

TO: BOARD OF DIRECTORS
FROM: BRUCE BUEL *BBS*
DATE: SEPT. 25, 2009

AGENDA ITEM
E-5
SEPT. 30, 2009

URBAN WATER MANAGEMENT PLAN UPDATE

ITEM

Review proposals and select consultant to prepare Urban Water Management Plan Update
[AUTHORIZE EXECUTION OF AGREEMENT]

BACKGROUND

NCSD is scheduled to update our UWMP by the end of 2010 and your Honorable Board budgeted funds to pay for the update in the FY09-10 Budget. Staff mailed the attached RFP to eight firms on July 30, 2009. Four firms submitted proposals on September 1, 2009 and staff provided copies of all the proposals to each Board Member along with a ranking sheet. A review committee comprised of General Manager Buel, Engineer Sevcik and Superintendent Grietens reviewed the four proposals and developed the attached ranking. The consensus of the Committee is that the WSC (Water Systems Consulting, Inc) proposal offers the best product at a price that is competitive with Cannon or SAIC and much less expensive than Wallace. WSC has, by far, the most experience with drafting UWMPs and the firm was highly regarded by their references.

As set forth in the attached proposal, WSC is prepared to implement the submitted scope of work on a time and materials basis with a not-to-exceed expenditure limit of \$79,480. WSC does recommend a deviation from the timeline to allow the legislature to act on proposed amendments to the Urban Water Management Plan Act (ACT). This change would not delay the initial work products or the required interaction and it would still allow for final adoption by the end of 2010. It would also allow for incorporation of the 2009 NMMA Annual Report.

FISCAL IMPACT

Execution of an agreement with WSC would commit \$79,480 of water fund funds.

RECOMMENDATION

Staff recommends that the Board authorize execution of an agreement with WSC to implement the scope of work set forth in the proposal on a time and materials basis with a not-to-exceed expenditure limit of \$79,480.

ATTACHMENTS

- RFP
- Ranking Summary
- WSC Proposal

T:\BOARD MATTERS\BOARD MEETINGS\BOARD LETTER\2009\UWMP CONSULTANT SELECTION.DOC

NIPOMO COMMUNITY

BOARD MEMBERS

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PETER SEVCIK, P.E., DISTRICT ENGINEER
JON SEITZ, GENERAL COUNSEL

148 SOUTH WILSON STREET POST OFFICE BOX 326 NIPOMO, CA 93444 - 0326
(805) 929-1133 FAX (805) 929-1932 Website address: ncsd.ca.gov

July 30, 2009

Jeffrey Szytel
WSC
P O Box 6433
Folsom, CA 95763

SUBJECT: REQUEST FOR PROPOSAL FOR URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Szytel;

Nipomo Community Services District ("NCSD") operates a water system with approximately 4,100 customers. NCSD is scheduled to update its current Urban Water Management Plan in 2010. NCSD desires to produce an update that creates a reliable tool for future water use planning, ensures eligibility for grants and drought assistance, and complies with the requirements of the California Urban Water Management Planning Act (ACT). NCSD is looking for the consulting team that will maximize these objectives.

It should be noted that NCSD has merged the Blacklake Water System and the Town Water System into one unified Water System.

SERVICES REQUESTED

DISTRICT is seeking proposals from qualified firms ("Consultant") to:

- Review background information including but not limited to:
 - NCSD's current UWMP (12/2005); Code; Annexation Policy; Allocation Policy; Water and Sewer Master Plan (2007); Water Conservation Plan (2008); and Final Sales Agreement with City of Santa Maria
 - Boyle/AECOM's Evaluation of Water Supply Alternatives (6/2007); Waterline Intertie Project Preliminary Engineering Memorandum (4/2008); Waterline Intertie Project Concept Design Report (4/2009); and Southland WWTF Upgrade Master Plan;
 - DWA's WIP FEIR and Southland WWTF Upgrade Initial Study

- Santa Clara Superior Court's Final Decision (1/2008) and Stipulated Judgment (6/2005) in Water Rights Adjudication;
 - NMMA Technical Group Monitoring Program, 2008 Annual Report and Response Plan;
 - Wallace Group's Assessment Feasibility Studies;
 - SLO County General Plan, South County Inland; Summit Station General Plan Amendment and EIR; Resource Capacity Study, Water Supply on the Nipomo Mesa; Annual Resource Summary Report; and
 - SLO County LAFCO Sphere of Influence Study and EIR.
- Meet with District Staff to discuss the background information;
 - Participate in Initial Board Meeting to review Scope and Timeline with Board and Public;
 - Meet with County Planning Staff to review land use plans and pending projects;
 - Meet with LAFCO Staff to review Sphere of Influence land use;
 - Develop and publish administrative 10 copies of draft of work product #1
 - a data base listing every parcel in NCSD, its current land use, its current water use, its maximum potential land use, its maximum potential water use;
 - a data base listing every parcel in each of NCSD's spheres of influence, its current land use, its assumed water use if annexed as is, its maximum potential land use and its maximum potential water use; and
 - a narrative evaluating current water demand inside the District and in each sphere area, projecting future water demand inside the District and in each sphere area, and stating assumptions regarding growth rates, water use per land use type, and the impact of water conservation and demand elasticity on these rates and projections.
 - Revise work product #1 to respond to staff concerns and publish review 30 copies of Draft.
 - Meet with the Board to review draft work product #1 and secure edits and policy guidance.
 - Develop and produce 10 copies of an Administrative Draft Urban Water Management Plan that:
 - describes the District and its Sphere of Influence;
 - details the availability and reliability of current sources;

- evaluates planned water supply projects;
 - evaluates NCSD's Water Conservation Plan in regards to compliance with the Demand Management Measures set forth in the ACT and compliance with State 20x2020 Guidelines;
 - projects water demand inside the District; projects potential water demand inside each of the Sphere Areas;
 - describes NCSD's Water Shortage Contingency Plan and the Water Shortage Response Plan submitted to the Court by the Nipomo Mesa Management Area Technical Group;
 - evaluates current and potential recycling programs and opportunities;
 - proposes an implementation program; and
 - provides references and a listing of acronyms.
- Meet with Staff to review Administrative Draft.
 - Edit Draft and republish 30 Copies of Review Draft for consideration by Board.
 - Participate in up to two Board meetings to finalize Plan
 - Edit Review Draft and publish Final Draft
 - Assist in drafting Notices and Coordinating with DWR

TIMELINE

PRODUCT	LAPSE TIME (Calendar Days)
Administrative Draft of WP#1	45 days from Notice to Proceed
Draft of WP#1	14 days from Receipt of Staff Review
Administrative Draft of UWMP	45 days from Board Review of Draft
Draft of UWMP	14 days from Receipt of Staff Review
Final UWMP	14 days from Board Approval

QUOTE REQUIREMENTS

Ten copies of the proposal (and one unbound copy) must be received by DISTRICT in a sealed envelope by **3:00 p.m. on Tuesday, September 1, 2009**, to be considered. The exterior of the envelope must identify the quote as "NCSD Urban Water Management Plan Update". Faxes, E-Mails, proposals not enclosed in a sealed/labeled envelope, and proposals received after 3:00 p.m. on Tuesday, Sept. 1, 2009, will not be considered and will be returned to the submitter.

The Proposal shall include, as a minimum, the following:

1. Cover Letter/Introduction
 - Present your understanding of the project and the services requested.
 - The Cover Letter shall be signed by an official authorized to bind the firm and shall contain a statement that the proposal is valid for ninety (90) Days.
2. Scope of Services
 - Detail your proposed approach to both phases of the assignment.
 - Describe any proposed scope amendments; exceptions to the attached Task Listings
3. Personnel
 - Identify the Team Leader and provide résumé.
 - Identify any additional team members and provide résumés.
 - Include an Organization chart depicting the name and position of each participant
 - Describe the role of each team member
4. Experience & References
 - Describe your experience in providing similar services for local government entities in California
 - Provide references for projects of similar scope and nature performed over the last four years.
5. Cost Estimate and Schedule
 - Complete and submit the attached Quote Sheet that has been signed by a principal authorized to represent the firm.
 - Submit a listing of fees and charges including travel costs
 - Submit a proposed schedule for all tasks described above

SELECTION PROCESS

NCSD will screen proposals from September 1, 2009 to September 30, 2009. The Board is tentatively scheduled to select a firm at its September 30, 2009 meeting. NCSD may conduct interviews during the screening process.

PROPOSAL EVALUATION

Proposals will be evaluated on the following:

- Responsiveness to Request for Quote
- Scope Amendments and Exceptions to Task Listing and/or Agreement
- Experience of the team to perform the requested services
- Qualifications of the personnel proposed for the project
- Cost including fees and reimbursables (Not-to-Exceed Expenditure Limit)

Notes:

This is a time-sensitive project.

NCSD reserves the right to reject any and all submittals and/or solicit new submittals at its discretion. NCSD reserves the right to negotiate with lesser ranked firms, if the negotiation with the top ranked firm is unsuccessful. The submitter retains no interest in the proposal once received by NCSD. Proposers are responsible for all costs associated with the proposal.

For more information on the project or this RFP, contact NCSD General Manager Bruce Buel at 805-929-1133 or bbuel@ncsd.ca.gov.

Sincerely,

NIPOMO COMMUNITY SERVICES DISTRICT



Bruce Buel
General Manager

cc: Lisa Bognuda, Finance Director
2009 UWMP Project File

Enclosures

- Quote Sheet

T:\DISTRICT PROJECTS\UWMP\UWMP 2010\RFP UWMP 2010.DOC

NCSD UWMP UPDATE
QUOTE SHEET

Date: _____

NAME OF FIRM: _____

NAME OF PRINCIPAL: _____

NAME OF CM TEAM LEADER: _____

ADDRESS: _____

PHONE: _____ FAX: _____

E-MAIL: _____

NOT-TO-EXCEED EXPENDITURE LIMIT FOR ALL FEES & CHARGES INCLUDING
TRAVEL: _____

Signature of Principal Authorized to Sign for Firm and Date

This quote shall be valid for 90 Days from the date of Signature

UWMP RANKING SUMMARY				
REVIEWER	CANNON	FIRMS SAIC	WALLACE	WSC
Bruce Buel	68	65	60	94
Peter Sevcik	59	55	57	85
Tina Grietens	66	89	75	86
TOTAL	193	209	192	265
AVERAGE	64	70	64	88
RANKING	3t	2	3t	1



September 1, 2009

Mr. Bruce Buel
General Manager
Nipomo Community Services District
148 South Wilson Street
Nipomo, CA 93444-0326

SUBJECT: PROPOSAL TO PREPARE THE 2010 URBAN WATER MANAGEMENT PLAN UPDATE

Dear Mr. Buel,

Like many communities in California, Nipomo's future is inextricably tied to the management of its finite water resources. Nipomo's groundwater basin is in overdraft and the District currently has no source of supplemental supply. The Nipomo Mesa has seen tremendous growth in the last 10 years, and the region's residents and businesses are concerned about the sustainability of their water supply. Meanwhile, the State is generating sweeping policies and legislation to mandate 20% conservation by the year 2020.

Against this backdrop, NCS D is pursuing policies and projects to secure its water future. A reliable and credible Urban Water Management Plan becomes the centerpiece of these efforts. A well prepared plan clearly communicates the District's long-term water supply strategy, articulating elements of supply and demand, conservation, recycled water and water shortage contingency planning. Additionally, the Urban Water Management Plan plays a critical role in the District's planning cycle. The demand projections and supply scenarios presented in the plan become the basis for future supply and infrastructure planning.

Water Systems Consulting, Inc. (WSC) is prepared to deliver a plan that meets these objectives. Consider the following features and benefits of WSC's team and approach:

- **A core team of highly qualified staff delivers a focused and resilient plan.** WSC is proposing four specialized professionals to complete this project, and the plan's primary author will be WSC's Principal, Mr. Jeffery Szytel. Your project will receive the focus and quality it deserves.
- **Innovative tools and value-added services enhance the plan's utility.** WSC's goal is to create a useful and important plan, but we see this project as more than a document to sit on the shelf. We are managing and documenting a critical planning process, and will create a set of tools, references and recommendations that will serve NCS D for years to come.
- **A collaborative approach ensures the plan is relevant, consistent and accurate.** WSC has developed a scope of work that utilizes workshops with District staff and key stakeholders to frame the plan's content. This way, WSC builds consensus and communicates the District's vision throughout the planning process.

Enclosed is WSC's response to your RFP dated July 30, 2009. The proposal is valid for 90 days and includes the following sections: 1) Scope of Services; 2) Personnel; 3) Experience and References; 4) Cost Estimate and Schedule; 5) Appendix A – Detailed Scope of Services; and 6) Appendix B – Resumes.

We are pleased to be submitting our proposal and appreciate the opportunity to do so. If you have any questions or would like clarification on any aspect of our proposal, please feel free to contact me at (619) 807-8398 or jszytel@wsc-inc.com. My office is just minutes away, and I would be happy to meet with you in person as well.

Thank you for this opportunity to be of service. We look forward to your response.

Sincerely,

Water Systems Consulting, Inc.

Jeffery M. Szytel, PE, MBA
President

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Scope of Services

Project Understanding

In preparing this proposal, WSC has reviewed NCSD's RFP in detail, including the Services Requested and Timeline. We conducted extensive research of available references including documents from the adjudication, the Waterline Intertie Project, the Southland WWTF project, the current Master Plans, San Luis Obispo County General Plan and the 2005 Urban Water Management Plan (UWMP). We understand that NCSD is seeking to produce an update to its current UWMP for 2010 that maximizes the following objectives:

1. Creates a reliable tool for future water use planning;
2. Ensures eligibility for grants and drought assistance; and
3. Complies with the requirements of the California Urban Water Management Planning Act.

In addition to these objectives, we believe that the keys to success for this project are:

- **Developing reliable demand projections.** WSC will apply sensitivity analysis to evaluate the impacts of variations in growth rate, conservation and rate structure on projected demand.
- **Integrating the customer database with GIS.** This approach not only provides a visually intuitive interface and data presentation, it spatially allocates demand to facilitate updating NCSD's hydraulic model.
- **Coordinating and documenting agency involvement.** Keeping stakeholders informed and involved through the UWMP preparation process reinforces important relationships and enhances the plan's accuracy and credibility.
- **Maintaining consistent and regular communication and coordination with DWR.** Our experience has shown that proactive communication with DWR during plan preparation eliminates unnecessary re-work and substantially reduces DWR's turn-around time.
- **Developing economic analysis and optimization of supply scenarios.** WSC will help NCSD evaluate the reliability and sustainability of its supplies and the economic implications of various water resource scenarios.
- **Developing tools and documents that feed directly into the infrastructure master planning process.** WSC sees the UWMP as a critical step in NCSD's planning cycle. Our deliverables will be structured to facilitate development of NCSD's water and sewer master plans.
- **Delivering the project on-schedule and within the project budget.** Our team is made up of senior professionals, each with significant management experience. We understand the importance of budget and schedule, and build that perspective into everything we do.

WSC's proposed Scope of Services closely follows the listing of tasks included with the project RFP. A detailed Scope of Services and summary of deliverables is provided as Appendix A.

The following section outlines WSC's proposed approach to each phase of the assignment, and highlights key enhancements to the Services Requested that we believe will contribute to a successful project.

Deliver a Robust, Well-Organized and Technically Sound Plan

Preparing an UWMP is as much an exercise in research, organization and presentation as it is performing calculations and analyses. The technical approaches are standardized and well documented including a detailed guidance document published by DWR. However, the available data for system analysis are of varying quality: often incomplete and/or internally inconsistent. Additionally, how the results are presented can be confusing, misleading and can distract from the information being communicated. WSC understands these challenges, and our goal is to produce documents that you are proud of. We do it by following a few basic steps.

1. Follow industry standard approaches including DWR guidance.
2. Clearly cite references and data sources and maintain a complete listing of references used.
3. Use existing documents (including the 2005 UWMP) where appropriate and incorporate reliable data from the public domain and/or internal sources as needed.
4. Apply a clear and concise writing style within a well-organized document framework.
5. Maintain all calculations in Excel format and submit to NCSO at end of project.

Keep Stakeholders Informed and Involved

Keeping project participants, stakeholders and affected agencies informed and involved throughout the UWMP process builds consensus, reinforces important relationships and fosters confidence in the finished product. For NCSO, coordinating stakeholder involvement is even more critical considering the political, geographical, institutional and legal context NCSO operates within. A cooperative effort among the purveyors and other parties is the best way to address these challenges for the benefit of sustainable water supply management. WSC uses the following tactics to keep stakeholders informed and involved:

1. Conduct frequent meetings and workshops that are structured, collaborative, and well-documented.
2. Coordinate NCSO's correspondence with stakeholder agencies to track everyone's input.
3. Provide complete and well-organized documentation throughout the project including correspondence records, meeting agendas and minutes and project status reports.

Ensure DWR Acceptance of the Plan

Although DWR is the reviewing agency responsible for compiling and publishing UWMPs, they are not technically an “approving” body in this capacity. DWR’s role is to review submitted plans for completeness, and either accept them as complete or return them for revision. WSC’s approach is to engage DWR early and often to minimize re-work and maximize the probability that the final submittals will be accepted as complete. We do this by applying a few basic techniques:

1. Follow DWR’s guidance documents including the content, format and organization of report tables.
2. Complete DWR’s review sheets and submit them to NCS D with each draft submittal.
3. Solicit pre-reviews from DWR staff to get their input prior to finalizing the documents.
4. Address changes in the Urban Water Management Planning Act since 2005. The following table summarizes the changes to-date and WSC’s approach for addressing the changes.

Summary of Changes in the UWMP Act since 2005*

New / Revised Water Code Section Number	Summary of Changes	UWMP Approach
10631.1	Demand projections must include projected water use for single-family and multifamily residential housing needed for lower income households.	Values will be estimated based on NCS D customer data and the County of San Luis Obispo’s Housing Element.
10631.5	This section includes additional policies and procedures for determining an urban water supplier’s eligibility for State grants and loans considering its implementation of the DMMs described in Section 10631.	No impact to the UWMP.
10631.7	This section requires DWR to convene an independent technical panel to provide information and recommendations to DWR and the Legislature on new demand management measures, technologies and approaches.	No current impact to the UWMP, however DMMs for 2010 could change depending upon input from the technical panel.
10644 (c)	This section requires DWR to report to the legislature and DMM technical panel those DMMs that achieve water savings significantly above the levels established by DWR.	No impact to the UWMP.

** Note that this proposal is based upon the current content of the California Water Code, and does not include additional effort required to address any future changes in the law.*

Collaborative Planning Improves Quality and Credibility

WSC views an UWMP as a process more than a product. We see preparation of the UWMP as a critical element within NCSD's overall planning process. To this end, we prioritize client interaction and collaboration, and conduct workshops at critical points in the project development to effectively and efficiently transfer information among the team members. We carefully plan each workshop or client meeting, set an agenda, keep detailed notes, and circulate minutes and action items after each meeting. This way, we minimize re-work, build consensus as to planning approaches and assumptions and benefit from each contributor's unique knowledge and experience base.

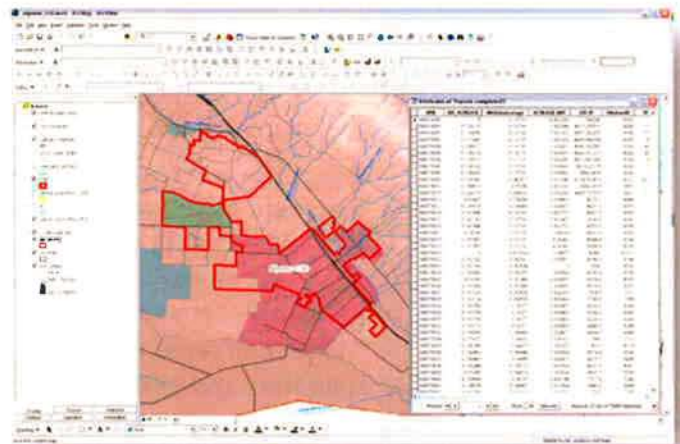
Additionally, WSC understands that NCSD staff is faced with a barrage of responsibilities and a steady stream of tasks to keep the District in business. Our job is to be a trusted source of high quality services while minimizing the impact to your everyday responsibilities. You expect us to be available, accountable and reliable. Throughout the project, WSC will minimize the burden on NCSD's staff in the following ways:

1. Closely manage the flow of information between NCSD, WSC and other project stakeholders
2. Keep the project well-organized and on-schedule.
3. Track and communicate project status and needs clearly and at regular intervals.
4. Provide specific descriptions of information needs and avoid vague, open-ended requests.
5. Use existing planning documents where appropriate instead of starting from scratch.

The Parcel Database is a Key Tool for Analyzing Demand

NCSD has developed a detailed parcel database for the parcels within its service area. The database includes information for approximately 4,500 parcels, with a total area of approximately 3,700 acres. The database includes a number of attributes that can be used in estimating and allocating water use, including: parcel size in acres; County zoning code; Assessor's land use type; number of developed and undeveloped benefit units; number of existing residential units; and potential additional residential units.

WSC will utilize parcel data from County Planning and/or the Assessor's office to be sure all parcels are included in the database. A field will be added to the database to signify each parcel's location, either within NCSD's service area boundary or in one of the sphere of influence (SOI) areas. This way, one database can be used for information about all the affected parcels.



NCSD's parcel database can be easily linked to GIS to allow graphical analysis and reporting.

Scope of Services

NCSD maintains customer data, including water use, in Municipal Operations Manager (MOM) software. Water use is stored by account number, which can be linked to the APN in the parcel database. By linking historic water use data to the parcel database, NCSD will be able to calculate accurate demand factors for different types of land use using actual consumption data. The parcel database provides extremely accurate information for two timeframes: current conditions; and buildout. Buildout occurs when each parcel has been developed to its maximum density permitted by zoning. The parcel database will allow WSC to evaluate alternative zoning for individual parcels and evaluate the impact on estimated demands.

Using the APN, the parcel database can be linked to geographic data in a Geographic Information System (GIS). This linkage will allow WSC to graphically select parcels in certain parts of the system for sensitivity analysis. The GIS linkage also allows the display of estimated water use on a map of the service area. Viewing this information on a map allows much easier communication with stakeholders than the tabular data alone.

Develop Unit Demand Factors to Spatially Allocate Demand

WSC will use the consumption data and the updated parcel database to develop unit demands. The unit demands will express annual water consumption per unit of development. The unit of development might be per capita, per household, per benefit unit, or per acre. A preferred set of demand factors will be developed to most accurately represent demand distribution. The preferred set of demand factors may include a combination of approaches such as using population for residential areas and acreage for

A preferred set of demand factors will be developed to most accurately represent demand distribution. The preferred set of demand factors may include a combination of approaches such as using population for residential areas and acreage for commercial areas.

commercial areas. Since NCSD has evaluated potential financing strategies on the basis of cost per benefit unit, there may be advantages to using a similar basis for evaluating water demands. However, the consumption data may reveal that different benefit units correspond to different quantities of water use, depending on location in the service area, type of land use, and size of the parcel.

The most detailed breakdown would include unit demand factors for each type of Assessor's land use. Similar land use categories can have similar values, but defining a value for each land use category will provide the most flexibility in allocating demands. There are approximately 90 land use categories in the parcel database. Using 2008 data, the average consumption of 2.5 million gallons per day (mgd) corresponds to an average of approximately 425 gallons per day (gpd) per developed benefit unit, or approximately 660 gpd per acre. The actual unit demand factors for each land use type will be adjusted based on actual consumption data and review with NCSD staff.

For some land use categories, NCS D may have a significant amount of historical consumption data to develop unit demand factors. However, past consumption history is not a guarantee that future demand patterns will not change. For example, conservation measures or water rates may impact consumption patterns differently for each land use. While conservation efforts may reduce water consumption, global climate change or changing demographics may cause an increase in future consumption per unit of development. WSC will review these issues with NCS D and develop a defensible set of planning assumptions.

Develop Reliable Demand Projections

Using the parcel database and the demand factors, WSC will develop estimates of future water demand in the format required by DWR. WSC will meet with the County Planning Staff and NCS D to discuss potential growth rates and their impact on expected water demand. The 2005 UWMP provided a wide range of potential future demand, varying based on assumed growth rate. For the 2010 UWMP, WSC will use the parcel database and the GIS to apply discrete growth rates to certain parts of the service area. In this way the team can reduce the number of scenarios while providing a reasonable assurance that future demands are being accounted for.

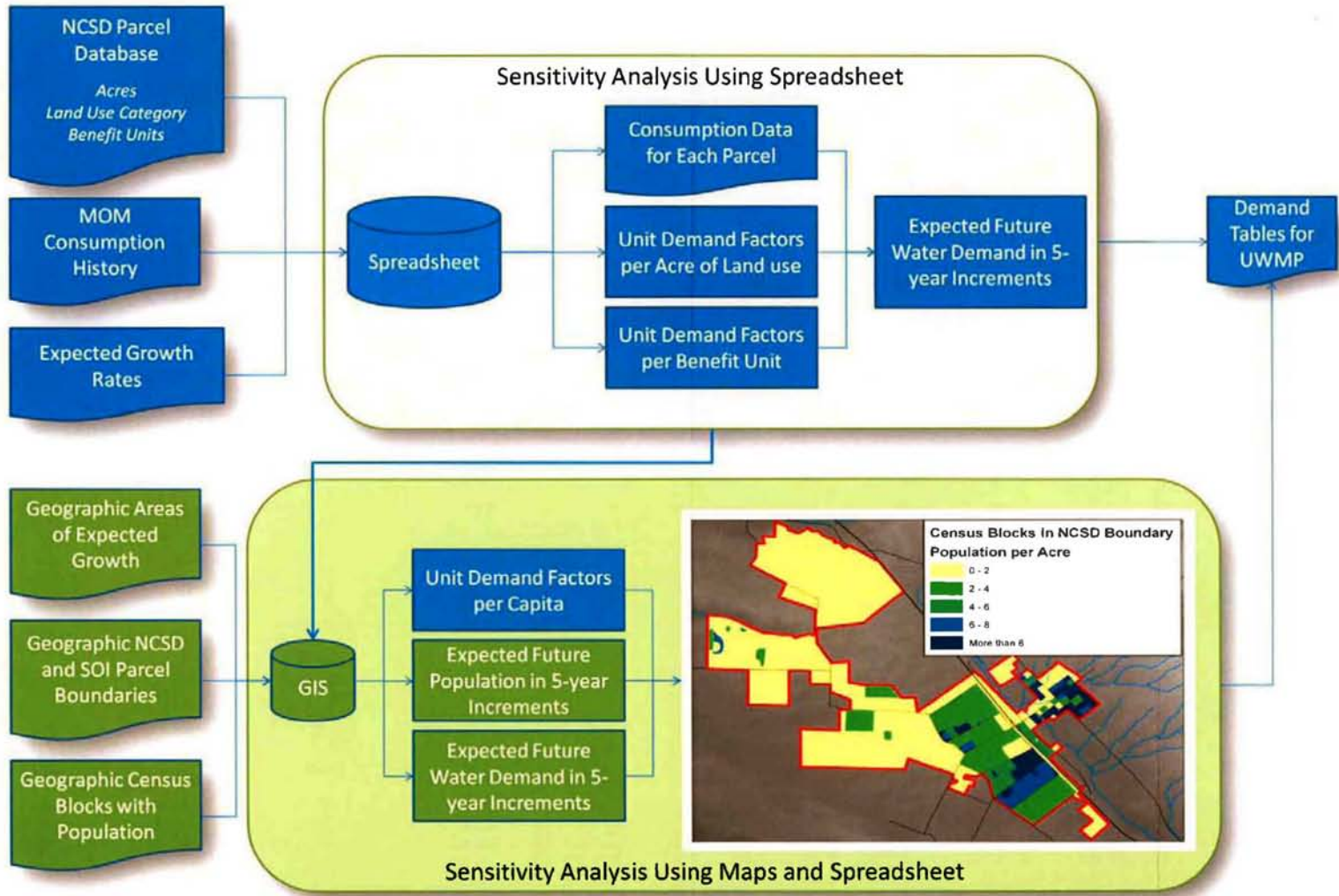
For the 2010 UWMP, WSC will use the parcel database and the GIS to apply discrete growth rates to certain parts of the service area. In this way the team can reduce the number of scenarios while providing a reasonable assurance that future demands are being accounted for.

Analyze the Sensitivity of Demand Projections

WSC will incorporate the NCS D parcel database, historic water consumption data, and expected growth rates into a spreadsheet. The spreadsheet will allow sensitivity analyses to evaluate how changes in unit demands or changes in growth rates will affect future water demands. WSC will use GIS software to link this spreadsheet with geographic data representing parcel boundaries and census blocks. This linkage will allow sensitivity analysis based on maps showing where growth is expected to occur. The use of GIS will allow more effective communication with stakeholders about the impacts of land use changes or changes in water consumption patterns on future water demands. In addition to the tables of future demand required for the UWMP, the GIS analysis will provide geographically allocated demands showing where water will be needed in the future. This information will be valuable in future hydraulic modeling and master planning for the supply and distribution system.

WSC will prepare demand tables for inclusion in the UWMP document. WSC will also prepare a narrative description of how the database was developed, how the unit demand factors were estimated, and how the future growth was projected. This document will be reviewed with NCS D to ensure that the entire project team is comfortable with the basis of the demand projections.

Using quality data, integrated tools and thorough analysis, WSC will deliver reliable demand projections.



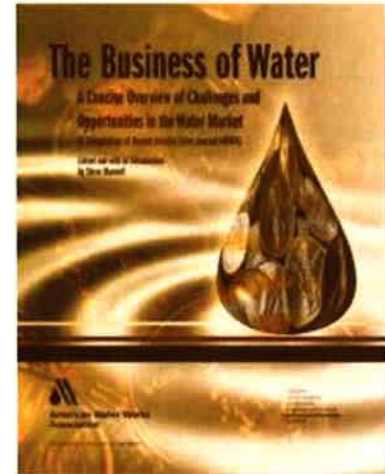
Optimize Supply Portfolio for High Reliability, Low Cost

An UWMP is a multiple use document. As envisioned by DWR, a UWMP is:

- A standardized methodology for water utilities to assess their water resource needs and availability.
- A critical component of developing integrated regional water management plans (IRWMPs).
- A statutory requirement and a key source of information for Water Supply Assessments (WSAs) and Written Verifications of Water Supply.
- A long-range planning document for water supply and a source document for cities and counties as they prepare General Plans.

Beyond these goals, preparing an UWMP presents an opportunity to evaluate NCSD's resource mix, or supply "portfolio," from the perspective of reliability and cost. Developing a water supply portfolio that minimizes life-cycle cost for a target level of reliability ensures an efficient outcome for NCSD's customers that reflects and protects their best interests.

For the Waterline Intertie Project, NCSD is making a substantial investment in the infrastructure required to import water from Santa Maria. Although NCSD will be paying a high variable cost for the purchased water, the constructed infrastructure will represent a significant sunk cost, and there may be unused capacity in portions of the project (e.g. the river crossing). Therefore, the incremental cost of expanding the operating capacity of the entire project may be a more favorable option when compared with other water supply sources as the District approaches buildout.



WSC's proposed Project Manager explains water supply portfolio optimization as it relates to ocean desalination in his article "Supply from the Sea", included with AWWA's book, *The Business of Water*.

The Adjudication is a Framework for Groundwater Planning

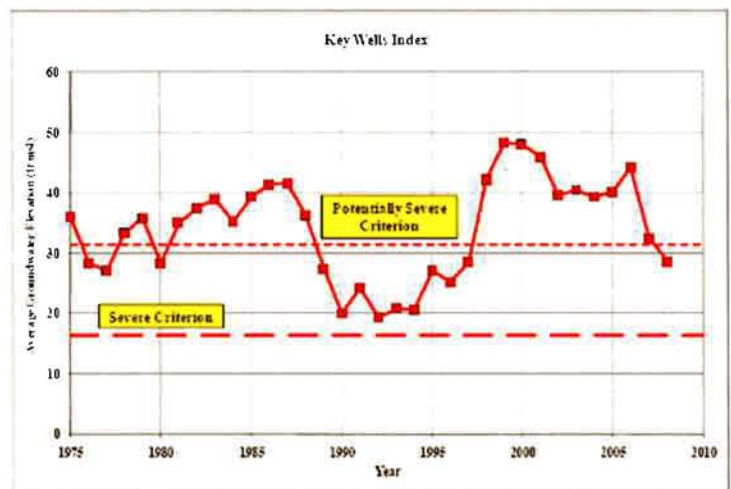
Currently, NCS D's only source of water supply is local groundwater. Underlying NCS D is a portion of the Santa Maria Groundwater Basin. The Santa Maria Basin has been the subject of ongoing litigation since 1997, and on June 30, 2005 the California Superior Court of Santa Clara County entered into a Stipulated Judgment ("Stipulation") in the case. The Stipulation was ultimately approved by the court and a final judgment ("Judgment") was filed on January 25, 2008. The Stipulation has four primary effects:

1. It divides the Santa Maria Valley Groundwater Basin into three separate management sub-areas (the Northern Cities Management Area, the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area).
2. It requires the establishment of a NMMA Technical Group (TG) including representatives appointed by NCS D, Southern California Water Company (SCWC), ConocoPhillips, Woodlands Mutual Water Company (WMWC) and an agricultural overlying owner.
3. It requires that a minimum of 2,500 AF/year of supplemental water be transmitted to the NMMA by NCS D.
4. It contains specific provisions with regard to groundwater rights, development of groundwater monitoring programs, and development of plans and programs to respond to Potentially Severe and Severe Water Shortage Conditions.

The Stipulation requires each management area to prepare an annual report to summarize monitoring results, water balance data and threats to groundwater supplies. The 2008 Annual Report for the NMMA included several key findings:

- The Key Wells Index for spring 2008 is below the groundwater elevation criterion established to indicate a Potentially Severe Water Shortage Condition.
- Total 2008 estimated consumptive water demand of 8,600 AF exceeds the estimated annual recharge of 7,300 AF

NCS D's Annexation Policy requires that annexations provide a reliable supplemental water source for the area of annexation or pay for the cost of a supplemental water source as a condition of NCS D approval. New connections in NCS D's existing service area are required to pay a supplemental water fee.



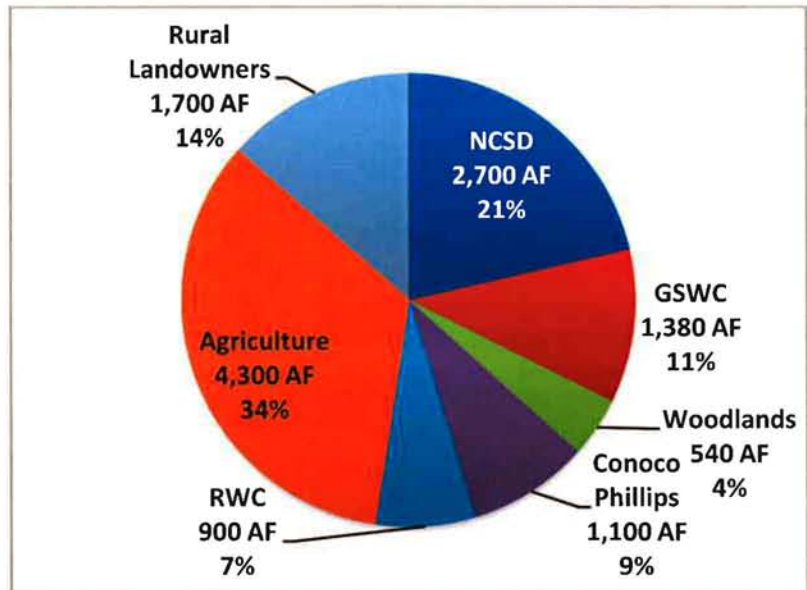
Current conditions in the basin underlying the NMMA signal a "Potentially Severe Water Shortage Condition".

Source: 2008 Annual Report

Develop Realistic Projections of Future Groundwater Pumping

The Urban Water Management Planning Act has several basic requirements for presentation of NCS D's groundwater supplies. At a minimum the UWMP must include:

- A copy of a groundwater management plan
- A description of the groundwater basin and a copy of adjudication documentation
- A detailed description and analysis of the amount and location of groundwater that has been pumped for the past five years
- A detailed description and analysis of the amount and location of groundwater that is projected to be pumped in five year increments through 2030
- A description of the reliability of the supply and vulnerability to seasonal or climatic shortage, including data for (a) an average water year; (b) a single dry water year; and (c) multiple dry water years.
- A description of the legal, environmental, water quality and/or climatic factors affecting reliability.



In 2008, NCS D's production was 2,700 AF, only 21% of the total groundwater pumping in the NMMA

Source: 2008 Annual Report

Most of these requirements can be readily met given data and analyses presented in the 2008 Annual Report, adjudication proceedings, NCS D's pumping records and the 2005 UWMP. The tricky part is projecting NCS D's future groundwater pumping given the uncertainties of regional hydrology, hydrogeology, and the amount of water pumped by other users of the basin. Given the contributions of the Waterline Intertie Project, along with projections of water conservation and growth within the service area, WSC will work with NCS D to establish a realistic baseline production that fits within the framework of the adjudication while meeting NCS D's supply needs. This baseline will be subjected to reliability "tests" in which hydrologic assumptions are varied to expose potential vulnerabilities in the overall supply portfolio.

“Base Load” Purchased Water from Santa Maria



Santa Maria blends State Project water with local groundwater supplies at their blending facility prior to delivering it to their customers.

The Stipulation requires NCS D to purchase and transmit to the NMMA a minimum of 2,500 AF of supplemental water each year. The Waterline Intertie Project will deliver a mix of imported surface water and local groundwater from the City of Santa Maria, and will have a capacity of 3,000 AF per year. It is our understanding that NCS D expects to purchase 2,000 AF of water from the City in 2011/12 and to increase deliveries to 2,500 AF by 2016. Given the constraints established by the Stipulation and the current condition of overdraft in the basin, NCS D will likely continue to rely on purchased water from Santa Maria as a “base load” supply. For

the UWMP, WSC will evaluate the reliability of this supply given conditions established in the Final Sales Agreement with Santa Maria and reliability projections for the State Water Project based on input from the City of Santa Maria and the Central Coast Water Authority (CCWA).

The UWMP Act requires the UWMP to provide a detailed description of future supply projects and programs that may be undertaken by NCS D to meet projected demand. WSC will work with NCS D to establish potential “next phase(s)” of the Waterline Intertie Project along with other feasible alternatives to meet the needs of future growth.

Account for Water Transfers, Wheeling and Wholesaling

We understand that NCS D, GSWC and the Woodlands have interconnected their systems via two emergency connections. The NCS D-Woodlands Intertie is located at the west end of Camino Caballo, and the NCS D-GSWC Intertie is on Division West of Orchard Road. The 2008 Annual Report indicates that NCS D is capable of delivering water to either purveyor subject to the hydraulic limitations of the respective interties and the NCS D production capability. NCS D will also be able to wheel new water from the Waterline Intertie Project to either of the two existing interties, and/or to new sites located along the NCS D major distribution mains. WSC will work with NCS D (and wholesale customers as appropriate) to define a realistic delivery schedule, subject to the availability of NCS D’s supplies.

Develop a Regionally Coordinated Recycled Water Plan

Wastewater generated within the NCS D’s service area is collected and treated by NCS D or discharged to individual septic systems. NCS D operates the Southland WWTF and the Blacklake WWTF. Treated effluent from the Southland WWTF flows into percolation ponds, which may act to recharge the groundwater basin. Treated effluent from the Blacklake WWTF is treated and discharged into a golf

course for golf course irrigation and percolation. In addition to the wastewater treatment facilities owned and operated by NCSD, Rural Water Company owns and operates the Cypress Ridge WWTF, and the Woodlands Mutual Water Company owns and operates the Woodlands WWTF.

For recycled water, the UWMP Act requires NCSD to include the following information in the UWMP:

- Summary of coordination with local water, wastewater, groundwater and planning agencies to develop a recycled water plan for the area
- Description of the wastewater collection and treatment systems in the service area, a quantification of the amount of wastewater collected and treated and methods of disposal
- Description of the quantity of treated wastewater that meets recycled water standards
- Description of current recycled water usage
- Description of potential uses of recycled water
- Projection of recycled water use
- Description of actions and incentives in-place to encourage recycled water use
- A plan for optimizing recycled water use



NCSD's Southland WWTF discharges roughly 580 AF/yr to percolation ponds. It is unclear whether this water recharges the groundwater basin.

WSC will review the recycled water planning conducted to-date by NCSD and the other regional agencies, and work with NCSD to conduct a workshop to discuss regional recycled water planning. WSC will use information gathered from these efforts to prepare the required plan.

Improve Reliability by Keeping Desalination “On the Table”

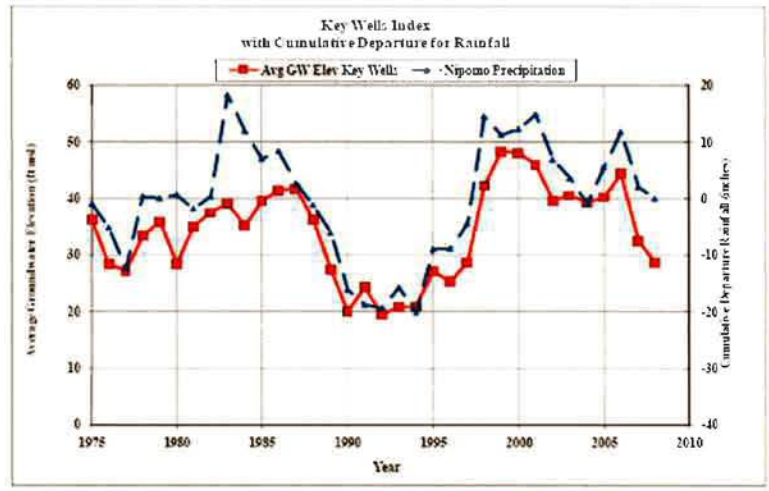


WSC's team evaluated the technical and economic feasibility of using ocean desalination to augment the supply of West Basin Municipal Water District near El Segundo, CA.

NCSD has a work program to consider the feasibility of implementing ocean desalination to provide a new source of supply. Ocean desalination is a costly option for a new source of supply, but it has the potential to be highly reliable. As desalination technology advances, and as more plants are permitted and built in California, the corresponding cost of desalination is likely to drop relative to other new sources of supply. Therefore, by keeping desalination in NCSD's long-term resource mix, NCSD retains a legitimate contingency option while offering the opportunity for developing a highly reliable supply within a reasonable time frame at some point in the future.

Develop Strategies to Improve Groundwater Recharge

According to the 2008 Annual Report, the Nipomo Mesa dune sands are highly porous and permeable and readily accept deep percolation recharge in areas without a confining layer. Unfortunately, confining beds above much of the Paso Robles formation prevent percolating water from rainfall and return flows from directly recharging the aquifer. Instead, some of the percolating water may be diverted laterally on top the low-permeability layers.

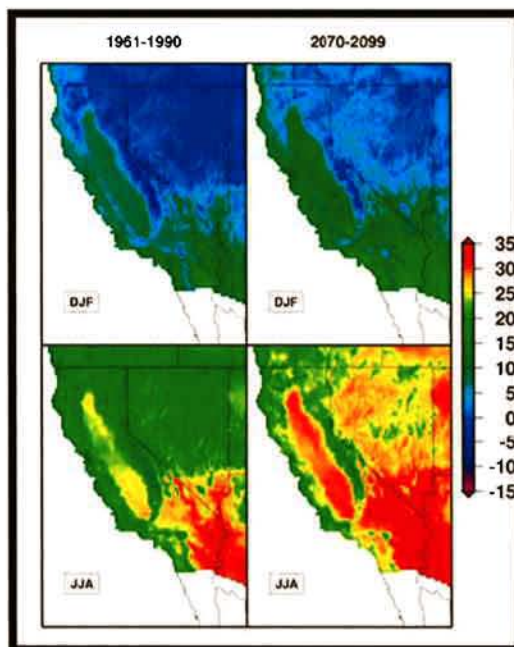


The high correlation between the Key Wells Index and regional precipitation illustrate the impact of basin recharge by deep percolation of rain water. Source: 2008 Annual Report

Alternatively, several areas within the NMMA appear promising for recharging the unconfined portions of the basin. For example, substantial recharge appears to be taking place along the eastern boundary of the NMMA according to the 2008 Annual Report, and studies have shown areas near the current cone of depression have high percolation rates. Maximizing basin recharge should be a major priority for NCS and the other regional stakeholders. As an optional task, WSC will work with NCS and the NMMA TG to develop conceptual strategies for improving recharge of the NMMA basin (see Appendix A).

Plan for the Effects of Climate Change

Based on historical rainfall records for the Nipomo Mesa from 1920 through 2008, there were three significant long-term dry periods: 1) from 1921 to 1934; 2) from 1944 to 1951; and 3) from 1984 to 1991. The driest year in that period was 1972. WSC will use the rainfall data from these drought periods to evaluate the reliability of local groundwater supply. The reliability of supplemental water from the City of Santa Maria will be determined based on the structure of the Final Sales Agreement, as well as reliability data provided by Santa Maria as part of their 2010 UWMP effort.



Although the predictive science is evolving, climate change is expected to have a measureable impact on California's temperature and precipitation patterns. Source: California Climate Change Center

WSC can also consider the possible effects of climate change on the reliability of NCSD's supplies. Based on research conducted by the California Energy Commission and others, temperature and precipitation scenarios can be used to adjust historical data to evaluate the sensitivity of NCSD's supply reliability to various climate change scenarios.

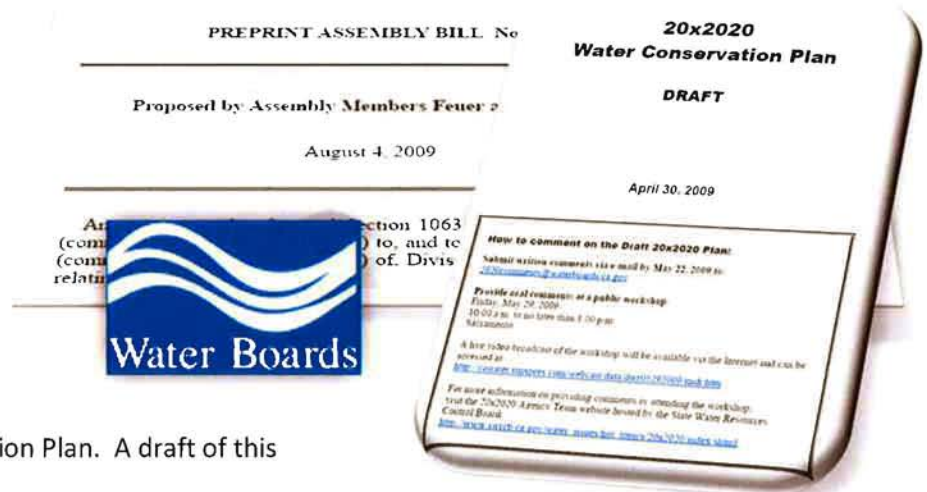
Climate change may also affect regional per capita demand. For example, evapotranspiration (ET) rates are a function of temperature. At a fixed level of humidity, the rate of ET will increase as temperature increases. This effect could drive increases in irrigation demand if regional mean temperatures increase. Therefore, any efforts at water conservation may be offset slightly by increased irrigation demand as mean temperatures increase. WSC's analytical framework will allow NCSD to evaluate each of these possibilities in a quantitative way.

We anticipate climate change will be a major driver in the State's upcoming regulations, including potential modifications to the UWMP Act prior to 2010. By considering these factors in preparation of its 2010 UWMP update, NCSD will be ahead of the game.

Review and Revise NCSD's 2008 Water Conservation Program

On February 13, 2008, NCSD's Board of Directors adopted the District's Water Conservation Program. The program establishes "core measures" and "non-core measures" to achieve a stated goal of "15% reduction in water use by the District." However, it is unclear how this goal will be measured. For example, is the 15% reduction in per capita use, or total use District wide? What baseline should be used to measure reduction in demand?

In February 2008, Governor Schwarzenegger introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta. As part of this effort, the Governor directed state agencies to develop a plan to reduce statewide per capita urban water use by 20 percent by the year 2020. The Water Boards have been working collaboratively with state and federal agencies to develop a 20x2020 Water Conservation Plan. A draft of this document was released in April of this year. The draft plan establishes a state baseline for urban water use of 192 gallons per capita per day (GPCD), a statewide 2020 target of 154 GPCD and a regional target for NCSD of 123 GPCD by 2020.



WSC will help NCSD update its Water Conservation Program to be consistent with current legislation and/or policies.

The California state legislature has also been working on water conservation. Specifically, the Water, Parks and Wildlife Committee in the California State Assembly has released a Preprint of Assembly Bill No. 2 which proposes to revise the Water Code to require 20% reduction in urban per capita water use in California by December 31, 2020. The reduction target is measured against average gross daily water use per capita per day for each purveyor, based upon a continuous 10-year period ending in 2004 or later. Presumably under this legislation, NCS D would be able to use its own production and population data to establish an urban water use target.

The legislation would require NCS D to include the following information with its 2010 UWMP:

- Baseline daily per capita water use
- Urban water use target (2020)
- Interim urban water use target (2015)
- Compliance daily per capita water use
- Bases for determining the estimates, including references to supporting data

Considering the range of possible conservation targets and implementation requirements, WSC will work with NCS D to establish an appropriate strategy for developing a revised Water Conservation Program that meets the requirements of the Act and any other applicable policies or legislation. We will provide necessary data and analysis for NCS D staff to update the District’s Conservation Program, and we will include the revised Program with the 2010 UWMP.

As an optional task, WSC will help NCS D determine its baseline per capita water use consistent with the approach outlined in the Preprint of Assembly Bill No. 2 (see Appendix A).

It is our understanding that NCS D is a signatory to the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU). Therefore, the UWMP Act allows NCS D to submit its annual reports filed with the CUWCC instead of detailing specific Demand Management Measures (DMMs) in the UWMP. WSC will review the documentation provided by NCS D for consistency with this provision and either attach complete annual reports, or detail the individual DMMs consistent with NCS D’s 2008 Water Conservation Program and as required by the UWMP Act.

MEMORANDUM OF UNDERSTANDING
REGARDING
URBAN WATER CONSERVATION
IN CALIFORNIA

As Amended December 10, 2008



The UWMP Act allows NCS D to submit its annual reports to the CUWCC instead of detailing DMMs in the UWMP.

Apply NCS D's Water Shortage Conditions and Response Plan

The NMMA TG prepared a Water Shortage Conditions and Response Plan dated 3/26/2009 which defines the water shortage conditions for the NMMA and outlines a response plan for the two shortage conditions (Potentially Severe and Severe Water Shortage). Criteria for determining the water shortage conditions are defined as follows:

Area Designation	Water Shortage Condition	Condition Starts	Condition Ends
Inland Area	Potentially Severe Water Shortage	Key Wells Index is less than 31.5 ft msl for two successive Spring measurements	Key Wells Index is above 31.5 ft msl for two successive Spring measurements, OR Key Wells Index is 36.5 ft msl or greater in any Spring measurement
	Severe Water Shortage	Key Wells Index is less than 16.5 ft msl using Spring Measurements	Key Wells Index is greater than 26.5 ft msl using Spring measurements
Coastal Area	Potentially Severe Water Shortage	Spring groundwater elevations drop below threshold, OR chloride concentration exceeds 250 mg/L	Spring groundwater elevations are above threshold, AND chloride concentration at or below 250 mg/L for two successive Spring measurements
	Severe Water Shortage	Chloride concentration exceeds 500 mg/L	Chloride concentration less than 500 mg/L for two successive Spring measurements

For a Potentially Severe Water Shortage condition, the Stipulation requires NCS D to implement voluntary conservation measures, increase supplemental supply and/or implement other measures to reduce groundwater use. For a Severe Water Shortage condition, the Stipulation limits groundwater pumping by NCS D and other stipulating parties to no more than 110% of maximum annual pooled production. Under the Stipulation, the court may order mandatory conservation.

NCS D also has an existing Water Shortage Contingency Plan that was prepared as part of the 2005 UWMP. WSC will work with NCS D to reconcile these two documents and develop a Water Shortage Contingency Plan for the 2010 UWMP update that meets the requirements of the UWMP Act.

Why Select WSC?

WSC offers several advantages when compared to our competition:

1. **No bait and switch.** The highly experienced team we are presenting is the team that will be doing the work.
2. **Unbiased documents.** Our analyses will not be clouded by peripheral working relationships with neighboring utilities, regional political activity or ongoing projects with NCSD. Our “neutral” status will ensure that your documents are defensible and free from unanticipated conflicts.
3. **Innovative tools and approaches.** Our team includes some of the brightest minds in the business when it comes to using state-of-the-art tools to develop practical water resource solutions.
4. **Value-added services.** In addition to the services listed in your RFP, WSC adds value at every stage of the project. For example, a GIS framework will allow spatial demands to be imported into your hydraulic model.

WSC has built a reputation for providing the highest level of service to our clients, bringing value and innovation with a personal touch. We appreciate this opportunity, and look forward to working with NCSD on this project.

Personnel

WSC's core team consists of highly qualified professionals that bring decades of relevant experience to NCSO. The team is composed to maximize the strengths of every participant in an organization that is simple, straightforward and efficient.

Mr. Jeffery Szytel will lead WSC's team as Project Manager, and will be the primary author for the UWMP update. Mr. Szytel has B.S. and M.S. degrees in Civil and Environmental Engineering, an M.B.A. with emphasis in finance, and is a registered civil engineer in California. Mr. Szytel's extensive water planning experience includes multiple UWMPs, as well as Water Supply Assessments, Water Supply and Treatment Plans and Water, Recycled Water and Wastewater Master Plans throughout California and Nevada. In addition to his experience in water planning, Mr. Szytel is a skilled and responsive manager who inspires a high level of cooperation and performance from his project teams. He is a collaborator by nature, and builds trust and shared accountability to achieve outstanding results. Mr. Szytel is the founder and President of WSC and therefore has a personal stake in the success of your project.



Jeff Szytel's organized and proactive agency coordination on a recent project in Sacramento County helped him earn recognition for "2009 Project of the Year" by APWA.

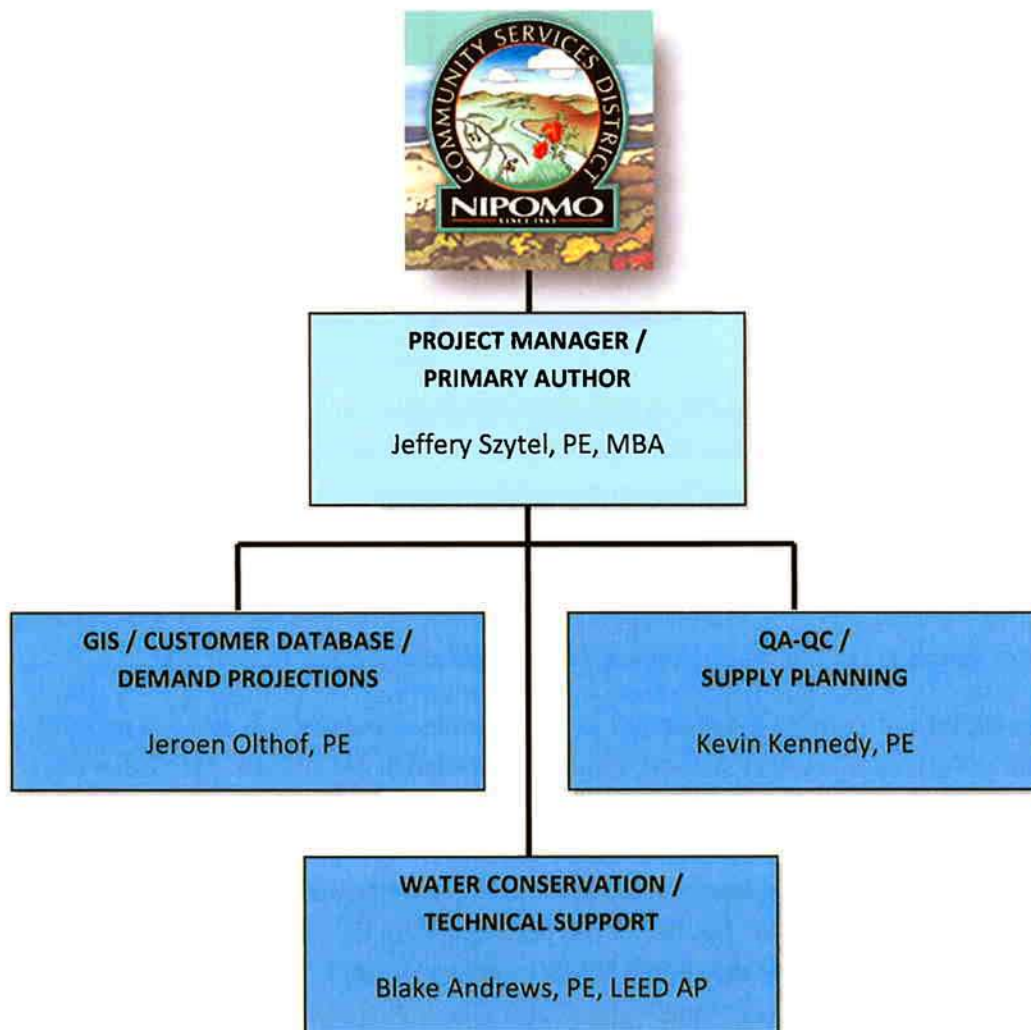
Mr. Kevin Kennedy will provide QA/QC review of all deliverables, and will provide technical support including demand projections, supply optimization, climate change and recycled water. Mr. Kennedy has B.S. and M.S. degrees in Civil and Environmental Engineering, is a registered civil engineer in California, and has over 16 years experience in water, recycled water and wastewater planning. Mr. Kennedy has participated in the preparation of more than 20 water planning documents throughout the United States including UWMPs, Water Supply Assessments, Integrated Regional Water Management Plans, Water Supply Plans and Water, Recycled Water and Wastewater Master Plans.

Mr. Jeroen Olthof will lead the development of the customer database and demand projections and will provide GIS and technical analysis support during preparation of the UWMP. Mr. Olthof has B.S. and M.S. degrees in Civil and Environmental Engineering, is a registered civil engineer in California, and has over 14 years experience in water, recycled water and wastewater analysis, modeling and planning. Mr. Olthof is a nationally recognized expert in GIS and modeling systems and is the Practice Leader for HDR's GIS and Modeling services group. Mr. Olthof has participated in the preparation of more than 20 water planning documents throughout the United States including UWMPs, Water Supply Assessments, Integrated Regional Water Management Plans, Water Supply Plans and Water, Recycled Water and Wastewater Master Plans.

Mr. Blake Andrews will be responsible for water conservation and will provide general technical support to the project team. Mr. Andrews has a B.S. degree in Civil and Environmental Engineering, is a registered professional engineer in California, and is an Accredited Professional with Leadership in Energy and Environmental Design (LEED). Mr. Andrews has experience in planning and implementing low-impact development, and is currently pursuing his Master’s Degree in Environmental Engineering from Cal Poly San Luis Obispo; his Master’s Thesis is in water conservation and low impact development. Mr. Andrews is also the co-founder of iConserv.org, a non-profit organization dedicated to promoting awareness of water use and conservation, and developing and implementing cost-effective technologies for water conservation at the customer level.

Organization Chart

The following Organization Chart graphically illustrates WSC’s proposed team.



Summary of Key Project Staff

The following table summarizes the qualifications of WSC’s Key Project Staff, and highlights the value each member brings to the project and to NCS D. Resumes are included as Appendix B.

Key Project Staff	Qualifications	Value to Nipomo CSD
<p>Jeffery Szytel, PE, MBA <i>Project Manager / Primary Author</i></p> <p>Education M.B.A., Anderson School of Management, University of California Los Angeles M.S., Civil and Environmental Engineering, University of California Los Angeles B.S., Civil and Environmental Engineering, University of California Davis</p> <p>Registration Professional Civil Engineer, California #C63004</p>	<ul style="list-style-type: none"> ➤ Over 11 years experience in water and wastewater planning ➤ Authored more than 10 water planning documents in California and Nevada for agencies ranging in size from 5,000 to more than 500,000 customers, including 3 recent Urban Water Management Plan updates and a Water Supply Assessment. ➤ Strong working relationship with DWR staff and intimate understanding of the regulatory context and what DWR needs to see in a completed plan. ➤ Well-versed in water supply economics and the dynamics of forecasting urban water demand 	<ul style="list-style-type: none"> ➤ Qualified technical professional with proven record in urban water management planning ➤ Good communicator with strong management skills ➤ Team builder, facilitator and collaborative manager ➤ As President of WSC, Mr. Szytel is directly accountable for your project’s success ➤ Responsive and local – WSC offices only 10 minutes away!
<p>Kevin Kennedy, PE <i>QA/QC, Technical Support</i></p> <p>Education M.S. Civil Engineering, University of California Davis B.S., Civil Engineering, University of California Davis</p> <p>Registration Professional Civil Engineer, California #61206</p>	<ul style="list-style-type: none"> ➤ Over 16 years experience in water and wastewater planning ➤ Participated in the preparation of more than 20 water, recycled water and/or wastewater planning documents nationwide. ➤ Specializes in Integrated Water Management Planning including water supply optimization and evaluating the impacts of climate change on supply reliability ➤ Experienced in the application of GIS and database tools to facilitate planning efforts 	<ul style="list-style-type: none"> ➤ Outstanding technical depth and knowledge of water resource planning ➤ Experienced in all aspects of water resources planning including recycled water ➤ Nationally recognized expert in integrated water resource planning

Key Project Staff	Qualifications	Value to Nipomo CSD
<p>Jeroen Olthof, PE <i>GIS, Customer Database, Demand Projections</i></p> <p>Education M.S. Civil Engineering, University of Washington, Seattle B.S., Civil Engineering, University of Colorado, Boulder</p> <p>Registration / Certifications Professional Civil Engineer, California #58597</p>	<ul style="list-style-type: none"> ➤ Over 14 years experience in water resources planning ➤ Nationally recognized expert in the application, adaptation and use of database, GIS and modeling technology to solve problems related to water resources and water infrastructure ➤ Prepared more than 20 water, recycled water and/or wastewater planning documents throughout the United States ➤ Expert in GIS and database development and use, and hydraulic modeling 	<ul style="list-style-type: none"> ➤ Unmatched skill and expertise applying GIS and database tools to develop practical water resource solutions ➤ Integrates customer database with District's GIS for seamless input into hydraulic model
<p>Blake Andrews, PE, LEED AP <i>Water Conservation, Technical Support</i></p> <p>Education B.S. Civil & Environmental Engineering, University of California Davis M.S. Environmental Engineering, Cal Poly San Luis Obispo (in-progress)</p> <p>Registration / Certifications Professional Civil Engineer, California #73866</p> <p>Leadership in Energy and Environmental Design Accredited Professional (LEED AP)</p>	<ul style="list-style-type: none"> ➤ Over 5 years experience in civil engineering planning and design ➤ Co-founder of iConserve.org, a non-profit organization dedicated to promoting awareness of water conservation, and developing and implementing water conservation tools and technologies ➤ LEED Accredited professional with experience in the planning, design and construction of low impact development 	<ul style="list-style-type: none"> ➤ Skilled, responsive engineer ➤ Organized and efficient producer ➤ Excellent communicator and collaborator

Experience and References




WSC's key team members have been providing outstanding service to public water and wastewater clients like the Nipomo CSD for a combined total of nearly 50 years. The graphic below illustrates some of the water resource planning documents that our key team members have delivered in California and Nevada.

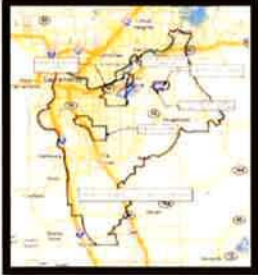



Representative Water Resource Planning Experience



The key members of the WSC team have prepared more than 50 water resource planning documents nationwide, including more than 30 in California and Nevada. WSC's team members have prepared more 10 UWMPs, WSAs, and IRWMPs in California.

The table below summarizes some of the representative construction management projects our team members have performed.

Project	Description
<p>Sacramento District 2010 Urban Water Management Plan Update California American Water, Sacramento, CA</p> 	<p>Project Description and Team Member Role(s) Jeffery Szytel is the primary author and project manager for the preparation of the 2010 update for the Sacramento District Urban Water Management Plan for California American Water. The plan area includes ten separate water systems with more than 57,000 connections and serving a population of more than 171,000.</p> <p>Relevance to NCS D</p> <ul style="list-style-type: none"> ➤ Large Urban Water Management Plan with multiple agency stakeholders ➤ Service areas rely largely on groundwater, but surface water and recycled water supplies are being integrated to comply with regional groundwater management goals
<p>San Diego District 2005 Urban Water Management Plan Update California American Water, Coronado, CA</p> 	<p>Project Description and Team Member Role(s) Jeffery Szytel was the primary author and project manager for the preparation of the 2005 update for the San Diego District Urban Water Management Plan for California American Water. The San Diego District serves municipal drinking water to more than 65,000 people in Coronado, Imperial Beach and Chula Vista, CA.</p> <p>Relevance to NCS D</p> <ul style="list-style-type: none"> ➤ Recent UWMP for an agency who relies on purchased water for a majority of its supply ➤ Proposed PM was lead author of this UWMP update
<p>Sacramento District 2005 Urban Water Management Plan Update California American Water, Sacramento, CA</p> 	<p>Project Description and Team Member Role(s) Jeffery Szytel was the primary author and project manager for the preparation of the 2005 update for the Sacramento District Urban Water Management Plan for California American Water. The plan area includes ten separate water systems with more than 57,000 connections and serving a population of more than 171,000.</p> <p>Relevance to NCS D</p> <ul style="list-style-type: none"> ➤ Large Urban Water Management Plan with multiple agency stakeholders ➤ Service areas rely largely on groundwater, but surface water and recycled water supplies are being integrated to comply with regional groundwater management goals

Project	Description
<p>Florin / Vineyard Gap Water Supply Assessment California American Water, Sacramento, CA</p> 	<p>Project Description and Team Member Role(s) Jeffery Szytel served as Project Manager and Primary Author for the development of a Water Supply Assessment (WSA) for this Specific Plan area in Southern Sacramento County.</p> <p>Relevance to NCSD</p> <ul style="list-style-type: none"> ➤ CAW did not have an adopted UWMP at the time of preparation of this WSA, so much of the analysis prepared as part of the WSA was consistent with the requirements of the UWMP Act. ➤ WSC's proposed PM was the Project Manager for this WSA
<p>2005 Urban Water Management Plan City of Oakdale, CA</p> 	<p>Project Description and Team Member Role(s) Kevin Kennedy and Jeroen Olthof participated in the development of an Urban Water Management Plan (UWMP) in accordance with the Urban Water Management Planning Act of 1983, as amended (including 2005 guidelines) that meets all of the objectives established by the California DWR.</p> <p>Relevance to NCSD</p> <ul style="list-style-type: none"> ➤ Recent UWMP prepared for a similar sized agency with a similar water supply mix as NCSD
<p>Integrated Water Resources Plan San Benito County Water District, CA</p> 	<p>Project Description and Team Member Role(s) Kevin Kennedy and Jeroen Olthof participated in the development of an integrated water and wastewater master plan for the Hollister urban area. The overall project goal of the master planning effort was to develop a specific plan for projects and programs to provide a reliable, sustainable water supply and eliminate the existing constraint on growth.</p> <p>Relevance to NCSD</p> <ul style="list-style-type: none"> ➤ Integrated water resources planning document that evaluated groundwater, surface water and recycled water supplies.
<p>2005 Urban Water Management Plan City of Reedley, CA</p> 	<p>Project Description and Team Member Role(s) Kevin Kennedy was the Project Manager and Jeroen Olthof assisted in the development of an UWMP and Water Master Plan for this small community in Central California.</p> <p>Relevance to NCSD</p> <ul style="list-style-type: none"> ➤ UWMP was developed in conjunction with the Water Master Plan

References

The following table provides references for each of the key members of the WSC team.

Team Member	References
<p>Jeffery Szytel</p>	<p>Andy Soule, PE General Manager of Northern Division, California American Water (916) 869-1280</p> <p>Melinda Weinrich Water Conservation Manager, California American Water (916) 568-4257</p>
<p>Kevin Kennedy</p>	<p>John Word Public Works Director, City of Oakdale, CA (209) 847-4245</p> <p>Harry Blohm Acting GM, San Benito County Water District (831) 637-8218</p>
<p>Jeroen Olthof</p>	<p>Mike Pardo City of Reedley (559) 637-4200</p> <p>John Word Public Works Director, City of Oakdale, CA (209) 847-4245</p>

Cost Estimate and Schedule

This section presents the following information for NCS D's review:

1. Completed and signed Quote Sheet
2. Listing of fees and charges including travel costs
3. Preliminary project schedule

NCSU UWMP UPDATE

QUOTE SHEET

Date: **September 1, 2009**

NAME OF FIRM: **Water Systems Consulting, Inc.**

NAME OF PRINCIPAL: **Jeffery Szytel**

NAME OF TEAM LEADER: **Jeffery Szytel**

ADDRESS: **PO Box 4255, San Luis Obispo, CA 93403**

PHONE: **(619) 807-8398** FAX: **(916) 404-4894**

EMAIL: **jszytel@wsc-inc.com**

NOT-TO-EXCEED EXPENDITURE LIMIT FOR ALL FEES & CHARGES: **\$79,480**

Signature of Principal Authorized to Sign for Firm

Date

This quote shall be valid for 90 days from the date of Signature.

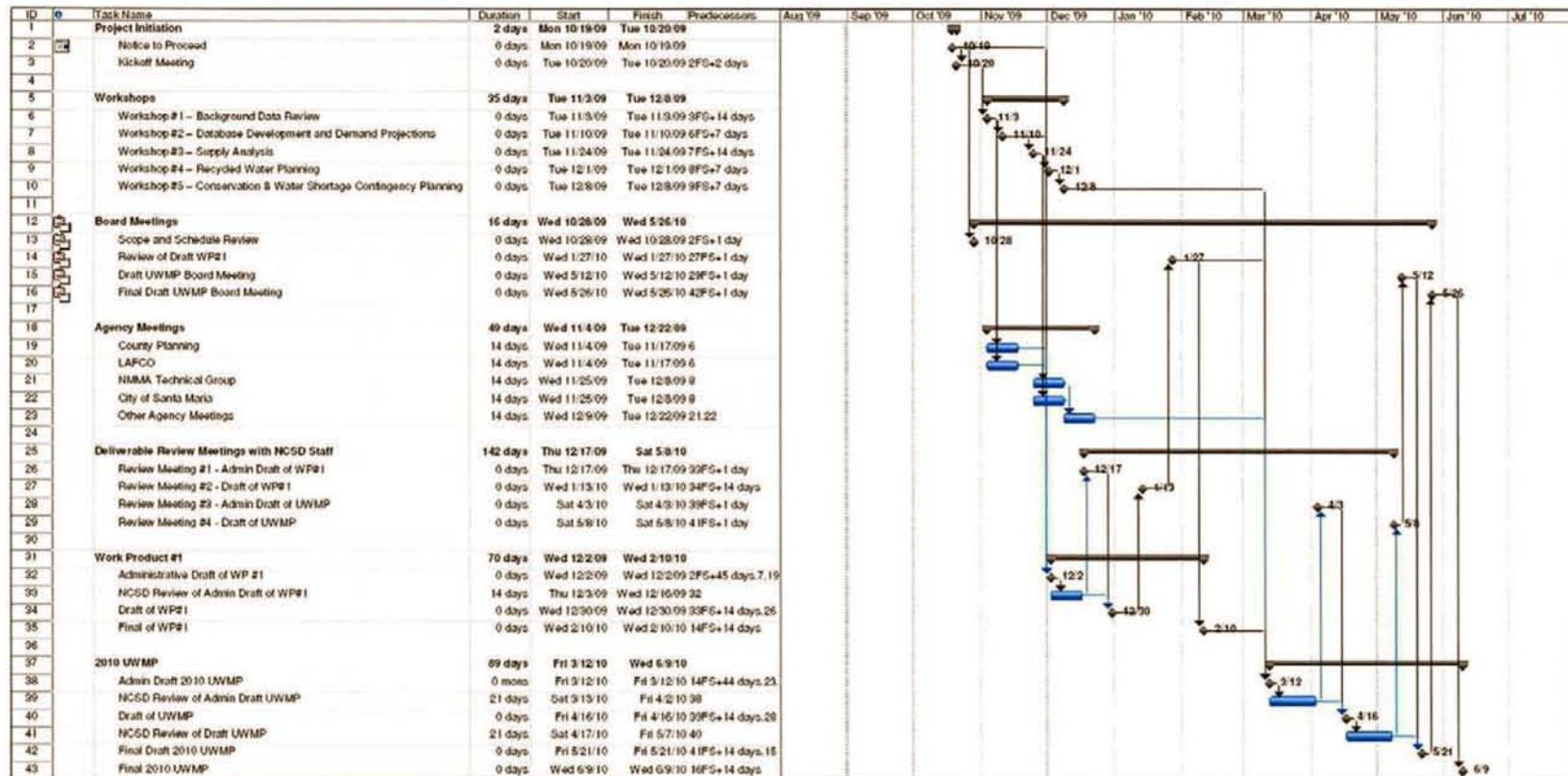
Detailed Cost Estimate

Task No.	Task Description	Project Manager (Szytel)	QA/QC (Kennedy)	Sr. Engr. (Olthof)	Staff Engr. (Andrews)	Clerical/ Admin	Total Labor Hours	Total Labor	Expenses	Total Cost
	<i>Billing rates, \$/hr</i>	\$185	\$220	\$200	\$120	\$75				
0	Project Management	65	0	24	23	3	115	\$19,810	\$1,700	\$21,510
0.1	Project Administration	14				3	17	\$2,815	\$300	\$3,115
0.2	Kickoff Meeting	2		2	2		6	\$1,010	\$100	\$1,110
0.3	Workshops	10		4	10		24	\$3,850	\$300	\$4,150
0.4	Board Meetings	8		4			12	\$2,280	\$200	\$2,480
0.5	Agency Meetings	7		6	7		20	\$3,335	\$300	\$3,635
0.6	Deliverable Review Meetings	8		8	4		20	\$3,560	\$300	\$3,860
0.7	Agency Coordination Support	8					8	\$1,480	\$100	\$1,580
0.8	Public Outreach Support	8					8	\$1,480	\$100	\$1,580
1	Work Product #1 - Database and Demands	16	8	40	24	8	96	\$16,200	\$2,300	\$18,500
1.1	Administrative Draft	6	4	30	20	6	66	\$10,840	\$1,200	\$12,040
1.2	Draft Work Product #1	6	4	8	4	2	24	\$4,220	\$700	\$4,920
1.3	Final Work Product #1	4		2			6	\$1,140	\$400	\$1,540
2	2010 UWMP Update	93	22	0	60	19	194	\$30,670	\$8,800	\$39,470
2.1	Administrative Draft	56	8		36	11	111	\$17,265	\$2,600	\$19,865
2.2	Draft 2010 UWMP	19	8		12	4	43	\$7,015	\$3,600	\$10,615
2.3	Final Draft 2010 UWMP	9	4		6	2	21	\$3,415	\$1,300	\$4,715
2.4	Final 2010 UWMP	9	2		6	2	19	\$2,975	\$1,300	\$4,275
Column Totals		174	30	64	107	30	405	\$66,680	\$12,800	\$79,480

Optional Tasks (see Appendix A):

Optional Task No.	Optional Task Description	Project Manager (Szytel)	QA/QC (Kennedy)	Staff Engr. (Andrews)	Clerical/ Admin	Total Labor Hours	Total Labor	Expenses	Total Cost
	<i>Billing rates, \$/hr</i>	\$185	\$220	\$120	\$75				
1	Groundwater Recharge Strategy Development	26	4	12	4	46	\$7,430	\$900	\$8,330
2	Develop Baseline Per-Capita Water Use	16	2	12	2	32	\$4,990	\$600	\$5,590
Totals for Optional Tasks		42	6	24	6	78	\$12,420	\$1,500	\$13,920

Preliminary Project Schedule



This Gantt chart shows WSC's proposed schedule including the constraints identified in the RFP. NCSO may want to consider pushing the final delivery date of the 2010 UWMP back further into the third or fourth quarter of 2010 to allow adequate time to respond to any potential changes in the Water Code that could impact the UWMP content requirements.

Project: NCSO 2010 UWMP Update
 Date: Mon 9/21/09

Task Split ██████████ Progress Milestone ◆ Summary Project Summary External Tasks External Milestone Deadline

Appendix A. Detailed Scope of Services

Task 0. Project Management

0.1 Project Administration

- **Project Schedule.** Develop, monitor and maintain project schedule. Submit revised schedules to NCS D as required
- **Progress reports.** Prepare progress reports to be submitted with each monthly invoice. The reports will include: 1) summary of activities accomplished in the current month; 2) summary of activities planned for the next month; 3) outstanding information needs; 4) action items; 5) schedule updates; and 6) coordination needed. Budget is based on nine (9) progress reports.

0.2 Kickoff Meeting

- The purpose of the Kickoff Meeting is to: (1) establish roles and responsibilities; (2) review scope, schedule and deliverables including preliminary document outlines; (3) review available data and establish preliminary data needs; (4) review UWMP requirements and methodology and discuss DWR submittal strategy; (5) review the 2005 UWMP; (6) discuss agency coordination; and (7) review public outreach plan. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*

0.3 Workshops

- **Workshop #1 – Background Data Review.** Review the background information provided by NCS D and summarize any outstanding information needs. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **Workshop #2 – Database Development and Demand Projections.** Review the available data and proposed methodology for developing customer database and demand projections. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **Workshop #3 – Supply Analysis.** Review the various supply sources available to NCS D, and potential future supply sources. Meeting will include review of availability, reliability, cost/benefit, and constraints. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **Workshop #4 – Recycled Water Planning.** Review any existing recycled water plans and develop strategies for the recycled water plan to be included with the 2010 UWMP update. Discussion will include: 1) wastewater quantity projections; 2) wastewater treatment facilities current descriptions and planned improvements; 3) current recycled water sources and uses; 4) opportunities for expansion of recycled water use; and 5) projections for future recycled water use. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*

- **Workshop #5 – Conservation & Water Shortage Contingency Planning.** Review NCS D’s current and ongoing plans for conservation and water shortage contingency, compare those plans with the requirements of the UWMP Act, and develop content and strategies for revising, expanding and/or updating NCS D’s existing plans to comply with the requirements of the UWMP Act. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*

0.4 Board Meetings

- **Scope and Schedule Review.** Review the Scope of Services and project schedule with the Board and Staff. WSC will prepare a PowerPoint presentation which will be provided to NCS D at least one week prior to the meeting. *Budget based on one (1) two-hour meeting.*
- **Review of Draft Work Product #1.** Review Draft Work Product #1 with the Board and Staff to secure edits and policy guidance. WSC will prepare a PowerPoint presentation which will be provided to NCS D at least one week prior to the meeting. *Budget based on one (1) two-hour meeting.*
- **Draft UWMP Board Meeting #1.** Review the Draft UWMP with the Board and Staff to secure edits and policy guidance. WSC will prepare a PowerPoint presentation which will be provided to NCS D at least one week prior to the meeting. *Budget based on one (1) two-hour meeting.*
- **Draft UWMP Board Meeting #2.** Review the revised Draft UWMP with the Board and Staff to secure edits and policy guidance. WSC will prepare a PowerPoint presentation which will be provided to NCS D at least one week prior to the meeting. *Budget based on one (1) two-hour meeting.*

0.5 Agency Meetings

- **County Planning.** Review land use plans, pending projects and population projections. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) one-hour meeting.*
- **LAFCO.** Review Sphere of Influence (SOI) land use and annexation policy / procedures. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) one-hour meeting.*
- **NMMA Technical Group.** Review water supply analysis and alternatives, groundwater pumping projections, water shortage contingency planning, NMMA water balance, recharge and recycled water. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **City of Santa Maria.** Review proposed terms of the water purchase agreement, discuss water supply availability and reliability, and evaluate feasibility for subsequent phases of the Waterline Intertie Project. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) one-hour meeting.*

- **Other Agency Meetings.** Other agency meetings could include Woodlands Mutual Water Company, GSWC, South San Luis Obispo County Sanitation District, etc. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on up to two (2) one-hour meetings.*

0.6 Deliverable Review Meetings with NCSD Staff

- **Review Meeting #1. Administrative Draft of Work Product #1.** Meeting will be conducted at NCSD's offices to review the Administrative Draft of Work Product #1. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **Review Meeting #2. Draft of Work Product #1.** Meeting will be conducted at NCSD's offices to review the revised Draft of Work Product #1. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **Review Meeting #3. Administrative Draft of UWMP.** Meeting will be conducted at NCSD's offices to review the Administrative Draft of UWMP. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*
- **Review Meeting #4. Draft of UWMP.** Meeting will be conducted at NCSD's offices to review the revised Draft of UWMP. Draft agenda will be provided at least two days before the meeting, and meeting notes including action item assignments will be provided within one week following the meeting. *Budget based on one (1) two-hour meeting.*

0.7 Agency Coordination Support

- Coordinate and document NCSD communication with DWR including telephone calls, emails and other correspondence. Forward Final Draft plans to DWR for "pre-review" prior to finalizing plans.
- Coordinate and document NCSD communication with other agencies including purveyors, cities, counties and other interested parties as required by the UWMP Act.
- Budget based on WSC providing up to 20 hours of Agency Coordination Support.

0.8 Public Outreach Support

- Support NCSD public outreach effort including: (1) providing input on the public outreach strategy; (2) providing required materials for the public meetings; and (3) providing supplementary information to NCSD for responding to public comments. WSC will provide electronic and hardcopy formats for NCSD use. NCSD will be responsible for reproduction. *Budget based on a total of 12 hours of public outreach support.*

Task 1. Work Product #1 –Database and Demand Projections

1.1 Administrative Draft of Work Product #1

- Develop and publish Work Product #1 which includes the following:
 - A database listing every parcel in NCSD, its current land use, its current water use, its maximum potential land use and its maximum potential water use
 - A database listing every parcel in each of NCSD’s spheres of influence, its current land use, its assumed water use if annexed as is, its maximum potential land use and its maximum potential water use
 - A narrative evaluating current water demand inside the District and in each sphere area, projecting future water demand inside the District and in each sphere area, and stating assumptions regarding growth rates, water use per land use type, and the impact of water conservation and demand elasticity on these rates and projections.
- Provide ten (10) copies of Administrative Draft of Work Product #1 along with one set of electronic files on CD.

1.2 Draft Work Product #1

- Prepare revised Draft of Work Product #1 (described above). 30 copies will be provided along with one set of electronic files on CD.

1.3 Final Work Product #1

- Prepare final Work Product #1 (described above). Ten (10) hardcopies and 1 reproducible original will be provided along with one set of electronic files on CD.

Task 2. 2010 Urban Water Management Plan

2.1 Administrative Draft 2010 UWMP

- Prepare Administrative Draft 2010 UWMP including all attachments and references as required by the UWMP Act. At a minimum, the plan will:
 - Describe the District and its Sphere of Influence
 - Details the availability and reliability of current sources
 - Evaluates planned water supply projects
 - Evaluates NCSD’s Water Conservation Plan in regards to compliance with the Demand Management Measures set forth in the UWMP Act and compliance with State 20x2020 guidelines
 - Projects water demand inside the District and projects potential water demand inside each of the Sphere Areas
 - Describes NCSD’s Water Shortage Contingency Plan dn the Water Shortage Response Plan submitted to the Court by the NMMA TG
 - Evaluates current and potential recycling programs and opportunities
 - Proposes an implementation program
 - Provides references and a listing of acronyms
- Complete DWR review worksheets

- Submit 10 copies of the Administrative Draft 2010 UWMP and completed DWR review worksheet to NCS D for review and comment.

2.2 Draft 2010 UWMP

- Prepare Draft 2010 UWMP, addressing NCS D Staff comments on the Administrative Draft plan and including all attachments and references.
- Update DWR review worksheets as required.
- Submit 30 copies of Draft 2010 UWMP and completed DWR review worksheet to NCS D for review and comment.
- Submit Draft 2010 UWMP to DWR for pre-review.

2.3 Final Draft 2010 UWMP

- Prepare Final Draft 2010 UWMP based upon DWR and NCS D comments.
- Submit the Final Draft 2010 UWMP to NCS D. Provide ten (10) hardcopies as well as electronic copy in PDF format.

2.4 Final 2010 UWMP

- Prepare Final 2010 UWMP based upon DWR and NCS D comments.
- Submit the Final 2010 UWMP to NCS D for adoption. Provide ten (10) hardcopies, one (1) reproducible original and electronic copies in Word and PDF formats. All supporting calculations will be provided in Excel format.
- Assist in drafting Notices, and coordinate submittal of adopted 2010 UWMP to DWR.

Optional Tasks

Optional Task No. 1 – Groundwater Recharge Strategy Development

- Plan and conduct a workshop with NCS D staff and other regional participants to define goals for groundwater recharge, review current groundwater recharge strategies, identify potential future groundwater recharge strategies, and prioritize local and regional efforts to maximize groundwater recharge within the planning horizon. *Budget based upon one four (4) hour workshop.*
- Prepare a technical memorandum that summarizes the discussion and conclusions from the workshop including a listing of priority projects, estimated capital costs, and required next steps. Ten (10) copies of a Draft TM will be submitted.
- Based on NCS D and stakeholder reviews and comments, finalize TM and produce ten (10) copies of a final TM.

Optional Task No. 2 – Develop Baseline Per-Capita Water Use

- Utilize historical consumption data from NCS D to develop baseline per-capita water use consistent with Preprint Assembly Bill No. 2
- Prepare a technical memorandum that summarizes the methodology and data used and resulting baseline per-capita water use. Ten (10) copies of a Draft TM will be submitted.
- Based on NCS D and stakeholder reviews and comments, finalize TM and produce ten (10) copies of a final TM.

Deliverables Summary

Task	Deliverable	Format / Copies	Due Date
0.2, 0.3, 0.5 & 0.6	Meeting and Workshop Agendas	PDF via email. Hardcopies provided at meetings.	2 days prior to meeting / workshop
0.2, 0.3, 0.5 & 0.6	Meeting and Workshop Minutes	PDF via email.	1 week after meeting / workshop
0.5, 0.7	Correspondence records for agency communication	Email as required.	Within 1 week after communication with agencies occurred.
0.1	Project Schedule	Hardcopies of base schedule provided at Kickoff Meeting. PDFs emailed for any updates.	At kickoff meeting and as needed when schedule is updated.
0.1	Progress Reports (up to 9)	One (1) hardcopy per month.	Submitted with monthly invoices, no later than the 5 th day of each month.
0.3	Data summary table including outstanding data needs	PDF and one hardcopy.	2 days prior to Workshop #1.
0.4	Board presentations and handout(s) (if required)	MS PowerPoint and PDF files provided via email.	1 week prior to each board meeting.
1.1	Administrative Draft of WP#1	Ten (10) hardcopies and one set of electronic files provided in native formats.	See Project Schedule
1.2	Draft WP#1	Thirty (30) hardcopies and one set of electronic files provided in native formats.	See Project Schedule
1.3	Final WP#1	Ten (10) hardcopies, one (1) reproducible copy, and one set of electronic files provided in native formats.	See Project Schedule
2.1	Administrative Draft of 2010 UWMP and completed DWR review worksheets	Ten (10) hardcopies and one PDF file provided via email.	See Project Schedule
2.2	Draft 2010 UWMP and completed DWR review worksheets	Thirty (30) hardcopies and one PDF file provided via email.	See Project Schedule
2.3	Final Draft 2010 UWMP and completed DWR review worksheets	Ten (10) hardcopies as well as electronic file(s) in PDF format	See Project Schedule
2.4	Final 2010 UWMP	Ten (10) hardcopies and one (1) reproducible copy plus electronic files provided in native formats.	See Project Schedule

Appendix B. Resumes

Jeffery Szytel, P.E., M.B.A.

Project Manager and Primary Author

Professional Experience

Mr. Szytel has more than eleven years of experience in civil and environmental engineering, specializing in water, wastewater and recycled water systems. His experience includes water and wastewater treatment facility evaluation, optimization and design, pilot studies, water and wastewater master planning, integrated resource planning, infrastructure planning and design, project and program management, capital improvement planning, management consulting, and construction management.

Relevant Project Experience

San Diego District 2005 Urban Water Management Plan Update, California American Water. Project Manager. Prepared the 2005 UWMP Update for the San Diego District. The San Diego District includes Coronado island and portions of Imperial Beach and Chula Vista, serving more than 65,000 people.

Sacramento District 2005 Urban Water Management Plan, California American Water. Project Manager. Prepared the 2005 UWMP Update for the Sacramento District. The Sacramento District includes 10 separate water systems in Sacramento County serving a population of more than 171,000.

Sacramento District 2010 Urban Water Management Plan, California American Water. Project Manager. Preparing the 2010 UWMP Update for the Sacramento District. The Sacramento District includes 10 separate water systems in Sacramento County serving a population of more than 171,000.

California American Water, Parkway Water Supply Assessment, Florin-Vineyard Gap Project, Sacramento, CA. Prepared this Water Supply Assessment for the Parkway Service Area to comply with the California Water Code and SB 610.

Baldy Mesa Water District, Water Supply Plan, Victorville, CA. Water Treatment, QA/QC. Worked with the Baldy Mesa Water District to create a Water Supply Plan to secure current and future drinking water supplies. Defined water quantity and quality objectives through 2025, evaluated groundwater treatment strategies, evaluated surface water supply alternatives and treatment strategies, developed alternative water storage strategies with Mojave Water Agency, developed a recommended combination of strategies, developed a plan for funding and project delivery, and prepared a final report.

West Basin Municipal Water District, Ocean Desalination Siting and Integration Study, Irvine, CA. Project Manager. Planned the implementation of a new 25 mgd ocean desalination plant near El Segundo, CA. Services included alternative site evaluation, hydraulic integration and blending analyses, water quality evaluation and analysis, preliminary feasibility planning of treatment and distribution facilities and integration with MWD's regional distribution systems, cost modeling of the proposed improvements, and CEQA compliance support services.

Water System Master Plan, Citizens Utilities Company, CA. Project Engineer. Prepared a water system master plan for Citizens Utilities of California's Parkway system including system research and inventory, system mapping, hydraulic model development in H2ONet, population projections, and comprehensive capital improvement plan. Rapid decline in the water table underlying Parkway led to the recommendation of increased conjunctive use of surface water and associated infrastructure improvements.

California American Water, Monterey-Seaside Phase 1 Aquifer Storage and Recovery (ASR) System Basis of Design Report, Sacramento, CA. Prepared a Basis of Design Report for the Phase 1 ASR project which included improvements to the Segunda Pump Station, construction of a new 30-inch ASR pipeline, and installation of new pressure regulating stations in the Seaside area.

Victor Valley Water District - Aquifer Storage & Recovery Facilities Design and Construction Engineering Services, Victorville, CA. Project Manager. Performed design and construction services for a new 2150 gpm booster pumping station and disinfection system for the Victor Valley Water District's aquifer storage and recovery (ASR) system. Booster pumping station included vertical turbine can pumps and hydropneumatic surge control system. Chemical feed facilities included sodium hypochlorite generation, ammonia storage and feed, and PLC based control system with radio telemetry interface to the District's SCADA system.

Irvine Ranch Water District, IRWD Wastewater Treatment Facilities Expansion Master Plan, Irvine, CA. Project Engineer. Prepared a Master Plan to develop and implement proposed improvements to the Irvine Ranch Water District's Michelson Water Reclamation and the Los Alisos Water Reclamation Plants to accommodate growth in IRWD's service area through 2025. Analysis included evaluation of historical flows and loads, conveyance infrastructure and improvement alternatives, recycled water use alternatives, and improvements to preliminary, primary, secondary, and tertiary treatment facilities as well as in-plant and high service pumping stations.

City of Las Vegas Water Pollution Control Facility, Facility Plan Update, Las Vegas, NV. Project Engineer. Preparing Facility Plan update for the 91 mgd Water Pollution Control Facility. Alternatives being considered are Enhanced Biological Phosphorous Removal, Biological Nutrient Removal, and high-pressure membrane systems for nutrient and TDS removal.

California American Water, Suburban-Rosemont Supply and Distribution System Improvement Project, Sacramento, CA. Project Manager for the development, planning, permitting design and construction of the Suburban-Rosemont Supply and Distribution System Improvement Project. Tasks performed included: water supply planning and economic analysis, project budgeting, scheduling and capital planning; technical oversight of hydraulic modeling to confirm the phased improvements; oversight and review of feasibility studies and Basis of Design Reports; coordination of permitting, land acquisition and entitlements for the pump station and pipeline; life-cycle cost analysis of project alternatives; oversight and review of design documents; contract administration; and construction management. This project was awarded "Project of the Year – 2009" by the Sacramento Section of American Public Works Association (APWA).

California American Water, Greenback Lane Water Main Replacement, Sacramento, CA. California American Water's Project Manager for the construction of the Greenback Lane Water Main Replacement project. Responsible for contract administration and construction management for this new 8-inch ductile iron pipeline. Negotiated change orders, supervised field observation, and acted as liaison with the City of Citrus Heights. Responsible for budgeting, scheduling and capital planning activities; the project was completed on-schedule and under budget.

California American Water, Cook Riolo Tank and Booster Station, Sacramento, CA. California American Water's Project Manager for the development, planning, permitting and design of the Cook Riolo Tank and Booster Station project. Prepared alternative analysis to compare steel, reinforced concrete and prestressed concrete construction for this partially buried 1.5 million gallon reservoir. Supervised and performed technical review during design including value engineering that reduced the estimated project cost by over \$0.5 million. Responsible for budgeting, scheduling and capital planning activities.

California American Water, Walerga Rd. Tank, Booster Station and Pipeline, Sacramento, CA.

California American Water's Project Manager for the development, planning, permitting and design of the 2.5 million gallon Walerga Tank, 3,500 gpm Walerga booster station and 16-inch Walerga pipeline. Negotiated access and pipeline easements with adjacent landowner, and coordinated the design of the pipeline that will connect the new tank and pump station to the existing West Placer distribution system at Dry Creek. Supervised and performed technical review during design including value engineering that reduced the estimated project cost by over \$0.5 million. Responsible for budgeting, scheduling and capital planning activities.

Victorville Water District, Reservoir Improvements Project, Victorville, CA. Project Manager for the planning, permitting, design, bidding and construction of seismic and operational improvements to 17 of the District's above-grade welded steel water storage reservoirs. Provided design, construction management and inspection services to deliver the project under budget. Work included the installation of flexible seismic joints, new isolation valves and 24VDC electric motor actuators, tank shell reinforcing, site piping improvements, and interior re-coating.

Yucaipa Valley Water District, Yucaipa Valley Regional Water Filtration Facility Design and Construction, Yucaipa, CA. Design Manager. Completed design and bidding assistance for new 12 mgd microfiltration and nanofiltration facility. Design included influent flow control, microfiltration using Pall membranes, nanofiltration and blending facilities for DBP precursor removal, dissolved air floatation treatment for MF backwash, disinfection using sodium hypochlorite, 7-million gallon prestressed concrete reservoir for finished water storage, 1000 feet of 48" diameter finished water piping including 600' of 66-inch jack-and-bore tunnel, security features, and slope protection for the adjacent flood control channel. Microfiltration system operates on gravity head and does not require pumping, and building incorporates craftsman style architectural elements. Treated MF backwash water is re-used in the District's non-potable water system.

Victor Valley Water District, Arsenic Pilot Study at Well 31. Project Manager. Conducted a pilot study at Victor Valley Water District's Well 31 to evaluate and test three coagulation and filtration treatment alternatives for removing naturally occurring arsenic from the District's groundwater supply.

Victor Valley Water District, Arsenic Pilot Testing at Well 29. Project Manager. Conducted a pilot study at Well 29 to assess the performance characteristics of iron-based adsorptive media for arsenic removal from drinking water.

Victor Valley Water District, Arsenic Rule Compliance On-Call Consulting. Project Manager. Contracted with Victor Valley Water District to provide on-call consultant services for groundwater treatment, regulatory review, technology evaluation, system implementation, and long term planning.

Victor Valley Water District, Prop 13 Grant Services. Project Manager. Provided services to assist VVWD obtain grants for their arsenic removal facilities through Proposition 13.

Apple Valley Ranchos Water Company, Arsenic Pilot Testing, Apple Valley, CA. Project Manager. Conducted a pilot study program to assess the performance characteristics of iron-based adsorptive media and co-precipitation followed by pressure filtration for arsenic removal from the groundwater of two wells in the Company's potable water system. The study included testing at two well sites, preliminary wellhead treatment system design, budget level cost estimation, and life cycle cost analysis.

California American Water, California American Water - Ambler Park and Luzern Wells Arsenic Removal Pilot Testing, Monterey, CA. Technical Advisor, QA/QC. Provided comprehensive Arsenic Removal Pilot Testing Study, the first step in complying with the new 10 g/L arsenic standard. The main emphasis of this Study was to identify, evaluate, and recommend the most efficient and appropriate treatment method for reducing arsenic levels in the identified Ambler Park and Luzern wells. The primary treatment processes that were considered to remove arsenic from CAWC's water included coagulation/filtration and iron-based media adsorption.

City of San Diego, San Diego Water Division Bid to Goal and ISO 14001 EMS, San Diego, CA. Assistant Project Manager. Assisted the San Diego Water Department to be the first utility in the United States to integrate the Bid to Goal (BTG) management tool with the ISO 14001 EMS framework of continual improvement using the "plan, do, check, and act" approach. Unique and distinct advantages will be achieved by applying the results-oriented BTG program with a continual-improvement ISO 14001-management system, such as cost savings in providing water to the citizens and improved performance.

San Diego County Water Authority, Mission Trails Flow Regulatory Structure II Design, San Diego, CA. QA/QC. The Mission Trails Flow Regulatory Structure II (FRS II) Project is a critical component of the San Diego County Water Authority's Regional Water Facilities Master Plan to meet untreated water demands south of the Miramar Vent. The Mission Trails FRS II is planned to be in the vicinity of the treated water FRS in Mission Trails Regional Park and is expected to include two independent storage bays approximately 9 million gallons each, inlet valve structure, outlet vaults, a connection to the new Pipelines 3 and 4 from the tunnel, and an access and control building. Provided project management and QA/QC during design.

Placer County Water Agency, Chemical Feed Facility Design, Foothill Water Treatment Plant Expansion, CA. Project Engineer. Designed chemical storage and feed facility for 60 mgd expansion of the Foothill Water Treatment Plant. Facility included all components necessary to feed polymer, potassium permanganate, powdered activated carbon, and sodium hypochlorite to support a new 60 mgd ballasted flocculation/sedimentation process.

Placer County Water Agency, Water Storage Tank and Valve Station Design, Sunset Water Treatment Plant, Placer County, CA. Project Engineer. Designed a 10-MG pre-stressed concrete water storage tank and valve station for Placer County Water Agency's Sunset Water Treatment Plant. Environmentally friendly site design included a combination altitude/pressure reducing valve station to link and control three (3) separate pressure zones, tank visibility screening using a combination of earth and landscaping, and overflow conveyance channel. Existing utilities were rerouted to accommodate new construction and facilities were located to limit environmental impact and tree removal. The complete water storage and conveyance system was designed to efficiently maintain maximum reliability, operational flexibility, and storage capacity given existing site and hydraulic constraints.

City of Fresno, Filter Backwash, Pump Station, and Water Storage Clearwell Design, Fresno, CA. Project Engineer. Designed filter backwash equalization basin, wash water pump station, and a partially buried, 1.5-mg concrete clearwell for a new 30-MGD surface water treatment plant for the City of Fresno. The wash water facilities were designed to accommodate ultimate plant capacity in addition to filter-to-waste equalization. Clearwell overflow was routed above grade to reduce construction costs, and tank was sited to provide maximum hydraulic efficiency and flexibility. Future design will incorporate three additional storage reservoirs that will operate in conjunction with the existing tank.

Fluoridation System Design, City of Yuba City, CA. Project Engineer. Designed a fluoridation system that included bulk chemical storage/containment, chemical feed piping and pumping, and monitoring/control for an existing 40 mgd water treatment plant.

Semitropic Water Storage District, Stored Water Recovery Unit Arsenic Removal Water Treatment Facility Preliminary Evaluation, Bakersfield, CA. Project Manager. The proposed Stored Water Recovery Unit will provide a pump-in capacity of 160 mgd to the California Aqueduct during periods of low flow. Performed technology screening, evaluation, testing, and preliminary design for the proposed 160 mgd arsenic removal treatment facility.

Citizens Utilities Company, Booster Station Construction Management, CA. Project Engineer. Provided construction management services for a new 6,000-gpm A-Parkway booster station for Citizens Utilities Company. The booster station promotes conjunctive use by allowing the Company to augment its groundwater supply with purchased water from the City of Sacramento.

Water Storage Tank Design and Construction Management, Citizens Utilities Company, CA. Project Engineer. Assisted in the design and construction management of two 1-mg water storage tanks for Citizens Utilities Company. Performed hydraulic modeling for tank performance, and conducted onsite construction inspection.

Desert Water Agency, Palm Springs Wastewater Treatment Plant Environmental Site Assessment, Palm Springs, CA. Project Engineer. Conducted an audit of the Desert Water Agency's Palm Springs Wastewater Treatment Plant facility. Provided an assessment and record of known and potential environmental compliance issues, evaluated regulatory compliance status and recommended modifications to achieve regulatory compliance with current and foreseeable future rules and regulations, and assured compliance with the Department of Environmental Health and City Fire Department requirements.

Preliminary Wastewater Infrastructure Plan Development and Construction Cost Estimate, Near Merced, CA. Project Engineer. Developed a preliminary wastewater infrastructure plan and construction cost estimate for the proposed University Community near Merced, California. Based on proposed demographics and preliminary community layout, the collection system was designed and alternatives were developed and evaluated for wastewater treatment. Treatment alternatives included onsite treatment with effluent used for irrigation reuse, groundwater recharge, or habitat restoration and offsite regional treatment.

City of San Diego, Preliminary Process Evaluation and Optimization Analysis, Otay Filtration Plant, San Diego, CA. Project Engineer. Conducted an evaluation of the City of San Diego's Otay Filtration Plant to develop alternatives to improve process performance. The evaluation included analysis of water quality data, chemical usage and dosing points, current operational practices, unit process hydraulics and performance, and operational costs. Preliminary findings led to the development of improvement alternatives for further consideration by the City. Developed a pilot testing strategy to evaluate alternatives for sedimentation basin improvements in addition to THM reduction, and overall process optimization. Pilot study results identified potential process improvement alternatives such as high rate ballasted flocculation and dissolved air floatation, filter modifications to increase filter loading rate, disinfection system improvements, and several additional strategies for optimizing the process performance using the existing infrastructure including backwash stream recycle options and filter to waste.

U.S. EPA Guidance Document, Granular Activated Carbon Systems. Project Engineer. Co-author for a U.S. EPA Guidance document to present estimates of the construction, operation, and maintenance costs associated with granular activated carbon water treatment. The project included assessing the economy of granular activated carbon (GAC) treatment with overall capacity varying between 0.1 and 200 MGD. The study addressed varying contactor configurations to develop representative costs through the development of detailed computer cost models that were verified with data from existing facilities.

U.S. EPA Guidance Document, Membrane Systems. Project Engineer. Primary author for a U.S. EPA guidance document to present estimates of the construction, operation, and maintenance costs associated with submerged membrane treatment systems. Following an in-depth review of current research, application, and technology development, preliminary design criteria were developed for two predominant submerged membrane configurations. These criteria were applied to develop process layouts for the purpose of cost estimation. Layouts and cost estimates were developed for complete submerged membrane treatment plants ranging in size from 1 to 200 MGD total capacity. In addition to presenting these cost estimates, the document outlined the general application of submerged membranes for municipal drinking water treatment.

U.S. EPA Guidance Document, Ozonation and Biologically Active Filtration. Project Engineer. Co-author for a U.S. EPA Guidance document to present estimates of the construction, operation and maintenance costs associated with drinking water ozonation and biologically active filtration. Developed a cost model to predict construction, operation, and maintenance costs for ozonation systems varying in treatment capacity between 0.1 and 200 MGD. Multiple configurations were considered for ozone generation and contacting and separate cost models were developed for each system. All developed costs were verified and calibrated using existing ozonation facilities currently in operation.

Education

M.B.A., UCLA Anderson School of Management

M.S., Civil Engineering, University of California Los Angeles

B.S., Civil and Environmental Engineering, University of California Davis

Professional Registrations

Professional Engineer - Civil, California, No. C63004

Professional Affiliations

American Water Works Association, Member

American Public Works Association, Member

American Society of Civil Engineers, Member

Association of California Water Agencies, Committee Member

Kevin Kennedy, PE

QA/QC, Technical Support

Professional Experience

Mr. Kennedy has more than 16 years of experience in hydraulics, water supply, wastewater treatment, and plant operations. He is experienced in water and wastewater treatment process and hydraulic modeling, master planning, as well as in the use of database management system applications. Project experience includes:

Relevant Project Experience

Hydraulic Model Update, Blue Lake Springs Mutual Water Company, Arnold, CA. Project Manager. Prepared a hydraulic model of the Blue Lake Springs distribution system using H2OMap Water. The system includes approximately 40 miles of distribution pipes in five pressure zones. The model to evaluate the proposed improvement projects to increase available fire flow.

Recycled Water Feasibility Study, Central Contra Costa Sanitary District, Martinez, CA. Conducted a feasibility study to evaluate alternatives for providing reclaimed water for industrial use. Modular/package systems that can remove ammonia, provide filtration, and provide disinfection were evaluated. Alternatives were evaluated based on water source for treatment process (i.e. primary effluent, secondary effluent, etc.), location and size of unit processes, additional yard piping and pumping needs, supply to industrial user pumps, solids production and disposal, power needs, chemical requirements, additional ancillary equipment, advantages and disadvantages, ability to implement the system in four month or less from decision to proceed with installation, ability to utilize an alternative project delivery approach such as design-build, relative level of reliability, capital costs (planning level estimates), and operations and maintenance (O&M) costs.

Water System Master Plan Update and Treatment Options for Russian River Wells, City of Healdsburg, California. Evaluated options to restore year-round production capacity at the city's Russian River well fields. Membrane treatment processes such as microfiltration and ultrafiltration were evaluated and compared with conventional technologies. A pilot testing program, which included iron and manganese removal, was developed and performed to evaluate the proposed treatment system during winter conditions. Prepared a preliminary engineering report summarizing the findings, and includes preliminary designs of recommended improvements, cost estimates, and schedule for improving source capacity of the Russian River wells.

Sanitary Sewer and Storm Drainage Master Plans, and Urban Water Management Plan, City of Reedley, CA. Project Manager. Prepared master plans for the city's sanitary sewer and storm drainage systems, which was integrated with the water master plan to ensure consistency with the city's new general plan (planning horizon of 2030), as well as consistent planning criteria, approaches, and financial planning and policies among the master plans. In addition, prepared the 2005 Urban Water Management Plan.

Water System Master Plan, City of Reedley, CA. Project Manager. Prepared a master plan for the city's water system (population 25,000), which included: (1) determining projected water supply and demand requirements; (2) developing potable water planning criteria for modeling and evaluation of the infrastructure; (3) evaluating water supply alternatives (new groundwater wells and new regional surface water supply); (4) updating the existing hydraulic model to include demand projections; (5) identifying deficiencies in pumping capacity, storage capacity, or pipeline sizing; (6) developing a capital improvement program, which included estimated operations and maintenance (O&M) costs, estimated construction cost, and staffing needs for the recommended projects; (7) determining preferred locations and how much additional storage capacity is needed to meet the current and future water demands; and (8) participating in public presentations.

Recycled Water Production Cost Estimate, City of Watsonville, CA. Project manager for development of operations and maintenance (O&M) cost estimate worksheets associated with the recycled water treatment facilities.

Conservation Pricing Implementation Assistance, Rancho Murieta Community Services District, Rancho Murieta, CA. Principal-in-Charge for a project that assisted the district with implementation of the conservation pricing recommendation identified in the Integrated Water Master Plan prepared by HDR.

Integrated Water Master Plan, Rancho Murieta, CA. Project manager for development of an integrated water master plan that identifies methods to maximize the beneficial uses of the district's water resources, which included drinking water, wastewater system, and recycled water system analysis and recommendations as well as water conservation and recycling alternative analysis.

Hollister Urban Area Water and Wastewater Master Plan Update - San Benito County Water District, Hollister, California. Updated the draft Hollister Urban Area Water and Wastewater Master Plan to include the benefits and costs allocation for the recommended plan, and updated recycled water feasibility study. The preliminary allocation was expanded to include potential revenue sources (e.g., sale of recycled water), as well as a preliminary investigation of loans and grants from federal and state sources. The recycled water feasibility study was updated to consider additional recycled water use in areas located north and east of the Hollister Urban Area.

Integrated Water Resources Plan - San Benito County Water District, Hollister, California. Developed an integrated water resources plan. The project objectives included providing a reliable and high quality municipal water supply, developing an operational plan for groundwater management, and producing a wastewater effluent suitable for unrestricted reuse for urban and agricultural irrigation. The project was implemented under a Memorandum of Understanding among the City of Hollister, San Benito County, and San Benito County Water District.

Wastewater Treatment Plant Peer Review and Lagoon Study - Santa Nella County Water District, Santa Nella, California. Provided peer review services for the wastewater treatment plant to identify and evaluate potential cost-saving measures, reviewed alternative technology proposed for consideration (included sequencing batch reactor [SBR] technology, oxidation ditch, and extended aeration), and conducted a lagoon system and package plant study to identify improvements to the existing pond system (which short circuited and resulted in violations of the Regional Water Quality Control Board [RWQCB] permit).

Copper Cove Wastewater Master Plan, Calaveras County Water District, San Andreas, CA. Project Manager. Updated the February 2007 Copper Cove Wastewater Facility Plan Update to include several new developments identified in the community plan that was subsequently adopted for the Copper Cove service area. The facility plan update included: (1) updated development plan, flow projections, and recommended facility and phasing plans based on the recently adopted community plan; (2) updated collection system evaluation and recommendations, including a coordinated backbone conveyance system that serves both the existing and future service areas; and (3) coordinated treated effluent storage and disposal plan for both the existing and future service areas. Flow from the recently-identified developments was incorporated, and their impacts on existing and future wastewater and effluent storage and disposal facilities were determined. Analyses included a review of sewer system impacts, along with an analysis of treatment, storage, and land application needs. Analyses were used to quantify system capacity needs and costs, and evaluate phasing based on the impacts of early and later developments.

Wastewater Treatment Plant Planning Study and Reuse Master Plan Update, Carson City, NV. Prepared a wastewater treatment plant planning study, which included flow analysis, modeling using EnVision, optimization testing of primary and secondary clarifiers, and development of treatment plant expansion alternatives. Processes evaluated included screening and grit removal, primary clarifiers, aeration basins, activated sludge, trickling filters, tertiary filters, pumping stations (including effluent pumping), secondary clarifiers, and chlorine contact basin. Identified low-cost aeration alternatives that increased the capacity of the plant to 8 mgd and maximize the amount of time available before higher-capital, long-term improvements are required. Stress testing study revealed that the capacity of the trickling filter train can be increased from 2.0 to 2.5 mgd (25 percent), thereby potentially delaying construction of the costly expansion of the plant for another 2.5 years. In addition, a more efficient activated sludge operating methodology was developed and evaluated using the ENVision model. The new operating methodology was implemented by plant operators and has been shown to improve performance of this process.

Phase 1 Hydrogeologic Study, City of Cloverdale, California. Prepared a Phase 1 Hydrogeologic Study Report, which was required by the Regional Water Quality Control Board (RWQCB) to satisfy NPDES discharge permit requirements. Results and conclusions derived from a review and evaluation of hydrogeologic conditions, water quality and flow data analysis, and groundwater data analysis were summarized. Recommended specific tasks the city should undertake in the future to develop more definitive results and their associated timeline requirements were also developed.

Water System Master Plan Update and Treatment Options for Russian River Wells, Healdsburg, CA. Evaluated options to restore year-round production capacity at the city's Russian River well fields. Membrane treatment processes such as microfiltration and ultrafiltration were evaluated and compared with conventional technologies. A pilot testing program, which included iron and manganese removal, was developed and performed to evaluate the proposed treatment system during winter conditions. Prepared a preliminary engineering report summarizing the findings, and includes preliminary designs of recommended improvements, cost estimates, and schedule for improving source capacity of the Russian River wells.

Sun City Tehama Potable Water and Irrigation System Master Plans - Del Webb, Tehama, California. Project manager for development of potable water and irrigation system master plans for the Sun City Tehama development, a proposed development with approximately 3,500 homes and an 18-hole golf course.

Recycled Water Feasibility Study - Rancho Murieta Community Services District, Rancho Murieta, California. Assisted the district with implementing a recycled water program for both front and backyard irrigation of new residential houses to reduce reservoir draw downs, eliminate drought deficits, and provide increase treated effluent/recycled water disposal.

Integrated Water Resources Plan - San Benito County Water District, Hollister, California. Developed an integrated water resources plan. The project objectives included providing a reliable and high quality municipal water supply, developing an operational plan for groundwater management, and producing a wastewater effluent suitable for unrestricted reuse for urban and agricultural irrigation. The project was implemented under a Memorandum of Understanding among the City of Hollister, San Benito County, and San Benito County Water District.

Education

M.S., Environmental Engineering, University of California, Davis

B.S., Civil & Environmental Engineering, University of California, Davis

Registration

Professional Civil Engineer, 1979, California No. C61206

Jeroen Olthof, PE

GIS, Customer Database, Demand Projections

Professional Experience

Mr. Olthof brings more than 14 years of experience in planning, design, and management of water and wastewater infrastructure. He specializes in hydraulic modeling of pipe networks, feasibility studies, infrastructure condition assessment, and comprehensive master planning. His experience includes database development and integration of geographic information systems (GIS) with hydraulic models, recycled water customer databases, and asset databases. He has developed and maintained custom databases to track recycled water customers and generate reports for regulatory agencies and other stakeholders. He has also developed condition assessment programs and decision algorithms to support capital improvement planning and maintenance optimization. He has published several technical papers on hydraulic modeling and infrastructure condition assessment.

Relevant Project Experience

Water Supply Plan - Baldy Mesa Water District, Victorville, California. Prepared a water supply plan to address the high arsenic levels in the district's groundwater wells, which included evaluation of combinations of groundwater treatment and new surface water supply that could help the district meet future demands and the new federal arsenic limit of 10 ppb.

Hydraulic Model Update - Blue Lake Springs Mutual Water Company, Arnold, California. Prepared a hydraulic model of the Blue Lake Springs distribution system using H2OMap Water. The system includes approximately 40 miles of distribution pipes in five pressure zones. The model to evaluate the proposed improvement projects to increase available fire flow.

Jenny Lind and West Point/Wilseyville Water System Master Plans - Calaveras County Water District, San Andreas, California. Developed master plans for the Jenny Lind Water Treatment Plant and West Point/Wilseyville water systems. The water master plans identified future water supply sources and a phased program to construct water system improvements to meet growth, improve operations, comply with current and known future regulations. Topics covered in water master plans included the following: (1) existing facilities and capacities; (2) delineation of the planning area, considering current commitments and future developments; (3) characterization of demand, including existing and projected average day, maximum day plus fire flows, and peak hour; (4) existing and future regulatory requirements; (5) evaluation of future water supply sources; (6) evaluation of the current and future treatment, storage, pumping, transmission, and distribution facilities and their limitations; (7) identification of emergency power sources and facilities; (8) evaluation of current facility communications (i.e., SCADA) and their limitations; (9) recommended water system improvements needed to serve buildout conditions; (10) cost information pertaining to each expansion plan, including 20-year life cycle cost analysis of proposed improvements; and (11) timelines for constructing recommended improvements.

Water Utility Strategic Plan - City of Port Hueneme, California. Developed a water utility strategic plan. Identified opportunities for improvement in the city's management of its water distribution infrastructure. Prepared a system inventory and developed a plan for hydraulic modeling and capacity analysis of the system.

Water Supply Feasibility Study - Calaveras County Water District, California. Provided quality assurance/quality control (QA/QC) for study that evaluated the feasibility of improvement projects identified in the 1996 master plan. The Wilson Lake embankment replacement, Bummerville treated water storage and distribution system, Bear Creek diversion and raw water pipeline, West Point and Wilseyville water distribution system, Middle Fork Mokelumne River intake and pump station, and Regulating Reservoir intake and spillway projects were included in the study. Feasibility report summarized recommendations for water system improvements.

California American Water, California American Water - Ambler Park Water System Master Plan, Monterey, CA. Project Manager. Ambler Park Water System Master Plan - California American Water, Monterey, California. Provided a facilities plan for the Ambler Park water system, which includes three wells, one water treatment plant, eight pressure zones, 10 miles of water pipeline in sizes ranging from 2 inches to 8 inches in diameter, seven remote water storage tanks, one hydro-pneumatic tank, five pumping stations, and three pressure regulating valves (PRVs). A hydraulic model of the system was developed using EPANET.

Water System Plan Update - City of Anacortes, Washington. Assisted with update of the water system master plan to establish a 20-year planning horizon for the period of 2009 to 2028. Served as task lead for hydraulic modeling (using MIKE URBAN) and system analysis.

Water Supply and Conveyance Tool - City of Broomfield, Colorado. Assisted with development of a custom computer software program called the Broomfield Water Supply and Conveyance Tool that enables city staff to quickly change supply, conveyance, and demand inputs to emulate system operation during various operational and seasonal scenarios.

City of Healdsburg, Water System Master Plan Update, Healdsburg, CA. Task Manager. Updated the city's 1992 water system master plan (population 11,000) to include new sources of water, new distribution facilities, and growth. Items addressed in the master plan update include: current and projected water use and water use characteristics; adequacy of the city's three well field sources, particularly considering the present seasonal restrictions due to surface water influence; treatment required to meet current and foreseeable water quality regulations; adequacy of the existing storage capacity within the distribution system; adequacy of the primary transmission mains within the distribution system; adequacy of the booster and pressure-reducing valve stations that control the transfer of water between the city's many pressure zones; and evaluation and modeling of the distribution system using EPANET.

Redmond Water System Master Plan Update - City of Redmond, Washington. Assisted with update of the water system master plan, which included documenting a water system description, preparing a demand forecast, documenting an update of the city's conservation program, preparing a capital improvement program (CIP), identifying the total cost of providing water service, and assisting the city to establish adequate fees for service.

Ferrari Water Master Plan, Lincoln, CA. Project Manager. Sun City Lincoln Hills Water Model - Del Webb Corporation, California. Updated the City of Lincoln's CYBERNET hydraulic model to include the new water distribution system infrastructure serving Del Webb's new Sun City Lincoln Hills development (5,000 new homes). The model interfaces with the City of Lincoln's distribution system.

Water System Master Plan and Urban Water Management Plan, Reedley, CA. Project Engineer.

Prepared a master plan for the city's water system (population 25,000), which included: (1) determining projected water supply and demand requirements; (2) developing potable water planning criteria for modeling and evaluation of the infrastructure; (3) evaluating water supply alternatives (new groundwater wells and new regional surface water supply); (4) updating the existing hydraulic model to include demand projections; (5) identifying deficiencies in pumping capacity, storage capacity, or pipeline sizing; (6) developing a capital improvement program, which included estimated operations and maintenance (O&M) costs, estimated construction cost, and staffing needs for the recommended projects; (7) determining preferred locations and how much additional storage capacity is needed to meet the current and future water demands; and (8) participating in public presentations.

Lake Forest Recycled Water Area Plan - Irvine Ranch Water District, Irvine, California. Assisted with preparation of the Lake Forest Recycled Water Area Plan. Evaluated potential sites for conversion from potable water to recycled water for outdoor irrigation use. Performed geographical information system (GIS) analysis and hydraulic modeling to estimate costs for necessary distribution improvements.

Moulton Niguel Water District, Hydraulic Potable Water Model Development, Laguna Niguel, CA.

Project Engineer. The Moulton Niguel Water District contracted HDR to prepare a detailed hydraulic network model of the districts potable water distribution system, currently comprised of over 52,000 services. This model will be used for hydraulic analyses throughout the entire system. The district desires a model that can simulate service pressures under varying conditions within the distribution system and be used for future system modification and operational analyses.

Rowland Water District, Alternative Water Supply. Project manager for a study to evaluate alternative sources for new water supply. Study evaluated new interconnections with neighboring systems and new groundwater development projects to address projected increases in costs for imported water.

Regional Water Supply Plan - Walnut Valley Water District, Walnut, California. Worked with the Walnut Valley Water District and three related agencies on a water supply evaluation. The four agencies operate a jointly-owned pipeline that runs parallel to the Orange County Feeder. The study evaluated the use of local groundwater wells and water quality blending in the pipeline to provide a new source of supply that would reduce dependency on imported water.

Otay Water District, 2005 Urban Water Management Plan, Spring Valley, CA. Project manager and lead author for development of an Urban Water Management Plan to meet all Department of Water Resources requirements.

Education

M.S., Civil Engineering, University of Washington

B.S., Civil Engineering, University of Colorado, Boulder

Registration

Professional Civil Engineer, California No. C58597

Blake Andrews, PE, LEED AP

Water Conservation and Technical Support

Professional Experience

Mr. Andrews has more than 5 years of experience in the planning and design of low impact development. He has a B.S. degree in Civil and Environmental Engineering, is a registered professional engineer in California, and is an Accredited Professional with Leadership in Engineering and Environmental Design (LEED). Mr. Andrews is currently pursuing his Master's Degree in Environmental Engineering from Cal Poly San Luis Obispo, with an emphasis on water conservation.

Relevant Project Experience

Meter Retrofit Program Plan, California American Water, Sacramento, CA. Consulting Engineer. Prepared a Technical Memorandum outlining a meter retrofit strategy for converting nearly 40,000 unmetered, flat rate customers to metered use with tiered rates in a period of three years.

Port San Luis Harbor Renovation Project, Avila Beach, CA. Design Engineer. Analyzed water-use and wastewater generation for the existing and proposed public and private facilities in the harbor area. Arrived at a solution with zero net increase of wastewater generation for the Port San Luis recreational area. Additionally, retrofitted existing catch basins with stormwater filtration inlets to remove detrimental contaminants from stormwater prior to entering the sensitive coastal habitat.

San Miguel Ranch, San Miguel, CA. Design Engineer. Developed a Tentative Tract Map, which included a low impact approach to stormwater treatment and drainage, handling all on-site through the use of carefully planned detention basins.

California American Water, 2008-2011 General Rate Case, Sacramento, CA. Consulting Engineer. Reviewing California American Water's improvement projects to develop cost estimates, project priority and feasibility and develop an overall budgeting and project implementation strategy for California American Water's Sacramento Region.

Parkway Main Replacement, Sacramento, Ca. Field Engineer. Conducted a comprehensive field survey, including client interaction, existing water service inspections & field notes in order to assess the need for water main replacement and metered service retrofitting in an aging development in the urban Sacramento area.

Education

M.S., Civil and Environmental Engineering, California Polytechnic University, San Luis Obispo (in-progress)

B.S., Civil and Environmental Engineering, University of California, Davis

Registration

Professional Civil Engineer, California No. C73866

Leadership in Energy & Environmental Design Accredited Professional