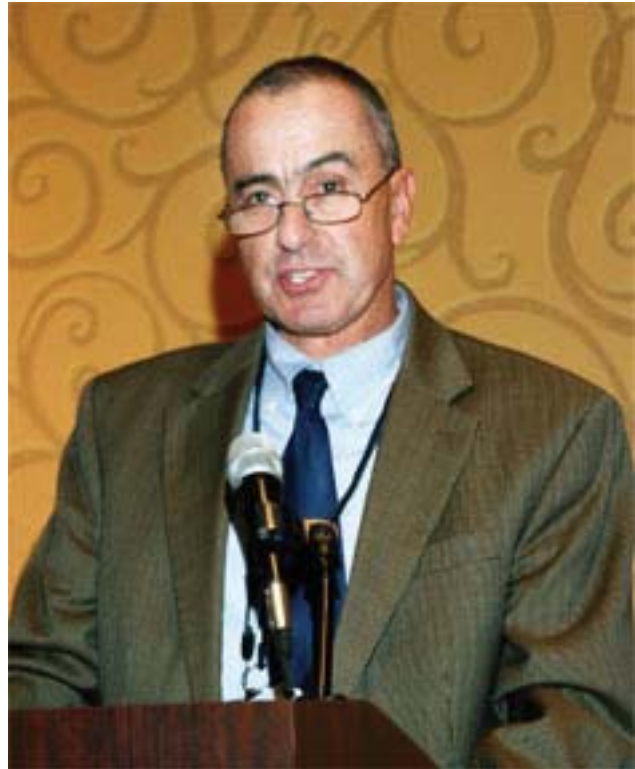


Jorge A. Garcia has been the Director of Utilities for the City of Las Cruces since 2001. He is responsible for management, operation, planning, and development of water, wastewater, natural gas, and solid waste utilities. He supervises 232 employees, a \$61.9 million operating budget and \$24.9 million capital budget, serving 78,000 customers. He received a B.S. in agricultural and irrigation engineering and M.S. and Ph.D. degrees in civil and environmental engineering, all from Utah State University. Jorge's doctoral dissertation was entitled "Evaluation of Search Techniques and Parameter Estimators in the Automatic Calibration of Rainfall Runoff Models."



New Mexico Municipal Representatives on the Use of Surface Water for Their City: Las Cruces

Jorge Garcia
Utilities Department
680 Motel Blvd
Las Cruces, NM 88005

Thanks Karl. Thank you for inviting us to talk about our surface water supply. It was mentioned this morning that El Paso started using surface water in 1943 and I know that Santa Fe has been using it for 100 years. History shows that the City of Las Cruces used water from the Cinco de Madre in the late 1800s. But history also tells us that the water quality was so bad that they started drilling wells. The city utility really started by buying wells from the electric company and we are still in the groundwater business today.

Let me tell you a little bit about what we are doing with surface water and some of the progress we have made. Like several presentations you have heard here, most 40-year water plans have certain minimum requirements and ours (the updated version is under final review by the state engineer) always has some form of conjunctive use component. Sometimes it is just sur-

face and groundwater use but other times it is coupled with conservation efforts. Reclaimed water use and ASR or importation of water are also included. Our plan with the present goal projections is to concentrate on three elements: conjunctive use of surface and groundwater, which is what we all are talking about, along with water conservation and reclaimed water use. We are building a \$9 million reclaimed water plant that eventually will be used for treating tertiary water for irrigation. Finally Las Cruces will join the rest of the West in recycling water.

Today let's talk about some of the conjunctive uses of surface water. Figure 1 shows more or less the distribution of our water supply wells in two different bolsons or aquifers. One is the Mesilla aquifer located along Highway 25 and Highway 10, and we also have the Jornada aquifer. The wells we show here are on the East

Mesa. We have some existing wells and some have approved water rights on that aquifer. They are pumping approximately 3,000 acre-ft right now from our original water right, the LRG 430. We have an additional 10,200 acre-ft in the basin. This is a mined basin, the water is there and has been there since geologic times, and you can keep pumping for a while but at some point the water supply will run out. We like to think of that basin as a drought reserve and hence the effort to go toward surface water.

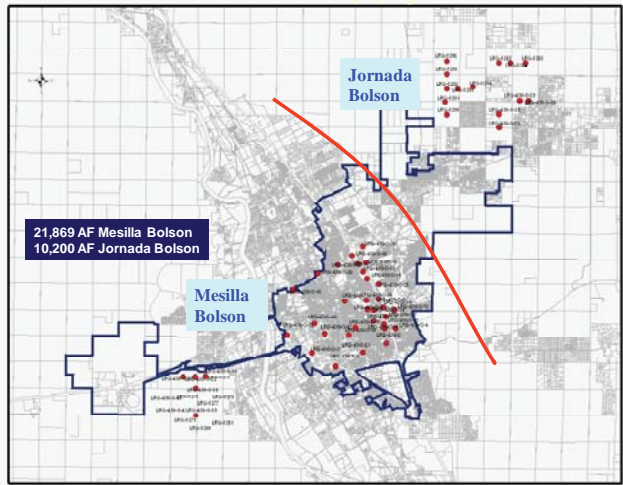


Figure 1. Groundwater supply basins

The Mesilla Bolson has some existing wells on the West Mesa but we still have some pending applications there that date back to 1981 to complete our water portfolio. We have contracted with the Water Utility Board earlier in the month.

Figure 2 gives you an idea of the current and projected growth patterns in Las Cruces. It turns out that we are growing toward the east where the mined basin is located. That is the best land available for growth and the City just annexed about six sections. Growth pro-

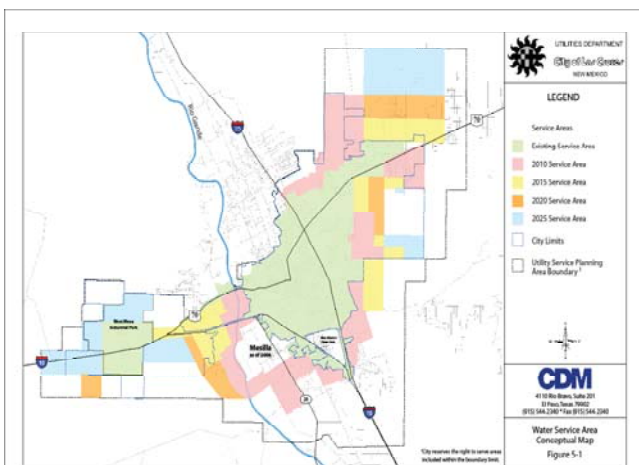


Figure 2. Water Service Area conceptual map

jections to 2025 are almost all on the east side, a few on the west, and very little to the north and south. The good news is that we can preserve our land. The bad news is that we have to move the water from the valley up the hill or use the water supply in this basin. Since it is a mined basin, we must arrange for the hydraulics of the system to transfer water from a more sustainable source that is connected to the Rio Grande to the growth areas.

Groundwater makes up 100 percent of our current supply. We have had a capacity for about 44 to 46 million gallons a day. The current peak demand in summer is about 30 million gallons per day. In terms of supply and the hydraulics of the system, we are doing fine. We are getting approximately 3,000 acre-ft last year of that mined water from the East Mesa and Jornada aquifer.

Figure 3 shows our current proposal to the state engineer in our 40 Year Water Plan. The top curve represents the 2045 high growth scenario projection of about 260,000 in population and about 53,000 acre-ft of demand. There are three levels of growth in that curve. Our growth until about 12 months ago was the high end curve. The growth rate has recently declined but we are still growing. That puts us somewhere below this curve, but again we have different levels of growth scenarios. In terms of infrastructure planning, we are planning on the high use projection.

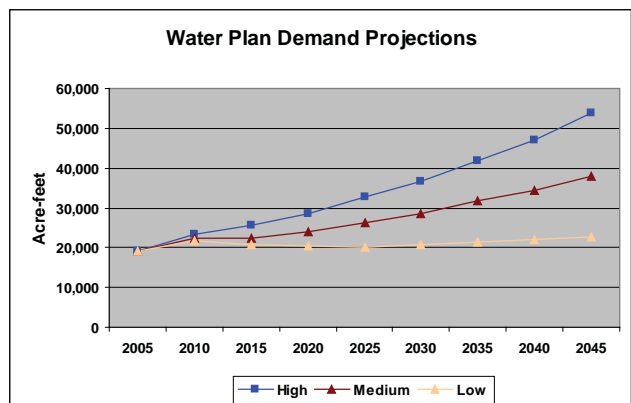
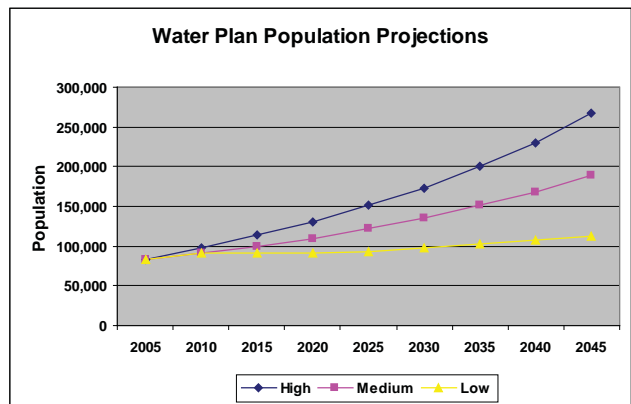


Figure 3. Water plan population projects and water plan demand projections

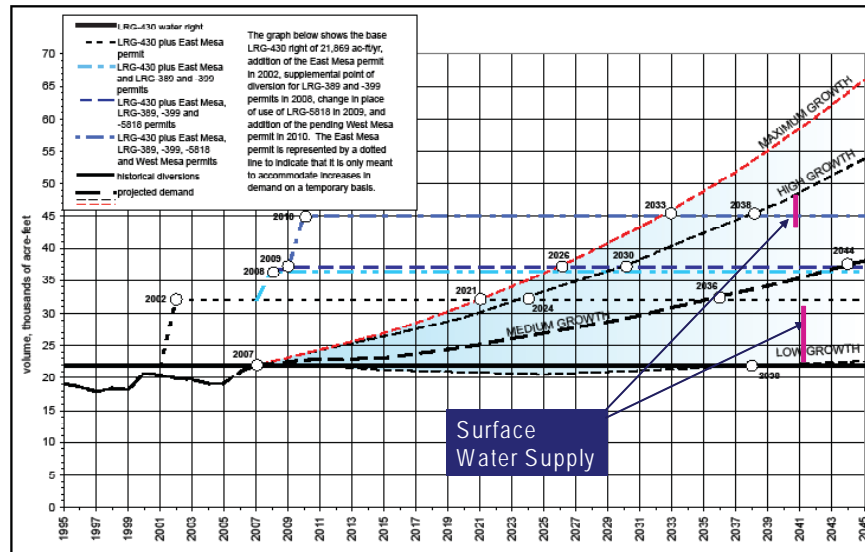


Figure 4. Graph showing City of Las Cruces historical water diversions for 1995 to 2005 and projected water demands from 2006 to 2045 represented by a band representing low to maximum growth rates, City of Las Cruces’s total existing adjudicated water rights, and current and pending permits. (John Shomaker & Associates, Inc.)

Figure 4 is also from our 40 Year Water Plan. It shows the City’s different water rights and demands. An old City water right of 21,690 acre-ft dates back to 1907. We have 10,200 acre-ft on the Jornada Bolson and 1,450 acre-ft of valley water but we have to use wastewater or other rights to negate the impact on the hydrologic system. An application is in process with the state engineer for another 8,000 acre-ft. A big issue for us, however, is Spring 39 and additional growth that could be surface water or groundwater. It is critical though that the sooner we move to surface water the less we mine this basin. And that is our justification; yes, we have groundwater rights but we would like to shift as soon as we can afford to and as soon as we have all the different contracts in place. Then we can use the Jornada aquifer as a drought reserve.

Before you build a plant to treat surface water, you need water rights. In 1985 the City had the vision to place a fee on rate payers for future surface water rights acquisitions. I don’t think there was a lot of discussion in 1985 about water rights in this area. There is also an ordinance that requires water rights as a condition for development within the city limits. In other words, if you want to be within the utility service, you need to convey water rights in one of several forms: one being the conveyance of surface water righted land, where the utility has the right to purchase or lease the right. This requires EBID approval as well as verification that an offer of judgment has been made on that tract by the Office of the State Engineer. As a utility, we have paral-

lel processes: one that we file with EBID and one with the state engineer. We acquire the rights and we pay for the rights (although we recover some of that money from the fund through the meter fee).

There are certain water righted lands where a fee is paid:

- Non-water righted
 - Development pays water right fee based on meter size
- Utility purchases other water rights not related to land development
- Groundwater rights require offsets
 - Wastewater return flows
 - Surface water
 - Importation

We can acquire and lease some water rights that are not related to a specific tract of land, if the tract of land is within a special user association. We must get approval through the EBID board of directors to lease these rights. We have only acquired these groundwater rights on a small scale because they would require wastewater return flows to offset or use some form of surface water reparation for making up those effects. We are concentrating on surface water supply for two reasons: because of its sustainability and because of the priority of surface water in the Lower Rio Grande.

The state engineer mentioned earlier today that some municipalities have spent 40 years looking at transitioning to surface water. About 10 years ago in Las Cruces, we started the process of moving the City of Las Cruces to surface water. Working with EBID, we were successful in implementing what is called the Special Water Users Association. These associations were created by state law to allow municipal and other users access to EBID surface water. The mechanism to acquire water rights is in place but the mechanism to utilize “wet” water is yet to be developed. The amount of water is dependent on an annual allotment. The water allotment currently being used in irrigation is 1,000 acres or 3,000 acre-feet of water.

There are still a few things we need to do with EBID in terms of the transition of the water once it goes through surface water rights and to the agriculture pool with EBID. One of the requirements for surface water within the Project is that the surface water right be appurtenant to land that is transferred to City-owned property. When we acquire or purchase rights, instead of leasing them, we will convey them to City owned property. The property must be part of the EBID and payment is based on water righted acreage and size of parcel.

When we do a surface water transaction, the seller by ordinance must sell their water rights to us if they want utility service. They need to execute all required documents including those required by the state engineer. The paperwork goes through us so that we can make sure that the water rights are actually there and no double accounting is done. We make sure that we are actually paying for something of value. We then execute the documents with EBID as well.

The process was streamlined recently. We used to have a water committee that included a few city council members on a subcommittee of the Special Water Users Association. Now we have the Las Cruces Utility Board. The board is allowed to acquire and lease water, making the acquisition process much more streamlined.

Our lease concept is basically a lease purchase concept. First, the surface water right appurtenant to the land remains in the developed parcel. The lease agreement identifies the City Utility as the owner of the water right. The Lease agreement contains several elements: prepaid rent (same dollar value as the purchase price); the well allotment; EBID tax assessments; and a term (40 years with an option to renew).

As part of the transaction, we have an exclusive option to purchase or renew the lease. We follow District policies (EBID 2003 GA7, NMSA 73-10-48), and the assignment is binding on successors and assigns. We then start paying allotments to the irrigation district. These are forty-year leases and are renewable every forty years.

How do we pay for all of this? We fund the water rights acquisition by new customers as well as existing customers. New users pay a one-time water rights fee based on their meter size. Existing users pay a volumetric charge as part of their monthly water bill. This funding mechanism is also used to support legal funding of water rights adjudication.

What are we doing with the infrastructure? This is a major subject of discussion. We had a great tour yesterday of Albuquerque’s facilities. About 12 months ago, we commissioned CH2M Hill to conduct a feasibility study to look at possible sites for a plant. There are still other procedures that need to be done, too. For example, we still need to develop procedures to change the place and purpose of use with the Office of the State Engineer. We also need to develop necessary contracts with the U.S. Bureau of Reclamation and EBID for use of surface water for municipal and industrial use. Our plan is to be part of EBID and work with EBID and take the water, not for irrigation use, but as surface water. We will continue the acquisition of surface water rights because we need at least another 2,000 acre-ft for the first phase of the actual treatment process.

The feasibility study contains three tasks. The first task will take 15 months and is an evaluation of alternatives for water treatment plant infrastructure. The task includes data collection and evaluation; evaluation of EBID infrastructure that may be viable for the use and conveyance of surface water to the plant; evaluation of alternative plant sites and diversion facilities; evaluation of alternative treatment processes and diversion facilities; and defining the best technical alternatives. This will be a cooperative endeavor with EBID so that the district can benefit from some of the structures we put in place.

The second task of the project deals with supporting studies and services. Basically, this deals with project management; developing operational and conjunctive use plans for surface and groundwater; investigating water rates and funding alternatives; treatability testing and water quality evaluation; and public involvement and presentations made to stakeholders.

Task 3 of the project concerns the conceptual design and feasibility. This includes basically delineating design criteria and generating certain levels of treatment plan specifications. Also, we'll be identifying environmental impact statement (EIS)/environmental assessment (EA) needs and permitting requirements. We will then produce a summary feasibility document.

In general, water supply planning requires multiple options that include conjunctive use of surface and groundwater. Water rights can be purchased or leased. Currently, leases are mainly associated with surface water rights. As described, we are conducting a comprehensive feasibility study that begins the infrastructure planning process and that will make a surface water plant a reality. Before surface water can actually flow into a plant, we will need to finalize agreements with the Office of the State Engineer and other pertinent entities. With that, I'll end this presentation. Thank you.