

Attachment

3

**Anza Borrego Desert Integrated Regional
Water Management
*Planning Grant Proposal
Work Plan***

Attachment 3 consists of the following items:

✓ **Current Status in Meeting IRWM Plan Standards**

✓ **Grant Work Plan Content**

The Work Plan provides a detailed scope of work for preparation of the ABD IRWM Plan Update.

- A. Outreach & Program Administration
- B. Regional Water Resources Plans Development
- C. Updating the ABD-IRWM Plan

✓ **Additional IRWM Plan Work**

<<Include brief introduction to Work Plan here.>>

Current Status in Meeting IRWM Plan Standards

The Anza Borrego Desert (ABD) IRWM Region (Region) was established as a result of the California Department of Water Resources' (DWR) 2009 Region Acceptance Process (RAP). In accordance with the IRWM boundary established by DWR during the RAP, the Region is bound to the east by Imperial County, to the south by Mexico, to the west by the Peninsular Range, and to the north by Riverside County with the exception of a portion of the Coyote Creek Watershed that extends into Riverside County (see **Figure 1** below).

To comply with the IRWM requirements, a Regional Water Management Group (RWMG) was formed to implement the ABD IRWM Program. Three local agencies comprise the RWMG – the Borrego Water District (BWD), the County of San Diego (County) and the Resource Conservation District of Greater San Diego County (RCD). The BWD service area overlays the northern portion of the Region, while both the County and RCD operate within the entire Region with the exception of lands within the Coyote Creek Watershed that lie within Riverside County (refer to Figure 1).

BWD is a water supply and groundwater management agency with authority to manage the Region's largest water supply source (groundwater). The County has also been involved in water management through collection of annual groundwater level data and development of land use restrictions that prevent an increase in aquifer overdraft. In addition, the County has responsibilities regarding flood control within the portions of the Region that lie within the County, and has land use authority within San Diego County lands. The RCD brings important expertise to the RWMG in the areas of soil and water conservation and the removal of exotic flora species.

The ABD IRWM planning process was initiated by the RWMG in January 2010 via a Public Kick-Off meeting. Subsequent to that, all interested participants were organized into a Stakeholders Committee. Monthly meetings of both the RWMG and the Stakeholders Committee were immediately initiated and work began on developing an ABD IRWM Plan. As of August 2011, portions of the IRWM Plan have been completed in draft form. Draft IRWM Plan sections addressing governance, region description, goals, objectives and targets, integration of water management strategies, project review process, and impacts and benefits have been produced.

While the Draft IRWM Plan provides a substantial starting point, it was not completed, finalized, or adopted by the respective RWMG agencies or the Stakeholders Committee. These groups have determined that several special studies, in addition to increased stakeholder and public outreach, and revisions to the Draft IRWM Plan are needed prior to adoption and formalization of the ABD IRWM Plan. In addition, the IRWM Plan will need to be updated to meet DWR's 2010 Guidelines in order to be eligible for future rounds of Proposition 84 or Proposition 1E grant funding. As such, this work plan includes the tasks and subtasks necessary to complete an IRWM Plan for the ABD IRWM Region that is approved by the RWMG and the Stakeholders Committee, and in compliance with relevant DWR standards.

The 2010 DWR Guidelines include sixteen (16) specific standards that must be met by the ABD IRWM Plan. **Table 1** below provides a summary of revisions that need to be made to the existing Draft ABD IRWM Plan to meet standards set within the 2010 DWR Guidelines. In addition, because the Draft ABD IRWM Plan is not complete nor has it been approved of by the RWMG and Stakeholders Committee, Table 1 also provides work that needs to be completed in whole to achieve compliance with 2010 DWR Guidelines. In addition, Table 1 provides information regarding whether or not given revisions or work will be covered by funds requested as part of this Planning Grant Proposal. Any necessary work not contained within the *Grant Work Plan Content* is described in detail below (refer to *Additional IRWM Plan Work*).

Figure 1: Anza Borrego Desert IRWM Region (Region)

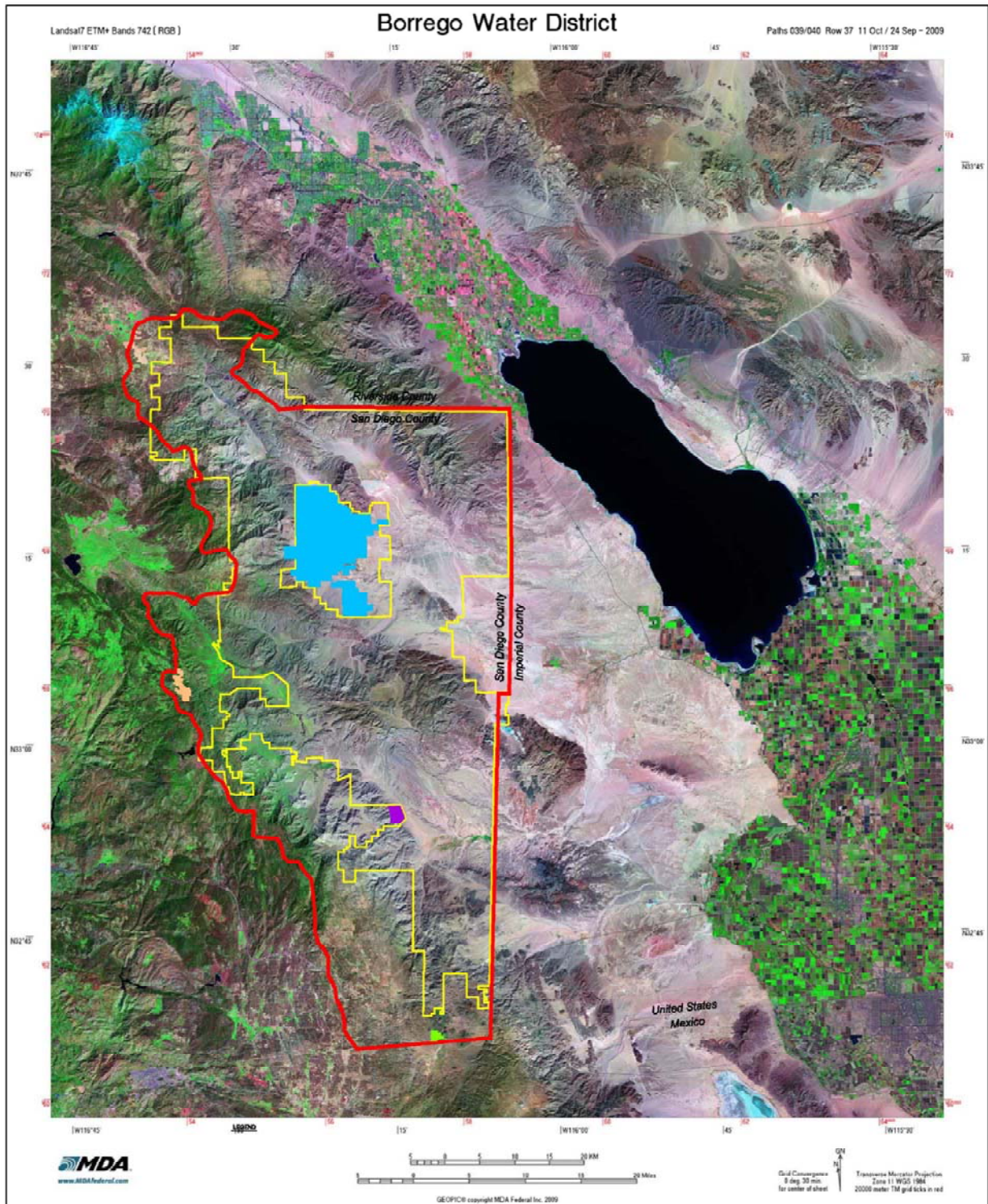


Table 1: Revisions Needed for ABD IRWM Plan

IRWM Plan Standards (DWR 2010)	Draft ABD IRWM Plan (2010)	Revisions and Work Needed	Covered by DWR Planning Grant?
Governance	Section 1, Governance	Expand discussion of governance structure, public noticing, Plan adoption, decision-making, and collaborative process	Partially
Region Description	Section 2, Description of Region	Refine description of regional description based on new/updated information about the Region	Partially
Objectives	Section 3, Goals, Objectives, and Targets	Expand discussion of process used to determine objectives	Yes
Resource Management Strategies	Section 4, Resource Management Strategies Identification and Integration	Expand discussion of process used to identify resource management strategies for IRWM Plan	Yes
Integration	Section 4, Resource Management Strategies Identification and Integration	Expand discussion of stakeholder/institutional and project integration	Yes
Project Review Process	Section 5, Project Review Process	Expand discussion of project submittal, funding application prioritization, and modification	Yes
Impact and Benefit	Section 6, Impact and Benefits	Expand discussion of the impacts and benefits of program implementation	Yes
Plan Performance and Monitoring	N/A	Determine discussion of methods to evaluation Plan performance	Yes
Data Management	N/A	Determine the IRWM data management system	Yes
Finance	N/A	Evaluate potential sources and certainty of funding	Yes
Technical Analysis	N/A	New discussion of technical information, analysis, and methods	Yes
Relation to Local Water Planning	N/A	New discussion of relation to local water and flood management planning	Yes
Relation to Local Land Use Planning	N/A	New discussion of relation to local land use planning, relationships between water managers and planners, and proactive efforts to improve relationships	Yes
Stakeholder Involvement	Section 2, Description of Region	Expand discussion of process used to engage stakeholders and DACs, decision-making process, and information access	Partially
Coordination	Section 2, Description of Region	Expand discussion of coordination with State and federal agencies, as well as interregional IRWM partners	Yes
Climate Change	N/A	New discussion of climate change, anticipated implications and effects, and mitigation opportunities	Yes

Grant Work Plan Content

A. Task 1: Outreach & Program Administration

WORKGROUP INPUT ON TOTAL COST FOR TASK 1: 5-10% of total budget

Task 1-1: Stakeholder Outreach

Background and Purpose

During past IRWM-related efforts, the RWMG led by the Borrego Water District initiated a stakeholder outreach process to help support development and adoption of an IRWM Plan.

<<RMC to include description of Dale Schafer's work.>>

Establishing a common understanding and support for the ABD IRWM Program among key stakeholders is critical to the success of the ongoing program. As the program moves forward, it will be important to do what is possible to increase stakeholder engagement and increase attendance and participation in stakeholder meetings. It will be especially important to increase outreach to stakeholders that have been previously contacted but have not yet officially participated in the ABD IRWM Program.

Stakeholder outreach will continue to involve announcing and posting agendas, minutes, and other items of the stakeholder meetings on the BWD website. Additionally, all meetings and materials will continue to be sent to the ABD IRWM stakeholder email distribution list. Following are specific ongoing outreach activities that will take place in support of the ABD IRWM program process and plan implementation.

Other Studies or Work Products to be Utilized

- Work completed by the Center for Collaborative Policy under <<RMC to list formal name of Dale Schafer's contract with DWR here.>>

Deliverables

- Electronic distribution list with contact phone numbers to provide for follow-up communication;
- Periodic updates of the IRWM website (hosted on the Borrego Water District's website);
- Identification and implementation of directed outreach strategies;
- Up to six (6) public workshops, including development of agendas, presentations, handouts, and notes. Two (2) of these public workshops will be directed toward receiving input on the IRWM Plan.

Task 1-2: RWMG and Stakeholders Committee Meetings and Coordination

Background and Purpose

The RWMG is responsible for ongoing management of the ABD IRWM program. The RWMG will plan to meet on an approximately monthly basis. These meetings will generally occur via conference calls. These meetings are critical to maintaining ongoing communication among RWMG members throughout development of the Plans/Alternatives Development and of the ABD IRWM Plan. A majority of the RWMG meetings will involve IRWM Plan development and outreach activities. These meetings will be the primary opportunity for the RWMG agencies to provide in-kind contributions and assistance to the development of the IRWM Plan and related efforts. This task will involve continued support of the RWMG, including preparation for, facilitation of, and participation in monthly RWMG meetings.

As discussed in the preceding section, a Public Kick-off meeting held in January 2010 initiated the ABD IRWM planning process. Following this meeting, the RWMG and ABD IRWM stakeholders (Stakeholders Committee) worked through September 2010 to prepare a draft IRWM Plan and prepare

and submit a Round 1 Proposition 84 Planning Grant Application to DWR. During this time frame the RWMG and the Stakeholders Committee met on a regular basis.

Upon receipt of information that the Region was not recommended for Round 1 Proposition 84 Planning Grant funding, the RWMG reconvened to begin development of a Round 2 Proposition 84 Planning Grant Application. The RWMG decided to increase stakeholder involvement and transparency in development of Round 2 Planning Grant Application materials by inviting all regional stakeholders to meetings and soliciting further stakeholder input on application materials. Through this process, the RWMG convened five (5) meetings (open to all stakeholders) from September 2011 to February 2012 to develop planning grant application materials and solicit general direction from stakeholders regarding the overall goals and focus of the ABD IRWM planning process. In addition, a Work Plan Workgroup comprised of interested stakeholders was convened through two conference calls that were used to develop a draft Work Plan outline for the Proposition 84 Planning Grant Application. The draft Work Plan outline, all completed attachments, and other materials included within the final Proposition 84 Planning Grant Proposal were vetted through the larger stakeholder group.

Due to the importance of continuing participation and information sharing with regional stakeholders, Stakeholders Committee meetings will be held on a monthly or bi-monthly (every other month) basis throughout the time frame of IRWM Plan development (<<from DATE to DATE>>). Half of these meetings will take place in person, and will generally be held at the BWD headquarters in Borrego Springs. Meetings will be held at alternate locations throughout the Region to accommodate other stakeholders as appropriate. The other half of these meetings will take place via conference call. Agendas for these meetings will be prepared and distributed in advance to each person listed on the stakeholders list. A conference line will be provided so that stakeholders that cannot attend in-person Stakeholders Committee meetings can participate via conference call.

Other Studies or Work Products to be Utilized

- Work completed by the Center for Collaborative Policy under <<list formal name of Dale Schafer's contract with DWR here.>>

Deliverables

- Draft and final agendas, materials, and handouts, and meeting notes for RWMG meetings (24 meetings);
- Draft and final agendas, materials, and handouts, and meeting notes for Stakeholders Committee meetings (12-24 meetings).

Task 1-3: Coordination with other IRWM Regions

Background and Purpose

This task includes outreach to and coordination with neighboring IRWM regions within the Colorado River Funding Area as well as neighboring IRWM regions within other funding areas. The goal of this outreach is to establish a coordination meeting that occurs up to three times per year between the four existing regions within the Colorado River Funding Area (Imperial, Coachella Valley, Mojave, and Anza Borrego Desert) to discuss common planning issues, results of regional planning studies, and possibly distribution of the available remaining Proposition 84 funding. In addition, this task will serve to provide a forum for discussing any joint project opportunities and/or project conflicts with neighboring IRWM regions, particularly those within adjacent or overlapping watersheds.

Other Studies or Work Products to be Utilized

- <<Insert any information here.>>

Deliverables

- Targeted outreach (emails, telephone calls) to neighboring IRWM regions;

- Draft and final agendas, materials, and handouts, and meeting notes for Inter-Regional Coordination meetings (up to 6 meetings).

B. Task 2: Regional Water Resources Plans Development

As mentioned previously, development of this Anza Borrego Desert Planning Grant Proposal occurred through an open stakeholder process that included five (5) meetings from September 2011 to February 2012. In October 2011, stakeholders participated in an exercise with a professional facilitator through which they identified “big” (key) issues within the Region. During this process, stakeholders unanimously identified four key issues: water supply, water quality, flood control, and environmental integrity. In addition, stakeholders unanimously identified water supply as the Region’s most important issue among the four identified key issues.

Due to the importance of these issues within the Region, it is essential that they are properly addressed and included within the ABD IRWM Plan. Therefore, the following tasks outline regional water resources plans that aim to address each of the four key issues. Water supply (groundwater) is addressed in Task 2-1, and water quality (groundwater quality) as it relates to changes in groundwater levels is addressed in Task 2-2. Tasks 2-1 and 2-2 also include components that address environmental integrity. Task 2-3 addresses climate change, which is a substantial component of 2010 DWR Guidelines for IRWM Plans. In addition, because climate change is anticipated to substantially impact flood control and invasive species issues (environmental integrity), Task 2-3 also includes specific components that analyze how climate change will impact these key issues.

WORKGROUP INPUT ON TOTAL COST for TASK 2: 80%-88% of total budget

Task 2-1: Managing the Region’s Groundwater Basins

WORKGROUP INPUT ON TOTAL COST for Task 2-1: 18%- 20% of total budget for Task 2

Background

Usable water supply within the Region is solely sourced from groundwater basins. Within the Region, runoff from surrounding mountain watersheds recharges local groundwater basins, which are then pumped from at multiple locations. There are many groundwater aquifers within the Region; however the Borrego Valley Groundwater Basin (Basin 7-24 per DWR Bulletin 118) supplies water to the majority of the Region’s residents. Despite the importance of local groundwater resources, the Region’s groundwater basins, particularly the Borrego Valley Groundwater Basin, are in a state of overdraft. According to preliminary findings from a United States Geological Survey report, the estimated usable life of the Borrego Valley Groundwater Basin under existing conditions is approximately 50 to 100 years (County of San Diego 2011).

Groundwater overdraft is not only an issue from a water supply perspective, but has also resulted in environmental integrity issues. Overdraft of the Borrego Valley Groundwater Basin in conjunction with recent droughts has caused a substantial loss to important biological resources (County of San Diego 2011). If the Region’s groundwater basins continue to be dewatered and lose viability, it is possible that environmental integrity issues will continue to develop. This issue is of particular importance within the Anza-Borrego Desert State Park, which accounts for the majority of land (approximately 70%) within the Region.

Despite the importance of groundwater supplies and the potentially dire situation of the Region’s main water supply source (the Borrego Valley Groundwater Basin), the Region has not yet reached consensus regarding the current and future status of the Region’s groundwater basins. Work is currently being conducted under a separate DWR contract to develop the *State of the Basin* report. This report will document the past, present, and range of foreseeable future conditions within the local groundwater basins to the extent that science, knowledge, and time allows. Through a stakeholder-driven process, the *State of the Basin* report will help achieve consensus within the Region regarding current and future projected

land use assumptions, water demands, and groundwater basin characteristics. Due to the fact that the Borrego Valley Groundwater Basin provides water supplies to the majority of residents within the Region, the *State of the Basin* report will focus on this basin in particular, but will address other groundwater basins within the Region as well.

Purpose

Given the Region's reliance on groundwater supplies, it is imperative that the Region manages its groundwater basins in a scientific and economic manner. The purpose of Task 2-1 is to use existing data, including information prepared within the *State of the Basin* report, and work through an open and transparent stakeholder process to develop a ranked list of alternative strategies and associated funding mechanisms that would provide the Region with implementable strategies for adequately managing its groundwater resources. In addition, due to the intrinsic link between groundwater supplies and environmental integrity within the Region, Task 2-1 will also assess how environmental integrity issues have arisen and may continue to arise if the Region's groundwater basins are not adequately managed.

The following are specific subtasks that will be completed as part of Task 2-1:

Subtask 2-1.1: Alternative Strategies for Establishing Managed Basins

Following conclusions and trends established in the *State of the Basin* report, potential alternative strategies that could be implemented to adequately manage the Region's groundwater basins will be developed. As such, work conducted under this subtask will include working with an established stakeholder group to determine an agreed upon definition for adequately managing the Region's groundwater basins in a scientific and economic manner.

Subtask 2-1.1 will also involve developing a sound scientific and economic evaluation (a formal prioritization process) that will be used to rank each potential alternative. The prioritization process shall take into consideration the scientific feasibility that implementation of each alternative would lead the Region towards adequately managing its basins according to the definition of "adequately manage" as agreed upon by stakeholders. In addition, the prioritization process will assess the relative economic cost associated with each alternative.

The results of this prioritization process will include a prioritized list that ranks alternative strategies among each other and places alternative strategies into relative tiers. The top-scoring alternative strategies will be placed within the "top-tier" of alternatives. The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Subtask 2-1.2: Mechanisms for Funding Groundwater Management Alternatives

In conjunction with work completed under Subtask 2-1.1, potential mechanisms will be developed to analyze how alternative strategies included within the top-tier list of ranked alternatives could be funded on an ongoing basis (refer to Subtask 2-1.1). Any alternatives that are identified as financially infeasible will be removed from the top-tier list and replaced with subsequently ranked alternatives. This subtask will include development of financing proposals that describe how to finance implementation, operation, and maintenance of each financially feasible top-tier alternative. The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Subtask 2-1.3: Addressing Environmental Integrity Issues

This subtask will involve development of a summary of existing and future potential environmental integrity issues and their associated costs associated with not adequately managing the Borrego Valley Groundwater Basin and the Region's other groundwater basins. The purpose of this subtask is to provide information regarding environmental integrity-related issues that have arisen and will potentially arise in the future if the Region's groundwater basins are not adequately managed. Specifically, this subtask will address potential impacts that have occurred and may arise to biological resources if the Region's groundwater basins are not adequately managed. The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Other Studies or Work Products to be Utilized

- Work completed by RMC-Wrime under <<list formal name of Ali Taghavi's study through DWR here.>>
- 2002 Groundwater Management Plan, Borrego Water District
- 2009 Integrated Water Resources Management Plan, Borrego Water District
- 2004 California's Groundwater Bulletin 118 for the Borrego Valley Groundwater Basin, DWR
- 2011 San Diego County General Plan Update, County of San Diego
- Pending: 2011 Evaluation of Groundwater Conditions and Land Subsidence in the Borrego Valley, United States Geological Survey <<*POTENTIAL FOR SOME LOCAL MATCHING \$*>>
- Pending: Southeast California Regional Basin Study, United States Bureau of Reclamation and the Borrego Water District <<*POTENTIAL FOR SOME LOCAL MATCHING \$*>>
- Pending: State and Tribal Assistance Grant (STAG) Borrego Springs Pipeline Feasibility Study, United States Environmental Protection Agency and the Borrego Water District <<*POTENTIAL FOR SOME LOCAL MATCHING \$*>>

Deliverables

- Up to five (5) Stakeholders Committee meetings to discuss the alternative basin management strategies, the prioritization process, the potential funding mechanisms, and the potential environmental integrity issues. This deliverable will include preparation of agendas, presentations, handouts, and notes.
- Draft and final Groundwater Management Technical Memorandum including alternatives, prioritization process, potential funding mechanisms, and associated environmental integrity issues.
- Integration of conclusions and results of the Groundwater Management Technical Memorandum into the ABD IRWM Plan.

Task 2-2: Forecasting Changes in Water Quality as the Groundwater Basins are Dewatered

WORKGROUP INPUT ON TOTAL COST: 30% -40% of total budget for Task 2

Background

As indicated within the Background section of Task 2-1 above, the Region's groundwater basins, and in particular the Borrego Valley Groundwater Basin, are in a state of overdraft. It is possible that under existing conditions, the Borrego Valley Groundwater Basin will only be able to supply the Region with groundwater for 50-100 years (County of San Diego 2011). As the Region's groundwater basins are dewatered (under existing conditions), it is possible that water quality issues will arise. According to Bulletin 118 from DWR, the Borrego Valley Groundwater Basin is currently impacted by total dissolved solids (TDS), and also potentially by nitrates (DWR 2004). Information from local stakeholders suggests that nitrates, inorganic compounds, and other byproducts from the Region's agricultural industry may exist at high concentrations within the top-layer of local aquifers. Therefore, there is concern that as the Region's groundwater basins become dewatered, lower-lying groundwater will come into contact with constituents of concern, and water quality issues will arise. Given that the Region's existing groundwater does not substantially exceed maximum contaminant levels set by regulators, if water quality issues were to arise, they would potentially require that the Region implement water treatment systems that are not currently in place. As such, water quality impacts are anticipated to potentially have a substantial economic impact within the Region, and could potentially render groundwater prohibitively expensive depending on the level of water treatment that would be required.

In addition, as described within Task 2-1, groundwater levels have an intrinsic connection with environmental integrity (particularly biological resources) within the Region. Similarly, if groundwater quality issues arise due to dewatering, it is possible that constituents of concern could substantially impact the Region's environmental integrity.

Purpose

Although groundwater quality issues could have a potentially substantial impact with regards to the usability and affordability of groundwater and the Region's environmental integrity, groundwater quality has not been comprehensively analyzed within the Region. Therefore, the purpose of Task 2-2 is to develop forecasts that analyze potential water quality impacts and their relative economic and environmental integrity impacts that may arise due to the lowering of the Region's groundwater tables (dewatering).

The following are specific subtasks that will be completed as part of Task 2-2:

Subtask 2-2.1: Methodologies for Developing Water Quality Forecasts

This subtask involves development of methodologies (including assumptions) that will be utilized to develop water quality forecasts that demonstrate the potential water quality impacts that could occur and the timeframes over which they would occur as the Region's groundwater basins are dewatered. The forecasts will be required to demonstrate the magnitude and extent of water quality impacts under various groundwater management scenarios, including a "status quo" (baseline) scenario. The baseline scenario would be established from information presented within the *State of the Basin* report, which will determine the current status of groundwater within the Region.

The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Subtask 2-2.2: Analyze Potential Economic Impacts and Impact Timeframes

This subtask involves implementation of the methodologies developed within Subtask 2-2.1 in order to complete forecasts that demonstrate the potential water quality impacts that could occur and the timeframes over which they would occur as the Region's groundwater basins are dewatered. The results from this process must demonstrate the magnitude and extent of water quality impacts under various groundwater management scenarios, including a "status quo" (baseline) scenario.

The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Subtask 2-2.3: Addressing Environmental Integrity Issues

This subtask will involve development of a summary of existing and future potential environmental integrity issues that would be anticipated based on water quality forecasts determined within Subtask 2-2.2. The purpose of this subtask is to provide information regarding environmental issues anticipated to arise in the future due to anticipated water quality issues that will occur if the Region's groundwater basins are dewatered. The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Other Studies or Work Products to be Utilized

- <<Insert any previous studies here.>>

Deliverables

- Up to ten (10) Stakeholders Committee meetings to discuss the water quality forecasts, the water quality forecast results, and the potential environmental integrity issues. This deliverable will include preparation of agendas, presentations, handouts, and notes.
- Draft and final Water Quality Technical Memorandum including methodologies, forecast results (economic impacts and timeframes), and associated environmental integrity issues.
- Integration of conclusions and results of the Water Quality Technical Memorandum into the ABD IRWM Plan.

Task 2-3: Anticipating the Impacts of Climate Change on Regional Water Resources

WORKGROUP INPUT ON TOTAL COST FOR TASK 2-3: 20% -35% of total budget for Task 2

Background

2010 DWR Guidelines, which will guide development of the ABD IRWM Plan, contain specific and substantial requirements regarding climate change. Specifically, DWR requires that IRWM plans address both adaptation to the effects of climate change and mitigation of greenhouse gas emissions. While many generalized climate change studies have been completed throughout the State of California, no climate change vulnerability analyses, greenhouse gas inventories, or other specific climate change analyses have been completed for the Region. Therefore, Subtask 2-3.1 described below will be conducted to provide requisite climate change information and analysis for incorporation within the ABD IRWM Plan.

In October 2011, stakeholders identified flood control as a key issue within the Region. In particular, stakeholders noted that flood-based development restrictions have harmed the Region's economy, and therefore provided impetus for implementing flood control measures that may alleviate development restrictions. The purpose of flood-related development restrictions is to avoid damages to structures and property during flood events, which has been a substantial issue in the Region. For example, a 2010 study conducted by the United States Army Corps of Engineers (USACE) indicates that the total damage incurred to the Borrego Springs area alone due to a 100-year flood event is over \$29 million (USACE 2010). An existing report from DWR entitled *Water and Border Area Climate Change – An Introduction* provides an overview of potential impacts that may arise within the United States-Mexico Border Region (within which the Region lies) as a result of climate change (DWR 2008). The aforementioned document indicates that monsoons originating in the Gulf of Mexico, which currently cause flash flooding within the Region, could intensify with climate change (DWR 2008). As such, an important component of climate change analysis for the Region will be to consider existing flood impacts and analyze how impacts may increase due to intensified rainfall events as a result of climate change.

Lastly, due to the importance of environmental integrity within the Region, anticipated climate change impacts must consider potential impacts to environmental resources. In particular, flooding impacts, which are anticipated to increase due to climate change, have already impacted environmental resources. As such, an important component of the climate change analysis will be to consider potential environmental integrity issues that will arise as a result of climate change.

Purpose

The purpose of Task 2-3 is two-fold. First, this task will be utilized to conduct climate change analyses and efforts as specified by DWR within the 2010 IRWM Guidelines. Secondly, two key Regional issues, flood control and environmental integrity, are anticipated to be affected by climate change. Therefore, Task 2-3 will provide information regarding climate change impacts, vulnerabilities, and possible solutions as they relate to the specific issues of flood control and environmental integrity.

The following are specific subtasks that will be completed as part of Task 2-3:

Subtask 2-3.1: Climate Change Vulnerability Analysis and Prioritization

This task involves development of the climate change analysis and modeling required to address DWR IRWM Plan Standards relating to climate change. As such, modeling efforts will provide quantitative tools to determine the vulnerability of the Region to Region-specific climate change impacts. The vulnerability analysis will include an evaluation of the adaptability of water management systems in the Region to climate change, including water supply, wastewater, and flood control systems. A Climate Change Workgroup will be established to guide development of the vulnerability analysis. The workgroup will establish priorities by which to rank climate change vulnerabilities, and then complete a prioritization exercise that ranks vulnerabilities in terms of importance and severity.

The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Subtask 2-3.2: Flood Control and Other Adaptation Strategies

Upon assessing the Region's vulnerability to climate change, work will be completed to identify specific adaptation strategies that can be completed to allow the Region to better adapt to anticipated climate change vulnerabilities.

Information from a 2008 DWR report entitled *Water and Border Area Climate Change* indicates that the Region will face exacerbated flood-related issues as a result of climate change (DWR 2008). Considering that the Region already faces substantial impacts related to flooding and flood-based development restrictions, it is imperative that the Region have a comprehensive understanding of existing and potential future flood impacts and strategies for addressing such impacts. As such, this subtask will include an assessment of alternative flood control strategies that can be utilized to address existing and anticipated future (climate change-related) flood impacts. Part of the alternatives analysis will include an assessment of the relative costs of various flood control strategies in order to determine relative costs to address existing and future flood control techniques.

Further, this subtask will provide climate change adaptation strategies for all other top-ranking climate change vulnerabilities identified within Subtask 2-3.1. This exercise will include an assessment of the relative costs of various climate change adaptation strategies.

The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Subtask 2-3.3: Addressing Environmental Integrity Issues

This subtask will involve development of a summary of future potential environmental integrity issues that would be anticipated throughout the Region based on the climate change vulnerability analysis completed within Subtask 2-3.1. The purpose of this subtask is to provide information regarding environmental issues anticipated to arise in the future due to anticipated climate change impacts. The results of this process will be integrated into the ABD IRWM Plan (refer to Task 3 below).

Other Studies or Work Products to be Utilized

- 2010 White Paper – Borrego Springs Flood Risk Management Study, United States Army Corps of Engineers <<POTENTIAL FOR SOME LOCAL MATCHING \$>>
- 2008 Water and Border Area Climate Change, DWR
- 2008 Managing an Uncertain Future – Climate Change Adaptation Strategies for California's Water – DWR
- 2010 Storm Stories Depict Vulnerability of Valley to Flooding/Heavy Rain, Borrego Sun
- 1989 Borrego Valley Flood Management Report, Boyle Engineering for the County of San Diego
- 1985 Rain and Streamflow History in Eastern San Diego County, County of San Diego
- 1976 Storm Report – Tropical Storm Kathleen, County of San Diego Department of Sanitation and Flood Control
- 1977 Storm Report – Tropical Storm Doreen, County of San Diego Department of Sanitation and Flood Control
- Guidelines for Flood Protection of Structures in Borrego Springs, County of San Diego
- Pending: Climate Change Handbook for Regional Water Management, DWR

Deliverables

- Up to five (5) Stakeholders Committee meetings to discuss and rank the climate change vulnerability analysis, the climate change adaptation strategies and costs, the flood control

- strategies and costs, and the potential environmental integrity issues. This deliverable will include preparation of agendas, presentations, handouts, and notes.
- Draft and final Climate Change and Water Resources Technical Memorandum including climate change vulnerabilities, climate change adaptation strategies and costs, flood control strategies and costs, and associated environmental integrity issues.
 - Integration of conclusions and results of the Climate Change and Water Resources Technical Memorandum into the ABD IRWM Plan.

C. Task 3: Updating the ABD IRWM Plan

WORKGROUP INPUT ON TOTAL COST FOR TASK 3: 7-10% of total budget

Task 3-1: Updates to Governance and Financing Plan

This task involves development of a Governance and Financing Workgroup that will be established to examine long-term governance alternatives available to the Region, including defining both decision-making and financing structures. This effort is intended to help the Region establish a long-term governance structure that will continue regional coordination and collaboration efforts regardless of what occurs on a Statewide level. The Governance and Financing Workgroup will develop a set of recommendations for long-term governance to present to the full Stakeholders Committee and RWMG for consideration. These recommendations will include governance and financing proposals (i.e., how to finance annual program administration), as well as an implementation or transition plan for moving from the existing governance structure to the long-term governance structure. The RWMG will then present the long-term governance recommendations to their governing bodies for discussion and approval.

Other Studies or Work Products to be Utilized

- 2010 Draft ABD IRWM Plan <<POTENTIAL FOR SOME LOCAL MATCHING \$>>
- Work completed by the Center for Collaborative Policy under <<list formal name of Dale Schafer's contract with DWR here.>>

Deliverables

- Up to four (4) meetings of a Governance and Financing Workgroup to discuss long-term governance and financing alternatives, including preparation of agendas, presentations, handouts, and notes.
- Draft and final Long-Term Governance White Paper addressing recommended decision-making structure, financing program, and implementation or transition plan.
- Draft and final formal governance agreements (MOU, etc.)

Task 3-2: Refine IRWM Plan Goals, Objectives, and Priorities

As the ABD IRWM Plan is developed, a detailed refinement of the Region's goals and objectives will be necessary. As the Regional Water Resources Plans identified in Task 2 move forward, the RWMG will incorporate any new information learned about the Region's water management systems into the IRWM Plan. This may include clarification of critical water supply or water quality issues and/or incorporation of the new planning strategies into the IRWM Plan framework.

Based on this work, the RWMG and Stakeholders Committee will refine the IRWM Plan goals and objectives to guide the Region during the next planning horizon. Additionally, the RWMG and Stakeholders Committee shall revisit the short- and long-term priorities laid out in the Draft ABD IRWM Plan to determine if the new information and/or changing regional conditions or regulatory requirements results in different priorities. The RWMG will utilize meetings with the Stakeholders Committee, general public, and other regional stakeholders contacted under Task 1 to discuss and refine the IRWM Plan goals, objectives, and priorities.

Due to the extensive nature of environmental integrity issues addressed within the Alternatives/Plans described within Task 2, the RWMG and Stakeholders Committee will be sure to incorporate information relating to environmental integrity into the IRWM Plan.

Other Studies or Work Products to be Utilized

- 2010 Draft ABD IRWM Plan <<POTENTIAL FOR SOME LOCAL MATCHING \$>>

Deliverables

- Up to three (3) Stakeholders Committee meetings to discuss IRWM Plan goals, objectives, and priorities.
- Draft and final IRWM Plan goals and objectives;
- Draft and final IRWM Plan regional priorities.

Task 3-3: Develop Data Management Plan

Data collected to date has included prior reports, memos, letters, and meeting minutes. These items along with raw data such as groundwater levels, water quality, pumping test results, and other information are routinely stored in BWD files, and incorporated into the BWD GIS database. The BWD GIS database was developed in conjunction with the development of numeric modeling currently being formulated by USGS, and generally only covers portions of the Region.

Currently, the RWMG with assistance from the Southern Office of DWR is working to integrate the ABD State Park's extensive GIS data, which covers a large portion of the Region, into the BWD GIS database. In addition to this work, there is a need to incorporate portions of the County's GIS data into the BWD GIS database to create a robust GIS database with information for the entire Region.

This task will involve development of a Regional data management system (DMS), which will be developed with common protocols for gathering data in a consistent manner, and making data accessible to the Policy Committee and other stakeholders as appropriate. The DMS will be structured to ensure efficient use of available data, increase stakeholder access to data, and ensure that data gathered as part of IRWM-related activities can be integrated into existing State and local databases.

Other Studies or Work Products to be Utilized

- BWD GIS database <<POTENTIAL FOR SOME LOCAL MATCHING \$>>
- San Diego County GIS database <<POTENTIAL FOR SOME LOCAL MATCHING \$>>
- ABD State Park GIS database
- 2010 Draft ABD IRWM Plan <<POTENTIAL FOR SOME LOCAL MATCHING \$>>

Deliverables

- Regional data management system with GIS data layers.

Task 3-4: Refine IRWM Plan Metrics and Develop Performance and Monitoring Methods

The Draft IRWM Plan does not contain information regarding IRWM Plan metrics that will be established as targets to evaluate and report IRWM Plan performance. This task will involve incorporating information from the stakeholder outreach process (refer to Task 1) to determine appropriate targets by which to measure IRWM Plan performance. These metrics and targets will be aligned with the IRWM Plan goals and objectives (refer to Task 3-1) so that the Region can track how integrated projects are helping to achieve the Region's goals.

In addition, this task will involve determination of a reporting process that will be used to assess and report plan performance. An annual reporting process will be used to evaluate the Region's progress on fulfilling the short-term priorities (i.e., program implementation), as well the Region's progress on implementing the identified water management projects (i.e., project implementation). The annual

reporting will contain criteria used to evaluate the progress of implementation projects in meeting the IRWM Plan objectives. This will ensure that the Region is efficiently making progress towards meeting the objectives in the IRWM Plan, the Region is implementing projects listed in the IRWM Plan, and each project in the IRWM Plan is monitored to comply with all applicable rules, laws and permit requirements. Due to the importance of stakeholder outreach and transparency within the Region, the annual report will be designed such that it may be presented at the Borrego Springs Annual Town Hall Meeting held in April of each year.

The annual reports will be short and concise summaries that can be used to communicate Plan performance to stakeholders, the public, and the RWMG governing bodies. The annual reports will be delivered in both print and electronic copy to reach as many stakeholders as possible. The RWMG will utilize meetings with the public, stakeholders, and the Stakeholders Committee under Task 1 to discuss and present IRWM Plan performance.

Other Studies or Work Products to be Utilized

- 2010 Draft ABD IRWM Plan <<POTENTIAL FOR SOME LOCAL MATCHING \$>>

Deliverables

- Up to three (3) Stakeholders Committee meetings to discuss IRWM Plan metrics, and performance and monitoring methods;
- Draft and final IRWM Plan metrics;
- Draft and final IRWM Plan performance and monitoring methods.

Task 3-5: Describe IRWM Process relating to Local Land Use Planning

The RWMG will work with local land use planning efforts, including State and Federal agencies with land use authority such as the ABD State Park and BLM to define land use issues as they relate to water management. This task will involve continued dialogue between the RWMG agencies, the ABD State Park, and other federal land holders to ensure continued cooperation in implementing IRWM-related projects and meeting regional goals and objectives established under Task 3-2. It is assumed that these parties will meet up to four (4) times during development of the IRWM Plan to ensure that there is an exchange of knowledge and expertise between land use and water managers and identify how to improve planning efforts between these entities.

Other Studies or Work Products to be Utilized

- 2011 San Diego County General Plan Update, County of San Diego
- 2010 Draft ABD IRWM Plan <<POTENTIAL FOR SOME LOCAL MATCHING \$>>

Deliverables

- Up to four (4) Stakeholders Committee meetings with local land use managers, including agendas, presentations, handouts, and notes.
- Draft and final IRWM Plan text describing coordination between water management and land use planning.

Task 3-6: Prepare IRWM Plan per State Guidelines

Based on all of the work completed in Tasks 3-1 through 3-5 above, the RWMG will prepare an administrative draft IRWM Plan for internal review. The administrative draft IRWM Plan will contain the following sections:

- Introduction
- Region Description, Issues, and Needs
- Governance and Stakeholder Involvement

- Vision, Mission, Goals and Objectives
- Resource Management Strategies
- Integration Opportunities
- Project Evaluation and Prioritization
- Data Management and Technical Analysis
- Framework for Implementation
- References

As part of the IRWM Plan development process, the RWMG will document how the IRWM Plan meets State goals and priorities. The IRWM Plan will contain a clear description outlining the location of all content as required by DWRs' IRWM Plan Guidelines. The IRWM Plan will also clearly articulate steps for evaluation and measurement of Plan success.

The RWMG will then prepare a Public Review Draft IRWM Plan for review and consideration by the Stakeholders Committee and other interested parties. This task will involve two public workshops to present and discuss the Draft IRWM Plan (see Task 1). The RWMG will facilitate review and discussion of the draft IRWM Plan with stakeholders, including collecting and compiling their comments into a comments matrix.

Following public review of the draft IRWM Plan, the RWMG will review comments, present IRWM Plan changes in response to comments, and solicit agreement from the Stakeholders Committee on the proposed changes. Based on the comments reviewed from the Stakeholders Committee and general public, the RWMG will prepare an Administrative Final IRWM Plan. Following one round of revisions based on final comments, the RWMG will prepare a Final IRWM Plan for presentation to the Stakeholders Committee and other interested parties.

Other Studies or Work Products to be Utilized

- All plans listed above in Task 1, Task 2, and all subtasks of Task 3.

Deliverables:

- Administrative IRWM Plan, in accordance with State Guidelines
- Public Review Draft IRWM Plan
- Compiled response to comments matrix
- Administrative Final IRWM Plan
- Final IRWM Plan

Additional IRWM Plan Work

<<Need to describe all other pending studies listed above, including: Dale Schafer's work, Ali Taghavi's work, the USGS study, the USEPA STAG Pipeline Feasibility Study, and the US Bureau of Reclamation Study.>>

References

California Department of Water Resources (DWR). 2004. *California's Groundwater Bulletin 118 – Borrego Valley Groundwater Basin*.

California Department of Water Resources (DWR). 2008. *Water and Border Area Climate Change – An Introduction*.

County of San Diego. 2011. *County of San Diego General Plan – Borrego Springs Community Plan*.

United States Army Corps of Engineers (USACE). 2010. *White Paper – Borrego Springs Flood Risk Management Study under CAP 205 Section Authority*.