvements to understating of the water budget.
- *Continued Long-Term Planning* – Includes review of land use plans, additional water supply identification, and Plan updates.
- *Groundwater Protection* – This category could include recharge site management, identification and destruction of abandoned wells, hazardous material response, protection of recharge areas.
- *Construction and Implementation* – Identification of implanting agencies for high priority projects, and coordinate with those agencies in putting them into service.
- *Financing* – Implementing the IRWM Plan will require an array of financing mechanisms such as bonds, grants, or low interest loans. Some implementing agencies have available revenue streams for implementing projects, while others do not. Cost savings may be incurred through implantation of conservation and water reuse projects. In addition, cooperative funding agreements between the GBA and local, state, or federal agencies may also provide funding for IRWM Plan projects and management actions.
- *Public Participation/Community Outreach* – Continued coordination with the GBA Board and Coordinating Committee, the San Joaquin County Advisory Water Commission, as well as regional water managers and community groups.

During the June 28, 2006 GBA Coordinating Committee Meeting, Mr. Mark Williamson of Bookman-Edmonston summarized the elements and development of the Management Action Plan.

Mr. Williamson explained that the elements of the IRWMP are Alternative Screening, Selection, and Prioritization; Programmatic Environmental Impact Report; Management Action Plan; and Stakeholder Outreach. In addition, the key standards for the IRWMP are to identify objectives and conflicts; integrate water



management strategies; prioritize solutions to have an implementation plan; and assess of impact benefits and costs in addition to stakeholder involvement.

Mr. Williamson further explained the principle categories proposed for the IRWMP which include monitoring, basin characterization, continued long-term planning, groundwater protection, financing plan, and public participation and outreach.

### **3d - Compile and circulate IRWM Plan**

Development of the draft IRMW Plan took the course of several months to complete under the collaborative efforts between GBA Staff, consulting firms, and GBA member agencies and stakeholders. This critical task outlined the next steps GBA should take to implement the alternatives selected to achieve the GBA's comprehensive water management strategy. Recommendations were presented and discussed during Coordinating Committee meetings and submitted to the GBA Board as well.

IRWMP development was initially reported during the January 10, 2007 GBA Coordinating Committee Meeting. Mr. Mark Williamson of Bookman-Edmonston stated that "The committee, in conjunction with staff, is writing the plan concurrently with developing the models and performing the modeling activities."

A later update was given during the April 11, 2007 GBA Coordinating Committee Meeting by Mr. Williamson.

Mr. Mark Williamson stated they are in the write-up phase of the IRWMP and it is important to include sufficient environmental components. He underscored it is important how you phrase these components as to whether they are regarded enhancements or side benefits. Some examples he gave included:

- Halting saline intrusion
- Storing water for environmental water accounts
- Purple piping regulations
- Habitat protection

Dr. Mel Lytle added it is important to incorporate existing/proposed environmental strategies to strengthen the IRWMP.

In the following month, Water Resources Engineer, Mr. Brandon Nakagawa distributed copies of the draft IRWMP through Section 6 at the May 23, 2007 Coordinating Committee Meeting.

He stated the complete draft IRWMP will go to the GBA Board on June 13th. He requested that if agencies have comments they wish incorporated prior to the public distribution of the draft at the June 13th meeting they need to get these comments him by June 6th.

As announced at last month's Coordinating Committee Meeting, Water Resources Engineer Brandon Nakagawa, Dr. Lytle, and Mark Williamson of Bookman-Edmonston presented the draft Integrated Regional Water Management Plan and requested action to approve the draft plan for public release during the June 13, 2007 GBA Board



Meeting. After discussing the draft plan at length,

Director Nomellini amended his motion to designate the document as a “Public Review Draft,” delete iii, iv, v, and put a notation that it is being reviewed by member agencies and the public. The maker of the second, Director Chapman, concurred with the amendment. The roll call vote was 6 yes and single no cast by Director Panizza.

On June 27, 2007 during the GBA Coordinating Committee Meeting, Mr. Williamson “...indicated 7/18/07 as the official close of the comment period and a change from 7/11/07 to 7/25/07 for the public hearing and adoption. The board meeting was cancelled on 7/11 and moved to 7/25.” Mr. Williamson further “indicated modeling is still to be added to the draft” and that “All alternatives will be carried over in the PEIR. A preferred alternative is not recommended in the IRWMP.”

At the July 11, 2007 GBA Coordinating Committee Meeting,

Mr. Williamson, Bookman-Edmonston, indicated that the original release of the Draft did not include groundwater modeling information and a final cost analysis of the project alternatives. Section 7.8 DYNFLOW Groundwater Modeling of Alternatives was developed as a supplement to Chapter 7 of the Draft.

Dr. Lytle stated that, overall, comments involved correcting information or text restructuring which will be drafted into the final IRWMP. Both Dr. Lytle and Mr. Williamson indicated that they did not receive any major policy changing which can be discussed at the IRWMP hearing on July 25th.

### **3e - Board and Agency Adoption**

On the July 25, 2007, the Eastern San Joaquin Integrated Regional Water Management Plan was presented before the GBA Board for action to adopt by County Public Works Engineer, Brandon Nakagawa; Consultant Mark Williamson of Bookman-Edmonston; and Deanne Gillick of the County’s Special Water Counsel. Successfully, the IRWMP “...was adopted unanimously.”

All GBA members were also asked to have their respective board agencies adopt the IRWMP.

## **Element 4 – Stakeholder Outreach, Agency and Funder Coordination**

### **4a - Agency Coordination**

Agency coordination took place during took place through the GBA Board, the GBA Coordinating Committee, the San Joaquin County Advisory Water Commission, the Mokelumne River Forum, and meetings with the Mokelumne/Amador/Calaveras IRWMP study group. GBA member agencies reviewed draft sections of the IRWMP and provided input. Coordination with regulatory and permitting agencies were also described above in these tasks:



- 1d6 – Determine Environmental Fatal Flaws and Permitting Issues
- 2a1 – Notice of Preparation, Scoping Meeting
- 2a2 – Environmental Compliance Plan
- 2b2, 3, and 4 – PEIR public meetings and hearings
- 3a – Strategy Integration

#### **4b - Public Outreach**

The GBA has implemented various outreach channels which first began with establishing a brand. Ms. Paula Ferris of Panagraph, attended the May 25, 2005 GBA Coordinating Committee meeting who introduced:

...two styles of suggested logos with color variations and asked for input. She also shared two examples of taglines to represent a theme:

- The NSJGBA, Strengthening regional water supplies.
- The NSJGBA, One Voice. One Mission.

She also shared a mock-up of a quarterly newsletter and discussed website development for the GBA.

There was considerable discussion regarding the concept and it was decided that Dr. Lytle would send a packet of information to each of the members to equip them for speaking with their boards. There was a greater interest in understanding the benefits of the process than in participating in specific selection activities regarding logo, etc.

At the GBA Board meeting that followed on June 8, 2005, Water Resources Coordinator, Dr. Mel Lytle, emphasized to the Board that “there is a need to develop outreach material for representation, information sharing, grant funding, furthering regional integration, and project enhancement. Things such as logo, theme, newsletter, and website need development.” At the conclusion of this discussion, there was “An informal motion of support passed unanimously. “

Following in March 2006, the GBA goes online with [www.gbawater.org](http://www.gbawater.org), containing information on GBA activities or news items, important documentation, and meeting minutes and agendas which are updated twice monthly.

Other outreach efforts included workshops and presentations at different venues. At the August 10, 2005 GBA Coordinating Committee Meeting, Mr. Mark Williamson of Bookman-Edmonston spoke of upcoming IRWMP workshops and their purpose. The first meeting was held on September 29<sup>th</sup> and coordinated through the Greater Stockton Chamber of Commerce. This meeting was meant to “...target the business sector; however, a variety of stakeholders will be invited to attend.”

Mr. Mark Madison and Mr. Stan Ferraro volunteered to assist Dr. Lytle and Mr. Williamson with Q&A at the first outreach meeting. Mr. Anthony Barkett stated he would follow up with identifying someone to attend on behalf of Stockton East.

At the September 28, 2005 GBA Coordinating Committee Meeting, the day before the first IRWMP workshop, an agenda for the Chamber focus group meeting was



distributed. “Dr. Mel Lytle stated an emphasis would be placed on the regional nature of the plan. Members were encouraged to attend.”

During the October 26, 2005 GBA Coordinating Committee Meeting,

Dr. Mel Lytle informed the group the presentation he gave about the IRWMP process at the Mokelumne River Forum went well, as did the presentation to the Greater Stockton Chamber of Commerce. He indicated they will need to identify dates for a general public outreach meeting, as well as, additional focus group meetings.

At the November 9, 2005 GBA Coordinating Committee Meeting, Dr. Lytle reported during that “the County is continuing to work on the outreach schedule. The holidays are posing a challenge in scheduling the general outreach meeting before the end of the year. They are also working on identifying additional focus group meetings.”

#### **4c – Workshops and Meetings**

GBA Board meetings take place on the second Wednesday of each month. GBA Coordinating Committee meetings are held on the second and fourth Wednesday of each month. At least one of the Coordinating Committee meetings will be devoted to IRWM Plan development each month. All meetings are open to the public with agendas published on the internet. We propose meeting with the GBA Coordinating Committee every month during IRWM Plan development to continue the beneficial interaction that has been developed in Groundwater Management Plan development. The agenda for each meeting will be set as appropriate to discuss the current activities of the active elements.

We are well positioned to build upon our work completed during the initial phases of the IRWM Plan process and are increasingly motivated to move our management strategies to implementation. We are enthusiastic about implementing solutions for the GBA service area.

#### **4c1 – GBA Meetings**

#### **4c2 – Public Forums**

#### **4d2 – Quarterly Reports to DWR/SWRCB**

#### **4d - Public Forums**

We are incorporating a stakeholder and public outreach program to generate public support for the regional project. We will conduct a series of workshops with the Coordinating Committee and the general public over the next 16 months. We envision six workshops to ensure stakeholder participation through each step of the screening process. Some of the workshop task topics will include:

- 1b3 - Public Workshop 1 - Regional Priorities -- including an overview of the screening process, and articulation of fundamental objectives



- 1c3 - Stakeholder Workshop 1 - Performance Measures – establish criteria to judge the relative merits of projects and management actions
- 1c4c - Stakeholder Workshop 2 - Initial Alternatives – including characterization of projects and management actions
- 1d4 - Stakeholder Workshop 3 - Present Screening Model
- 1d5c - Public Workshop 2 - Preliminary Alternatives
- 1d7b - Stakeholder Workshop 4 - Explore Promising Combinations of Projects

Five additional public meetings and hearings associated with the environmental documentation effort are incorporated into these planning process tasks:

- 2a1c - Conduct scoping meetings and prepare scoping report.
- 2b2a - Draft PEIR Public Meetings
- 2b3a - Final PEIR Public Hearing
- 2b5 - Certification of Findings, MMRP & FEIR
- 3e - Board and Agency Adoption of IRWM Plan

#### **4e - Quarterly reports to the DWR/SWRCB as grant funding agencies**

We will prepare a quarterly report to the funding agencies describing progress on IRWM Plan development. The report will provide a narrative description of work accomplished and a comparison to the work scheduled. If significant deviations exist, these deviations will be explained and a course of remedial action presented. An accounting of funds expended versus funds budget will be provided on a task-by-task basis. Finally, a narrative description of work planned for the next period will be presented.

#### **Attachments**

##### GBA Meeting Agendas and Summaries

1. GBA Board Meeting Agendas (December 2004 – April 2010)
2. GBA Board Meeting Summaries (December 2004 – April 2010)
3. GBA Coordinating Committee Agendas (December 2004 – April 2010)
4. GBA Coordinating Committee Summaries (December 2004 – April 2010)

##### Public Meetings and Presentations

2005

Integrated Regional Water Management Plan Kick-off Meeting January 26, 2005  
Integrated Regional Water Management Planning Meeting February 9, 2005  
Integrated Regional Water Management Planning February 16, 2005  
Integrated Regional Water Management Planning February 23, 2005  
Integrated Regional Water Management Planning: Board Update April 13, 2005  
Integrated Regional Water Management Planning: Board Update April 27, 2005  
Integrated Regional Water Management Planning May 25, 2005  
Integrated Regional Water Management Planning June 8, 2005  
Integrated Regional Water Management Planning August 10, 2005  
Integrated Regional Water Management Planning: Basin Management & Governance Discussion August 24, 2005  
State Regulation of Local Groundwater Recharge Projects September 14, 2005



Integrated Regional Water Management Planning: Project Alternative Review  
Process October 26, 2005  
Integrated Regional Water Management Planning: Project Alternative Review  
Process November 9, 2005

2006

Integrated Regional Water Management Planning: Groundwater Model Simulations  
January 11, 2006  
GBA Workload & Funding Discussion February 08, 2006  
Integrated Regional Water Management Planning: Preliminary Project Alternatives  
Discussions February 8, 2006  
Integrated Regional Water Management Planning: San Joaquin County Farm  
Bureau February 21, 2006  
Integrated Regional Water Management Planning: Program Environmental  
Documentation Agreement Scope March 22, 2006  
Integrated Regional Water Management Planning: Project Alternative Discussions  
June 14, 2006  
Integrated Regional Water Management Planning: Project Alternative Discussions  
August 23, 2006  
Integrated Regional Water Management Planning: Kern Water Bank Tour Update  
September 13, 2006  
Integrated Regional Water Management Planning: Mokelumne River Forum Update  
September 21, 2006  
Integrated Regional Water Management Planning: Inter-Regional Water  
Management Planning September 27, 2006

2007

Integrated Regional Water Management Planning: Groundwater Management  
Review February 14, 2007  
Integrated Regional Water Management Planning: Groundwater Management  
Review February 28, 2007  
Integrated Regional Water Management Plan: Public Review Advisory Water  
Commission June 20, 2007  
Eastern San Joaquin Integrated Regional Water Management Plan: Board of  
Supervisors Plan Overview July 10, 2007

2008

IRWMP Management Action Plan Implementation: GBA JPA Update & Future  
Governance March 26, 2008  
A Stakeholder-Supported Framework for Recovery of an Overdrafted Ground Water  
Basin April 1, 2008  
Integrated Regional Water Management Plan Implementation: GBA JPA Update:  
Preparation for Proposition 84 May 14, 2008

2009

Eastern San Joaquin Integrated Regional Water Management Plan: Plan Overview  
and Current Efforts January 1, 2009

Financial Records and Summaries



Role Up sheet  
Invoices  
People Soft Data

Deliverables

IRWMP (On CD)  
Notice of Public Hearing to Prepare  
Notice of Public Hearing to Adopt IRWMP  
Resolution Adopting IRWMP  
Notice of Preparation of ICU Program EIR  
Notice of Public Availability of Draft ICU Program EIR  
Public Review Draft ICU Program EIR (On CD)  
Comments Received on EIR

