

Designing and implementing a pilot demand management program for the Indian Wells Valley Groundwater Basin

MAMMOTH TRADING

Presented by Richael K. Young, Cofounder & CEO



Context



- Water risk reduction portfolios can have several co-existing components
- Acquiring permanent water rights:
 - Offers certainty
 - Takes time
 - Is expensive per acre-foot



Context



- Demand management is:
 - Quick
 - Inexpensive per acre-foot
 - Offers flexibility to acquire water when and as needed
 - Provides benefits to local water users
- Demand management can cover a wide variety of incentive-based and behavioral programs



Proposal

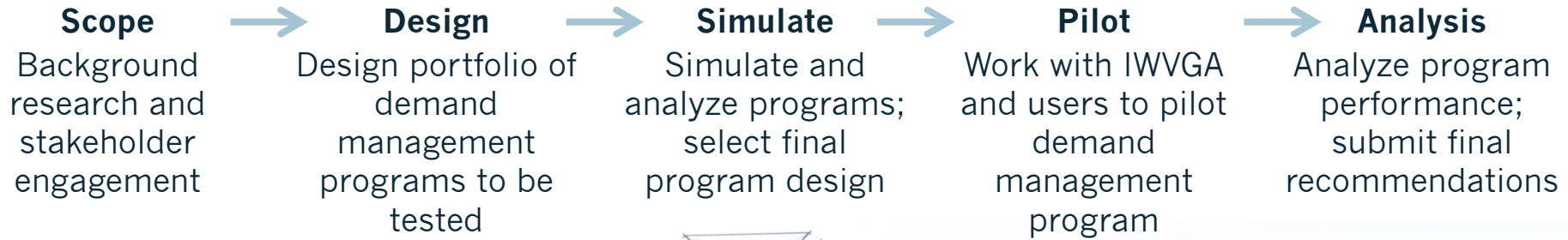
*In addition to exploring water supply enhancement, Mammoth Trading proposes that IWVGA undertake **demand management strategies.***

Examples:

- + Groundwater trading
- + Allocation buy-backs
- + Incentive payments
- + Education and outreach



Approach



Key personnel



Kirby Brill
Formerly Mojave
Water Agency

California water;
water policy and
management



Nick Brozovic, Ph.D.
Water for Food

Water economics,
policy, and
management



Kate Gibson
Water for Food

Product development,
research, training,
data management



Richael K. Young
Mammoth Trading

Project manager;
water economics,
policy, management





THANK YOU

www.MammothTrading.com



**STRATECON
INC.**

Proposal For IWVGA Water Supply Procurement Services

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Background

- Stratecon is a strategic planning and economics consulting firm specializing in water resources
- Negotiate water transactions, conduct due diligence on water projects, secure state and federal regulatory approvals and engage in water policy discussions since 1980s
- Combine economics, finance and policy of water resources to develop transactions and projects in conjunction with relevant scientific, engineering and legal circumstances
- Work with public agencies and private parties (landowners and investor groups)
- Sole private consultant to Western Governors' Association/Western States Water Council 2012 report, "Water Transfers in the West: Projects, Trends, and Leading Practices in Voluntary Water Trading"

Examples of Work

- Stratecon's experience includes many transactions, investments, and valuations on behalf of private clients that are confidential
- Stratecon personnel also staff private project entities that are not strictly clients. Project entities involve water development projects and related infrastructure
- Three examples in submission represents a subset of our experience:
 - ❑ Imperial Irrigation District
 - ❑ Cadiz Inc.
 - ❑ Golden State Water Company

Imperial Irrigation District (“IID”)

- Represented IID in negotiating the long-term water conservation and transfer agreement with San Diego County Water Authority (long-term transfer of 200,000 acre-feet per year with 45-year term), Quantification Settlement Agreement and related agreements
- Responsible for all economic analysis in support of IID’s negotiations and actively participated as a negotiator and drafter of economic provisions of 37 inter-related agreements with water agencies, state and federal agencies and Indian tribes
- Secured for IID a \$150 million loan guarantee from the State of California
- Represented IID in hearings before State Water Resources Control Board
- Negotiated IID’s acquisition of 42,000 acres in Imperial County from U.S. Filter and provided economic report included in issuance of \$87.725 million of certificates of participation

Cadiz Inc.

- Study quantified the risk of non-availability of wheeling capacity on the Colorado River Aqueduct for Cadiz project water
- Risk of insufficient available capacity quantified by the underlying variability of the nine uses of capacity that would be senior in priority to Cadiz project water
- Developed a risk management strategy/transaction structure in the face of the risk of insufficient capacity to assure that the project's cumulative deliveries over the 50-year term of buyer agreements are satisfied

Golden State Water Company

- Economic valuation of the company's groundwater resources in Sacramento
- Economic valuation basis of testimony in litigation against Aerojet Corporation for groundwater contamination
- Case settled by Aerojet contractual obligations to provide adequate water supplies for the company's operations
- Testified before California Public Utilities Commission on the economics of the lawsuit settlement, which received regulatory approval

Stratecon's Multi-Disciplinary Approach May Be Appropriate for Indian Wells Valley Groundwater Authority

- Should the 15,000 acre-feet per year imported supply be a firm supply or a target over a multi-year cycle?
 - ❑ Pricing of firm supplies higher than variable water supplies
 - ❑ Risk assessment of whether variable water supplies will achieve Indian Wells' objectives for imported water
 - ❑ Trade-offs between the benefits and costs of water supply alternatives should be assessed within a comprehensive framework
 - ❑ Structure transactions consistent with Indian Wells' resource requirements and economics of transaction opportunities

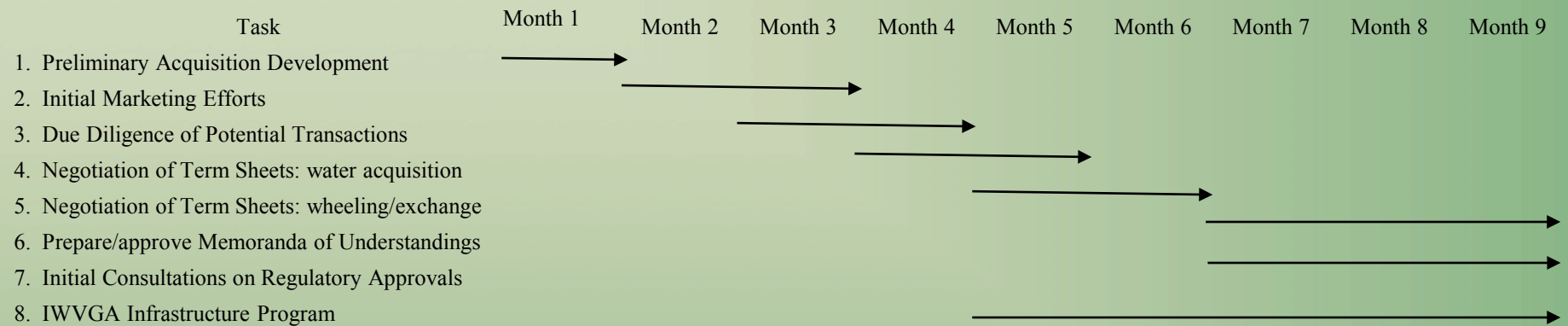
Water Transactions Have Significant Political Dimensions

- Regulatory approvals and political support secured through favorable public policy justifications
- Tools of persuasion include presentation of accurate facts and sound analysis
- Venues include white papers, factsheets and public presentations
- A successful water acquisition program requires a sound public policy foundation

Four Phases of Development and Implementation of Water Transactions

- Phase One: define acquisition parameters, initial marketing efforts, preliminary due diligence, negotiation of term sheets leading to memoranda of understandings for water acquisitions, wheeling/exchange agreements, initial consultations on regulatory approval and preliminary development of IWVGA infrastructure program
- Phase Two: completion of definitive agreements and secure regulatory approvals
- Phase Three: Completion of infrastructure financing and project construction
- Phase Four: Operations
- Stratecon's submission focuses on Phase One (nine months)

Conceptual Work Plan for Phase One



Key Deliverables

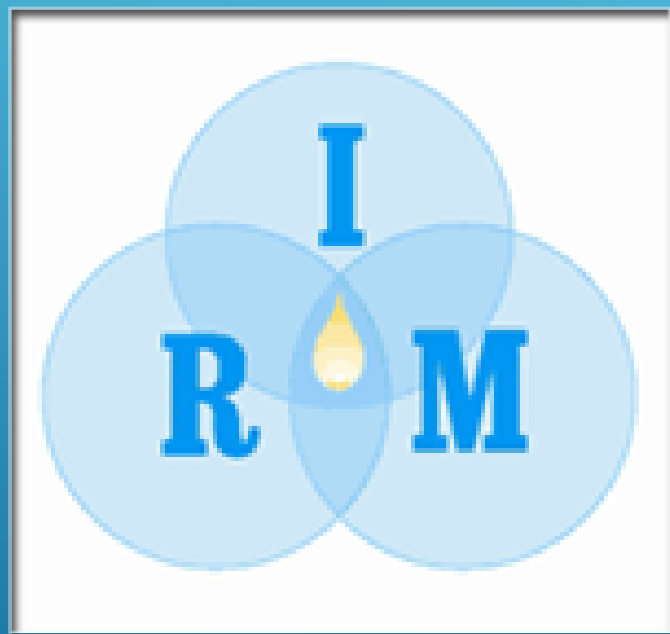
- Define acquisition parameters: (volume, firmness, term, delivery point to IWVGA infrastructure, conditions precedent, etc.)
- Assessment of potential transaction opportunities
- White Paper on IWVGA acquisition program
- Initial Marketing Efforts (including use of Stratecon's network)
- Handicapping wheeling/exchange agreements and regulatory approvals including anticipated terms and conditions followed by initial consultations
- Terms Sheets and Memoranda of Understanding for water acquisition program
- Economic model for assessment of benefits and costs of transaction opportunities

Work Process

- Extensive consultation and collaboration with IWVGA General Manager (or designee)
- Given its multi-disciplinary approach, Stratecon's anticipates consultation and coordination with IWVGA's legal, engineering, hydrology and public/governmental relations teams
- Based on its experience working with the IID board, Stratecon is prepared to participate in an extensive process of consultation providing information and analysis of the transactional opportunities and assure that its efforts are always consistent with board policy and direction

Conclusion

- Implementation of the Sustainable Groundwater Management Act will transform groundwater management in Indian Wells Valley
- Setting allowed pumping below historical use will have adverse economic consequences
- A successful IWVGA acquisition program will represent an economic balance between the gains from further mitigation of the economic impacts of reduced groundwater pumping versus the cost of importing additional water supplies into the basin



WATER SUPPLY PROCUREMENT SERVICES INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

Integrated Resource Management, Inc.

- ▶ IWVGA proposes to enter into a contract for services which are intended to provide deliverables by December 2019.
- ▶ IWVGA's Groundwater Sustainability Plan in compliance with the Sustainable Groundwater Management Act is due in January 2020.
- ▶ IWVA's procurement consultant will coordinate on a regular basis with the IWVGA's designated General Manager (GM) and Water Resources Manager (WRM), but ultimately report to either the IWVGA or the IWVGA's Ad-hoc Committee.
- ▶ The current estimate of necessary imported water supplies for the Indian Wells Valley groundwater basin is approximately 15,000 acre-feet per year (AFY), subject to the WRM's review during the SGMA process as well as the prior approval of IWVGA.

DEFINING THE TASK

- ▶ The Indian Wells Valley Groundwater Basin, located east of the southern Sierra Nevada Range, has an average annual precipitation in the valley of only about 4 to 6 inches. The basin area is approximately 382,000 acres underlying portions of Inyo, Kern, and San Bernardino Counties.
- ▶ The Indian Wells Valley groundwater basin has been classified as a “critically overdrafted” basin in the 2016 Bulletin No. 118 interim update prepared by DWR.
- ▶ In July 2016, IWVGA was formed through a Joint Exercise of Powers Agreement for the purpose of forming a Groundwater Sustainability Agency (GSA) to manage the Indian Wells Valley groundwater basin and to implement Sustainable Groundwater Management Act (SGMA) requirements, including the development of a Groundwater Sustainability Plan (GSP).

DEFINING THE BASIN AND ROLES

- ▶ IRM, located in Claremont, California was founded in 1997 as an innovative environmental business development, project management, advocacy, and marketing firm composed of natural resource professionals with extensive experience in providing solutions to water, wastewater, and environmental issues in both the private and public sectors.
- ▶ IRM's services include: environmental permitting, water use and rate studies, natural resource related business development activities, water resource evaluations, water quantity program management, water quality program management, vulnerability assessments, regulatory roadmap management, industrial cross-connection control programs, wastewater program management, stormwater program management, water resource grant program management, and property acquisition/divestiture management.

WHO WE ARE

- ▶ Robert Bowcock, Water Resources Manager (principal to be assigned), has been actively engaged in the water resources market in California throughout its legislative and practical development.
- ▶ I routinely transfers adjudicated groundwater rights, State Water Project rights, Central Valley Project rights and Colorado River water rights, for his clients.
- ▶ I have been a groundwater management agency Watermaster, appointed by the Superior Court of California, since 1990.
- ▶ We currently represents parties in Watermaster-managed watersheds in the San Gabriel, Raymond, Chino, San Bernardino, Antelope Valley, Mojave, Kern, Sacramento, Central and West Coast (Los Angeles), Upper Los Angeles River Area, Santa Clara, Monterey, and Seaside Basins in California.
- ▶ We represents clients in over two hundred watersheds throughout the United States and Canada.

PRINCIPAL ASSIGNED

- ▶ Determining and securing a source of imported water supplies necessary to fulfill the basin's identified needs, currently estimated to be 15,000 acre-feet per year of imported water.
- ▶ The source and quantity of imported water is subject to the WRM's review during the SGMA process and presentation to the IWVGA with subsequent approval from the IWVGA. Sources of imported water may include (but are not limited to) the following:
 - ▶ a. Banking opportunities
 - ▶ b. Long-term leases of water rights
 - ▶ c. Permanent transfers of State Water Project and/or Central Valley Project water allocations or other California water rights
 - ▶ d. Allocations of desalinated water

TASK 1

- ▶ IRM will negotiate and secure the necessary transfer and wheeling agreement(s) with the various local entities, water contractors, state agencies, and federal agencies (collectively referred to as the imported water partners) to deliver physical water supplies to the Indian Wells Valley groundwater basin.
- ▶ IRM will arrange initial meetings with the relevant imported water partners and identify the processes and potential concerns that each imported water partner may have regarding a transfer and wheeling agreement.
- ▶ IRM will draft the transfer and wheeling arrangement(s) in such a way that the agreement(s) fully document the transfer and wheeling process and address the concerns of each imported water partner. The agreement(s) will also discuss payments to each of the imported water partners.

TASK 2

- ▶ Potential imported water partners may include (but are not limited to) the following:
- ▶ a. Local Entities
 - ▶ i. Los Angeles Department of Water and Power
 - ▶ ii. Metropolitan Water District of Southern California
 - ▶ iii. Antelope Valley – East Kern Water Agency
 - ▶ iv. Kern County Water Agency
- ▶ b. Water contractor(s) or other California water rights holders with available water supplies, as identified in Task 1 above.
- ▶ c. State Agencies
 - ▶ i. California Department of Water Resources
 - ▶ ii. California State Water Resources Control Board
- ▶ d. Federal Agencies
 - ▶ i. United States Bureau of Reclamation

TASK 2 CONTINUED

- ▶ IRM will identify and secure potential funding sources in order to offset the infrastructure costs associated with delivering water to the Indian Wells Valley area.
- ▶ IRM will present potential funding options to the IWVGA for consideration.
- ▶ Pending approval from the IWVGA, IRM will then initiate discussions with the appropriate elected officials and departments at the state and federal level to determine the feasibility of securing the funding sources for the IWVGA in the future.

TASK 3

- ▶ IRM will report periodically to the IWVGA or the IWVGA Ad-Hoc committee regarding the to-date status of the above Tasks 1-3, either through conference call or face-to-face meetings.

TASK 4

- ▶ As a company, IRM has directly managed water resource procurement service activities for over twenty years. IRM is currently involved in the adjudication, allocation, and marketing of water resources in over fifty watersheds nationwide.
- ▶ IRM currently manages water rights and resources portfolios of Great Western Malt, ConAgra Foods, Inc., Vulcan Materials Company, Nestle' Waters North America, Morgan Stanley, Shea Homes, Hunt-Wesson, American Water Works Company, Reliant Energy, Hutton Development, American States Water Company, and CalMat Company, as well as many local, regional, state, tribal, and federal agencies. IRM routinely provides expert witness work to legal firms in the specific area of water resource management.
- ▶ IRM is currently engaged in working with federal and agencies to identify and secure potential water resources funding opportunities for the City of Hannibal, Missouri; Martin County, Kentucky; Lavergne, Tennessee; Corpus Christi, Texas; Moorestown, New Jersey and the Everglades Foundation of Florida.

REAL EXPERIENCE MATTERS

- ▶ It is important to state in this responsive proposal that many of the ideas and concepts for securing the required water resources for IWVGA should not be provided in detail in a public document.
- ▶ Water Resources Procurement is a complex, developing, practice which is often contentious. As with all potential real property negotiations and transactions, they should remain confidential in order to provide the best possible result for the transacting parties.
- ▶ IRM will be prepared to discuss scores of variable opportunities available to IWVGA in an interview setting, but confidentiality is a best practice in this field.
- ▶ IRM's experience and track record of over a thousand successful transactions speaks for itself and we look forward to sharing our knowledge with the Indian Wells Valley Water Authority when we meet to discuss the opportunities we have already identified.

WHY CONFIDENTIALITY MATTERS