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REPORT ON

TOWN HALL

Our Water, Our Future, Our Next Challenge

FOR THE *City of Albuquerque*

FRIDAY APRIL 20, 2001

TOWN HALL

Our Water, Our Future, Our Next Challenge

CO-CHAIRS:

Brian Burnett, *President, Shared Vision*
Mayor Jim Baca
Alan B. Armijo, *City Councillor*
Thaddeus Lucero, *Community Services Director*
County of Bernalillo (representing the County Commission)

Thanks to the following presenters at the town hall:

Ed Archuleta, *General Manager, El Paso Water*
Mike Bitner, *CH2M HILL*
F. Lee Brown, *Past Chair, Middle Rio Grande Water Assembly*
John Gaston, *former Chair, EPA National Drinking Water Advisory Council*
Susan Gorman, *Indicators Progress Commission, City of Albuquerque*
Steve Harris, *Chairman, Rio Grande Restoration*
Bruce Johnson, *Assistant Director, Tucson Water Department*
Joy Nicholopoulos, *State Supervisor, US Fish and Wildlife Service*
John Stomp, *Water Resources Manager, City of Albuquerque*
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Mike Bitner, *CH2M HILL*
Jim Cooney, *Cooney Watson & Associates Inc*
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CITY OF
ALBUQUERQUE

Our Water, Our Future, Our Next Challenge

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Executive Summary of Community Dialogue*

**Note: Please see pp 27-37 for the Results of Break-Out Groups and Attachment 1 for a detailed break-down of group responses.*

About two-thirds of the town hall participants in eight afternoon discussion groups favored the City moving forward with its plans to use its San Juan-Chama water allocation from the Rio Grande. Those who favored using the river water cited the need to "save the aquifer", reduce arsenic levels, "provide a sustainable source of water for the future" and "use or lose" the annual quota. The three-foot high adjustable height dam was the preferred choice for withdrawing the water because it can be immediately implemented, has flexibility in responding to stream conditions, and has potential for improving the river environment through overbank flooding of the bosque and channeling water for the endangered silver minnow. It could be more reliably maintained than the underground pipes, and is less intrusive on the river and bosque due to the shorter distance for diversion compared to the Angostura dam.

Those who were undecided about moving forward at this time (approximately 19%) wanted more information about the impact on the endangered silvery minnow and the bosque. Issues cited as needing more information or study were: the size and timing of the diversion and release of stored water, impact on sediment, acres impacted in the bosque, the water treatment process, and more information concerning the previous set of 32 alternatives and why they had been rejected. Many looked to the Environmental Impact Statement process to provide more detail and opportunities for comment. About 15% were altogether opposed to the project due to concerns about its impact on the river. Instead they wanted to revisit the recharge alternative, and first save more water through increased conservation before supplementing sources of supply.

Almost all of the groups brought up the need to incorporate environmental and educational features into the design of the new facilities. They envisioned features such as windows for viewing the operations, demonstration of water returned to the aquifer, use of water conscious landscaping, use of ecological or "green" construction materials, and alternative energy sources to make the dam self-sufficient. The City should provide teaching spaces, study programs, and educational tours. Some thought that awareness and appreciation of the value of the Rio Grande would be enhanced by connecting the community to the river, making it more accessible for visits and setting aside special areas for viewing and recreational use.

Participants wanted to see the dam managed with consideration for the river and its environment. More attention should be paid to analyzing diversion timing through modeling and monitoring the impact of the dam on the river and on wildlife. Half of the groups gave priority to maintaining the river's natural flows, with some in favor of raising the low-flow level thresholds at which diversions would be reduced or stopped. Dam releases should be timed to flush sediment and increase aquatic habitat. There was strong support (7 out of 8 groups) for overbank

Awareness and appreciation of the value of the Rio Grande would be enhanced by connecting the community to the river, making it more accessible for visits and setting aside special areas for viewing and recreational use.

Participants wanted to see the dam managed with consideration for the river and its environment.

A large majority (7 out of 8 groups) wanted to continue and increase the community's involvement in water issues through open meetings providing information exchange and continued interactive formats.

flooding to help restore the bosque.

The majority of groups supported the fish passageway and wanted to ensure that it worked effectively-both before implementation and during operation through continual monitoring. Sedentary backwater areas should be provided for minnow habitat.

Participants voiced strong support for maintaining and improving the condition of the bosque during project implementation, through restoration and reparation of the riparian area impacted by the diversion, eradicating high water use non-native species (salt cedar, russian olive) and replanting cottonwoods and other native species. One group detailed ideas for a new citizen-based organization with the mission of restoring the pre-development bosque.

All groups strongly advocated greater emphasis on conservation. To avoid the community becoming complacent about water usage, they thought that a new conservation package should accompany the project. Half the groups called for dual water systems, possibly requiring them in new development-- using non-potable grey water for fire fighting, industry and irrigation. Participants sought greater emphasis on education and on financial incentives as the preferred methods of accomplishing conservation goals-developing a conservation package for schools, revising the rate structure to reflect the actual cost of water, instituting bigger premiums for large users, and perhaps taxing wells for aquifer use. Half gave a high priority to establishing better accountability for water usage through improved metering of irrigation.

There appeared to be no consensus on the issue of growth. Two groups wanted to link water supply with growth management, establishing a population threshold based on water resources. Three groups were in favor of buying additional surface water rights.

There were no major concerns among participants regarding the quality of the treated river water, with three groups stating high confidence (above 9 on a scale of 10) in its safety for drinking, and the rest giving above average (5.25) to high ratings. However, a majority of groups (5 out of 8) wanted continuous, frequent testing and reporting for all types of contamination, with results and baseline comparisons published daily. People were generally willing to pay more for better water quality such as lower turbidity, as long as there was special consideration for socioeconomic impact. Drinking water qualities most desired were: taste (no change), no odor, and clarity. Forums, publications, speakers' bureaus, electronic and print communications, special events, and water tasting programs can help to prepare the public during the transition to river water for drinking.

A large majority (7 out of 8 groups) wanted to continue and increase the community's involvement in water issues through open meetings providing information exchange and continued interactive formats. Public understanding can be enhanced through use of standardized terms and definitions. The City should reach out to the environmental community and to other skeptics who have concerns about what this project will do to the Rio Grande and should involve everyone affected regionally along the river, including other jurisdictions.

I. Introduction

A. Town Hall Process

The town hall *"Our Water. Our Future. Our Next Challenge"* on April 20, 2001 brought together a cross-section of the Albuquerque metropolitan area and region to consider a critical next step in supplementing Albuquerque's water supply by using its water allocation from the San Juan-Chama Diversion Project.

The City of Albuquerque is preparing to build facilities for withdrawing this water from the Rio Grande and purifying it for distribution to users of the City water system. The City initiated the town hall in order to provide the community an opportunity to learn about the plans and to create a vehicle for open communication that would result in improvements at this critical decision point in moving forward.

Of the approximately 150 people attending (not counting speakers and those with assigned roles), approximately 26% were from government (City, County, State, Federal agencies, other regional communities, conservancy district, flood control authority, tribal); approximately 25% were from the private sector (mostly small businesses, attorneys and engineers); and approximately 49% were from the community at-large (neighborhood associations, civic groups, environmental advocacy groups, students, and residents).

The first part of the town hall prepared everyone with technical information about the alternative proposals for withdrawing water from the river. After hearing presentations about the recommended alternative, participants listened to a diverse panel representing US Fish & Wildlife, Rio Grande Restoration, a national water quality expert, the State Engineer, the State Environment Department Secretary, and local community activist and educator, who offered differing views of the project. Speakers on Tucson's and El Paso's experiences in integrating river water into their drinking water supplies followed. In addition, participants received educational packets and looked at displays about the project.

About half of those attending participated in eight facilitated discussion groups for two hours to evaluate the City's plans and develop recommendations, using a discussion outline with four questions covering the diversion alternatives, enhancements and actions that should be taken, water quality issues, and transitional steps. Recorders assigned to each group took notes and recorded points of agreement. At the end of the day, each group reported out their key ideas. The following report was prepared by *Shared Vision* as a summary of the recorded dialogue that took place. It is being transmitted to the City so that the ideas can be incorporated in a timely way into the next phases.

The City initiated the town hall in order to provide the community an opportunity to learn about the plans and to create a vehicle for open communication that would result in improvements at this critical decision point in moving forward.

B. Background and History

In the 1960's the City of Albuquerque bought consumptive rights to 48,200 acre feet of San Juan-Chama water and since then has invested $40 million to prepare for its eventual use. Until now, Albuquerque has relied exclusively on its underground water supply, but in the early 1990s people became aware that aquifer levels are dropping at unsustainable rates. About half the water the City now pumps from the aquifer is not replenished and as the City drills and draws from deeper wells, groundwater quality is deteriorating. Use of the San Juan-Chama water will reduce groundwater pumping to a sustainable amount that can be replenished.

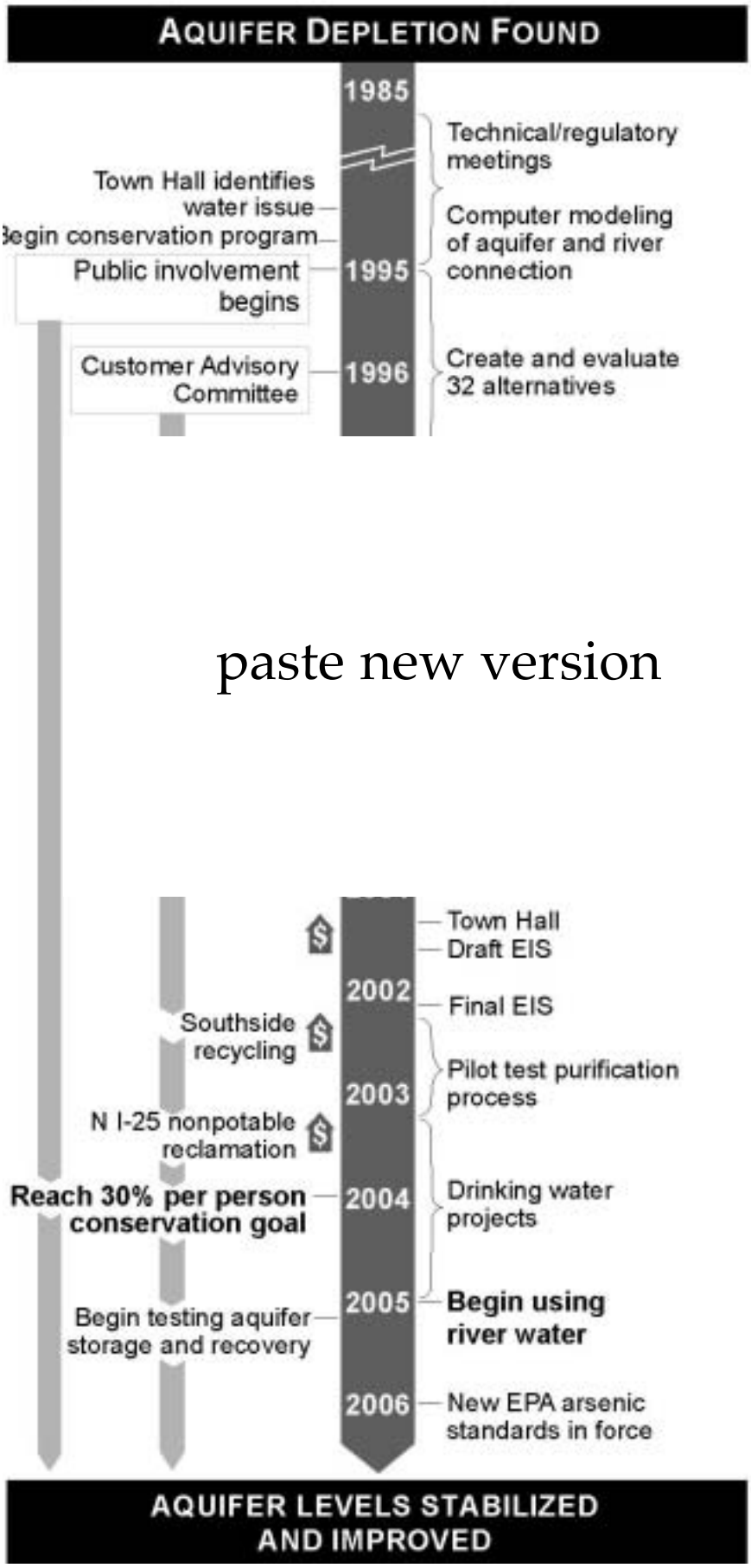
The Strategy and the diversion alternatives presented at the town hall are the result of technical analyses and public input over the last ten years. An earlier town hall in 1994 called for a focus on water resources and initiated a water conservation program, which has resulted in a savings of over 9 billion gallons of water to date. In 1995 a Customer Advisory Committee (CAC), comprised of ratepayers, business, civic and environmental interests, was formed to advise the City on development of a Water Resources Strategy. After extensive public debate and dialogue, the City Council adopted the Strategy in 1997 and has approved several rate increases to pay for its implementation.

The City has developed and conducted evaluation of 32 alternatives for Strategy implementation with public involvement at each major step. Screening workshops were held in which the public was invited to help score these alternatives for ways in which the city would use its water supplies-including groundwater, San Juan-Chama water, and reclamation and recharge projects--using the following criteria:

- Sustainability and reliability
- Environmental protection
- Financial support
- Implementability
- Quality of life

Since then, the City has moved forward with implementation of the Strategy. A large-scale recycling project is now operational, negotiations are under way to purchase a water purification plant site, and preliminary design is in process for water transmission lines.

The City held a town hall at this critical juncture in order to present plans to the community and provide an opportunity for community participants to help make the project the best it can be in meeting all of the various needs.



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II. Presentations

A. Opening Remarks

"... this day is about preserving the most extraordinary and vital resource we can leave our children– our aquifer– and thus ensuring a legacy few cities in the nation could ever hope to have."

– Brian Burnett

Following are excerpts summarized from Opening Remarks at the Town Hall.

Brian Burnett, Town Hall Co-Chair and President of Shared Vision.

Brian Burnett,
Town Hall Co-Chair

Decades ago City leaders had incredible foresight in purchasing water rights from the San Juan-Chama diversion project. This day isn't just about diversion structures, purification plants, and distribution systems, this day is about preserving the most extraordinary and vital resource we can leave our children--our aquifer-and thus ensuring a legacy few cities in the nation could ever hope to have. I hope all of you want to constructively participate in insuring a great legacy just like our city leaders did decades ago.

The 1990s have been very busy and productive on the water strategy front. In 1995 the city embarked on one of the most ambitious water conservation campaigns in the nation, and it has been one of the most successful. We have reduced our usage 23% and have dropped our gallons per capita per day from 250 to 209. While this is very good news, we must continue striving for even better results.

In 1997 after several years of planning and public dialogue the City Council adopted the water resource strategy that we will be discussing today. This Strategy is founded on preserving a sustainable supply of water until at least the year 2060. We are not only going to protect our aquifer with this Strategy, we are going to begin replenishing it.

Shared Vision brings together diverse opinions to address important issues in our community. It is always our hope that this type of dialogue helps to create consensus and moves solutions forward in a positive manner. Today's town hall follows the format used so effectively in the past; we will spend the morning educating ourselves through a variety of presentations and panel discussions. Lunch will feature speakers focusing on lessons learned from other communities. And the afternoon will allow all of us to participate in discussions on a number of key questions dealing with water use alternatives. The city plans to use this information as it moves forward with its strategies, and a report will be published based on the town hall feedback.

Mayor Jim Baca

Mayor Jim Baca

About 40 years ago, Archie Westfall, Chairman of the then-City Commission and his fellow commissioners showed real vision in looking out for more than themselves and doing the best thing for future generations. They looked

down the road and sensed that the supposedly boundless aquifer that we all live on top of was really not boundless, and so they committed the City and its ratepayers to making an investment for the future.

We paid 40 million dollars into the San Juan-Chama project for 40 years, and this water is supposed to keep us sustainable to the year 2060. We have to continue that great vision, because 40 years from now we're going to be looking at a 20 year deadline for sustainability. The work isn't yet done.

This great water conservation program led by city government and supported by the people who live here is going to buy us some time, but we still have to do some deep thinking on how we keep the natural systems on the Rio Grande functioning and sustainable. The positive thing is that we are all sitting here talking about it, and that is a milestone for this city, that we're still thinking far into the future. I want to congratulate everybody for being here; and I want to congratulate Archie Westfall and the people who did such great work in the past. We owe them a lot and we have to follow their example.

City Councillor
Alan B. Armijo

My grandparents used to say to me that water is precious, don't waste it. We need that same attitude today.

– Alan B. Armijo

City Councillor Alan B. Armijo

In 1990 when I was elected City Councillor I proposed we do alternate day watering of our lawns and public parks, and the water department at that time said no, we have a big lake and don't need to worry about that. We were still thinking that way that short time ago. I grew up on a small farm in Clayton, New Mexico in the northeastern part of the state where we had a lot of wind and very little water. My grandparents used to say to me that water is precious, don't waste it. We need that same attitude today.

The City Council has approved several rate increases to pay for the San Juan-Chama water. It's difficult to get people to understand why we need them because we're so used to turning on the tap. I am the chair of the Middle Rio Grand Council of Governments and we have a great opportunity to work regionally. I was contacted by a group recently very concerned about using the San Juan-Chama water and what it will do to the region and people downstream, and we have to take that into account.

I thank you for participation; it's always a great pleasure to see the public involved.

Thaddeus Lucero, Community Services Division Director, Bernalillo County

My nine year old son is learning about the aquifer and water conservation in school, and he doesn't hesitate to tell me if I'm wasting water. You're doing a good job; the schools are teaching him about water conservation.

The population of Bernalillo County is expected to more than double in the next 50 years, and this four county region is expected to have a population of over 1.5 million by the year 2050. Today we are using over 100 million gallons of water a day. The facts are clear and convincing that we are depleting our aquifer and must find alternative resources.

We must plan to have enough water for our children and our children's chil-

"We still have to do some deep thinking on how we keep the natural systems on the Rio Grande functioning and sustainable. The positive thing is that we are all sitting here talking about it, and that is a milestone for this city, that we're still thinking far into the future."

– Mayor Jim Baca

dren. We are fortunate that the City of Albuquerque has developed and the County supports a sound water resource strategy that includes conservation and a commitment to preserving our aquifer by utilizing the San Juan-Chama water. I don't think of rate hikes as rate increases but as investments in our future. The San Juan water project is a bold move away from using the aquifer but it is a move we must make. Other cities such as Tucson and El Paso are using treated water for their water consumption. I'm confident that we'll meet this next challenge together. Thank you and I welcome all the suggestions that come out.

B. Summary of City of Albuquerque Presentations

The City presentations brought participants up to date on status of implementation of the Water Resources Strategy, reported results of current studies on the impacts of the proposed Drinking Water Project and discussed options for addressing environmental protection and water quality concerns. Town Hall participants were asked to discuss and prioritize these options during the afternoon break-out sessions.

Water Strategy Implementation Status

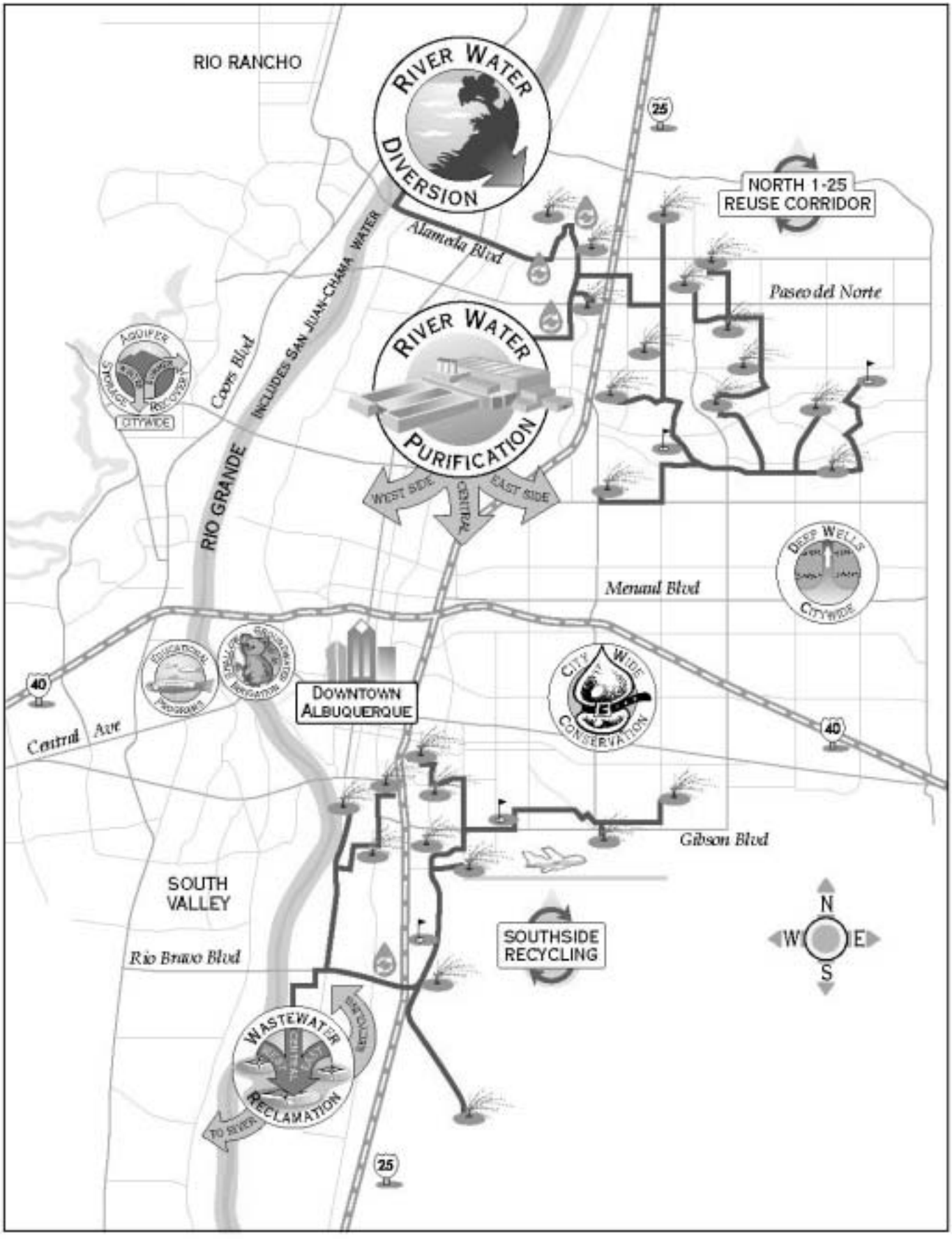
City Water Resources Manager John Stomp reviewed the decade of study that led to our current understanding of how and why the aquifer that is now Albuquerque's sole source of drinking water is being depleted. He also explained water table drawdown estimates and the threat posed by land subsidence. A review of the extensive public involvement in developing the criteria for and features of the Water Resources Strategy followed.

Group discussion - John Stomp and others.

The City is about 10 years into a 15-year program to transition to a renewable water supply. Major advances have been made toward reaching a conservation goal of reducing per-person use to 175 gallons/person/day by 2004. A project to recycle industrial wastewater from Philips Semiconductor and Sumitomo-Sitix with the assistance of Honeywell in the North I-25 area is now operational, and a recycling project for the south side of Albuquerque is in its design phase. A graphic overview of the Strategy as a whole is shown on page 9.

The major focus now is the Drinking Water Project, which is actually a series of projects that will enable the City to make use of the San Juan-Chama Diversion Project water that it owns as a result of contracts entered into more than 40 years ago. The Drinking Water Project includes:

The strategy we're implementing for a sustainable supply



- Developing the means to withdraw San Juan-Chama water from the Rio Grande.
- Siting and developing a water purification plant to clean this water.
- Designing and building the pipelines needed to integrate this new water source into the drinking water system.
- Longer term, seeking to use the aquifer as a natural storage reservoir for purified river water. This component requires the purification plant to be in operation before final development can take place.

Mr. Stomp reviewed the three finalist alternatives for withdrawing water from the river and explained why an adjustable height dam located north of the Paseo del Norte bridge had emerged as the most promising option. This option consists of an approximately three-foot-high barrier that could be lowered against the river bottom when flows are low. The design also includes a fish passageway and special features that minimize potential hazard to the endangered Silvery Minnow.

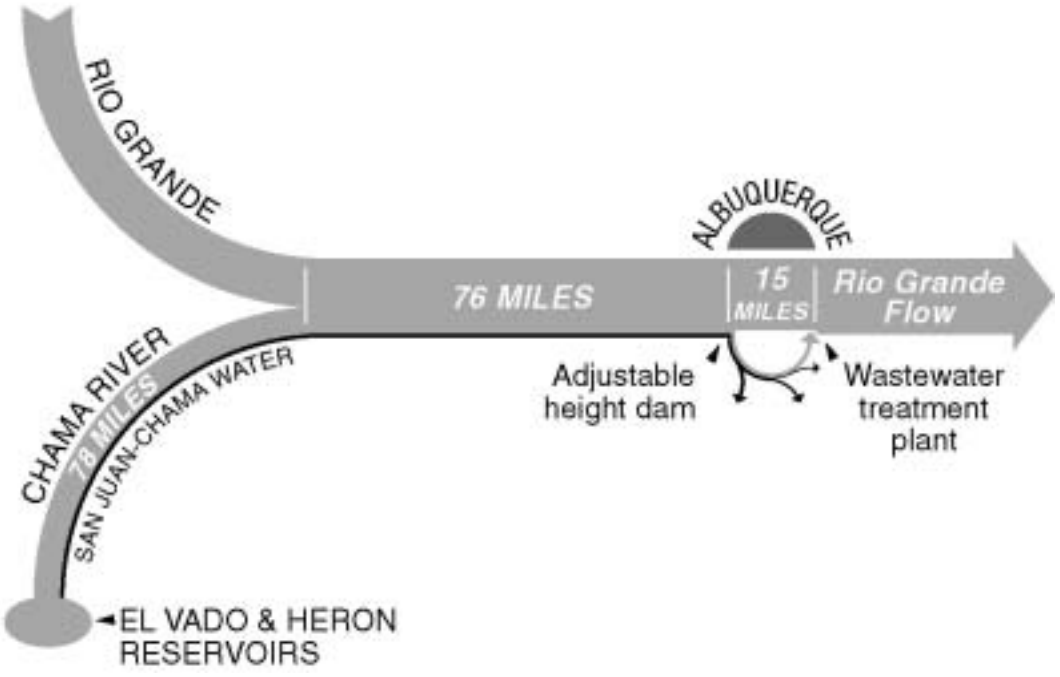
The Drinking Water Project team has also completed initial development of the purification process that will be required to make river water safe and aesthetically pleasing to drink. Mr. Stomp reviewed the steps of this process, which provide multiple means of removing impurities, including settling, ozone and hydrogen peroxide bubbled through the water, biologically activated carbon filtering and chlorine disinfection.

Mr. Stomp also reviewed the preliminary routes that have been identified for water transmission pipelines to carry purified river water from the Chappell Drive plant to the water distribution system.

Potential Environmental Impacts and Enhancements

Mike Bitner of CH2M Hill, the consultant team project manager for Water

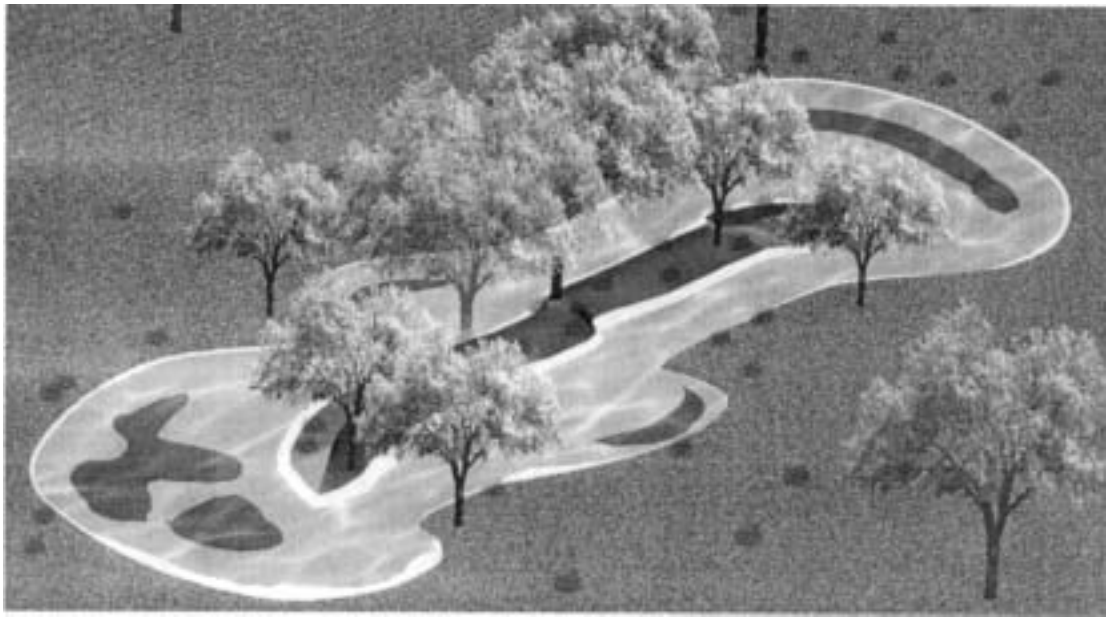
River Flow Aspects of Drinking Water Project Implementation



Strategy implementation, presented a summary of how the Drinking Water Project was expected to operate and its potential impacts. He outlined steps the City is already taking to protect the environment and the endangered silvery minnow. To prepare participants for the afternoon discussion groups, he reviewed options for enhancing the project's environmental and quality-of-life benefits to the community.

Mr. Bitner explained that the San Juan-Chama Diversion Project water will account for approximately 5% of Rio Grande flow and that the City needs to withdraw twice its San Juan-Chama allocation to achieve "consumptive use" of the water.

The City plans to time its withdrawals to minimize the effects on the river environment. The City proposes to curtail withdrawals whenever native Rio Grande flows fall below 120 cubic feet per second (cfs), and to stop withdrawals completely when native flow is less than 70 cfs. This, in combination with the ability to lower the adjustable-height dam to rest against the river bottom, means the river habitat will be protected when it is most vulnerable. He explained that because Rio Grande flows vary enormously, the effects of withdrawing an average of 94,000 acre-feet will be a small increment of any variation.



Minnow Refugium

The City is participating in several efforts to restore silvery minnow populations in the Rio Grande. This includes funding for a captive breeding program and minnow recovery efforts. (See diagram of Minnow Refugium) In addition, the City put forth several options for future action for the Town Hall participants to comment on or add to:

- Additional overbank flooding programs to benefit cottonwoods
- Further shallow-water habitat development and monitoring
- Enhancing Southwest willow flycatcher habitat
- More gauging and metering to make better water management possible
- Water banking and aquifer storage
- Delivery from Heron Reservoir to meet fisheries requirements

Mr. Bitner addressed water quality concerns raised at earlier public meetings by

reviewing the multiple-barrier purification method proposed. Pilot-scale testing, water taste testing and other measures will be taken to assure acceptable drinking water aesthetics. He said that the average water ratepayer would be unable to detect the difference between current ground water quality and blended water or exclusively surface-water quality.

He also reviewed reasons why other options were displaced by the proposed projects. These earlier options included:

- The 32 alternatives considered during the planning phase of the Water Resource Strategy-These alternatives were scored by a variety of stakeholders on the criteria that the public agreed on and were not as positive as the proposed alternative.
- **More recycling**-While more recycling may be possible in the future, the most cost-effective recycling projects are already under way; future reductions in demand created by recycling could delay the need to acquire new sources of water, but also imply returning less water to the Rio Grande, which is a sensitive issue. The City is preparing a master plan for wastewater facilities that could identify new opportunities.
- **More conservation**-Albuquerque ratepayers have yet to meet their goal of reducing per-person demand by 30 percent between 1994 and 2004; once this goal is met, more conservation will be pursued. More conservation could postpone the need for expensive new water sources in the future, but cannot be counted on in the near term.
- **Capturing stormwater**-The amount and timing of this water source is unreliable. In addition, the City does not have the legal right to capture this water. If water rights legislation or other circumstances change, stormwater could be a source of a limited amount of water.
- **Stopping growth**-Today, about half the water pumped from the aquifer is not replenished, so even without any growth, our current approach is not sustainable. Most of the growth that now occurs is from the growth of families already in Albuquerque. Even if Albuquerque could stop its growth, surrounding communities that drink from the same aquifer are growing rapidly.

Next steps in the Water Strategy implementation process include an application for a permit from the Office of the State Engineer, publication of a draft Environmental Impact Statement scheduled for this fall, and ongoing public involvement.

Video on Aquifer Drawdown

A 10-minute video by Los Alamos National Laboratories and Cooney Productions showed computer generated scenarios of estimated declines in the water table. It illustrated the likelihood of land subsidence and severe water table declines-especially on the West Side-if the aquifer continues to be Albuquerque's sole source of drinking water.

C. Tucson Experience

Bruce Johnson

Bruce Johnson, Assistant Director of the Tucson Water Department, presented Tucson's experience in transitioning from ground water to surface water. Their initial efforts were not successful, but an extensive outreach program overcame opposition. Program elements included, among others:

- Focus groups and other market research tools identified acceptable alternatives and language.
- An aggressive speakers bureau program involved almost 200 utility employees as speakers who reached out to community groups.
- School children were taught about both surface water and ground water quality.
- A diverse group of citizens became "water tasters".
- "Ambassador Neighborhoods", supplied with the new blend of surface and ground water, became advocates for the change.
- Public service announcements and advertising on radio and television publicized the proposed changes.
- Substantial efforts were made to ensure Tucson Water employees were well informed.

D. El Paso Experience

Ed Archuleta

Ed Archuleta, Director of the El Paso Public Water Utility, presented El Paso's experience in using water from the Rio Grande as part of their drinking water supply.

Rio Grande water quality at El Paso is much poorer than at Albuquerque. He explained how purification processes similar to those proposed in Albuquerque have made the water safe and aesthetically acceptable. He outlined the growth of the El Paso system, which has placed heavy emphasis on using reclaimed wastewater for aquifer recharge. The system has overcome the challenges of dealing with topography that separates the east and west sides of the city, as well as rapid growth over a long period of time.

III. Community Dialogue

A. Panel Discussion

(Note: These are not verbatim, but instead a summary of each panelist's remarks and responses to questions from the audience prepared by Shared Vision based on transcripts)

F. Lee Brown, Professor Emeritus of Economics, University of New Mexico and Past Chair, Middle Rio Grande Water Assembly, a nonprofit organization concerned with the development and implementation of a regional water plan for the Middle Rio Grande Valley, moderated the panel.

EACH PANELIST HAD SEVEN MINUTES TO ADDRESS THE FOLLOWING QUESTION:

From your point of view, what do you believe are the two most important issues to address in the implementation of the drinking water project described this morning?

(Left to right) Mike Bitner, Lee Brown, Joy Nicholopoulos, Pete Maggiorre (rest of eight-person panel photo not available)

1. Project Issues

Joy Nicholopoulos, State Supervisor, New Mexico Ecological Services Field Office, US Fish and Wildlife Service

The US Fish and Wildlife Service is the principal federal agency responsible for administering the Endangered Species Act (ESA) concerned with species and the habitat on which those species depend. Under the Fish and Wildlife Coordination Act we are concerned with any net loss of fish and wildlife habitat. There are two federally listed endangered species affected by the Drinking Water Project—the Rio Grande Silvery Minnow and the Southwestern Willow Flycatcher—and many others not listed that could be affected by the drinking water project. We are concerned

with habitat enhancement and hydrological issues involving the amounts of water before, during commencement of the project, and after completion.

The Fish and Wildlife Service will conduct a complete Section 7 consultation under the ESA for listed species, and an analysis under the Fish and Wildlife Coordination Act concerning the non-listed species. Two areas which we will examine very closely involve the 15 miles between the withdrawal and return that will be impacted, and the fish passage structure presented here today.

Pete Maggiorre, Cabinet Secretary, New Mexico Environment Department

The city's decision to divert the San Juan-Chama water is an exciting and challenging task the best local example of the integration of water quality and quantity. My agency will continue to evaluate the quality of surface water in the Middle Rio Grande and in conjunction with the New Mexico Water Quality Control Commission, review its surface water quality standards. In addition to testing and oversight of the drinking water project itself, we review EPA permits for facilities and municipalities which discharge to the Rio Grande and are in the process of establishing a pollutant budget. We will review and comment on the draft EIS for the drinking water project.

A significant percentage of the flow in the Middle Rio Grande, especially during low flow times, originates from wastewater treatment facilities. Bernalillo discharges about a half a million gallons per day; Rio Rancho's number three plant about three quarters of a million gallons per day, and number two plant about two and a half million gallons per day, with a planned expansion to about four and a half million gallons a day by the year 2004.

The discharge permits issued by EPA protect the ability for this water to be treated adequately by the City of Albuquerque. A contingency system is needed that enables the facility to be shut down if there is a plant upset or if there is some other water quality condition in the river making it non-advantageous to operate. The other issue related to water quality and quantity is that of storm water events. The quality of the storm water that goes into the Middle Rio Grande needs continual monitoring. We are involved in establishing a Total National Daily Load (TNDL) or pollutant budget for this portion of the river.

Steve Harris, Chairman of Rio Grande Restoration and the Alliance for the Rio Grande Heritage

Steve Harris, Chairman of Rio Grande Restoration and the Alliance for the Rio Grande Heritage and a long time advocate for restoration of the Rio Grande, both in its lower reaches where it is a border between Texas and Mexico and the upper reaches which include the Middle Rio Grande Valley, has concerns about whether the overall project is sustainable.

I have concerns about upstream water quality and increasing watershed related runoff from the recent Dome fire that seems to be putting hot chemicals into sediments in Cochiti Reservoir. I don't have time to talk about whether the treatment technology that's being proposed is the most effective, or whether it will have to be redone later. There are newer technologies than those proposed. Another issue is whether the river plant can really be turned on and off easily and what the costs would be.

"The real problem is not that we're going to be taking a little bit off the top of the river; the problem is that we are sticking a new straw into a water supply that is already beleaguered. It would be a great failure for this valley and this state to have the latest extinctions under the ESA."

– Steve Harris

Due to time, I'm also not going to mention the many things that the City of Albuquerque is doing right, but I appreciate the opportunity to be here, that the decision making process is open and that so many of you are here wanting to participate. I think it's very important and I want to thank the City.

Instead I will address the questions of whether the preferred alternative actually protects the river and the way we make decisions about how to provide drinking water. The preferred alternative has some impacts. Approximately 44,000 acre feet of water available to the river system will be pulled out at the Paseo bridge. An engineering study by Bill Miller shows that August and September are the times of the year that the river contains the highest proportions of San Juan-Chama water. The supplement that has been provided by this water is most important at the time that the river is the lowest, the runoff has receded, and people in Albuquerque are desperately trying to keep their lawns alive. This is the highest demand time of the year. However, I would not dispute that the city has the right to develop this water supply.

The City is not only proposing to take just the 44,000 acre feet; they're proposing to take quite a bit of native water along with it, proposing to double their diversion; a hundred thousand feet from the river certainly does have an impact that has not been adequately addressed.

The real problem is not that we're going to be taking a little bit off the top of the river; the problem is that we are sticking a new straw into a water supply that is already beleaguered. It would be a great failure for this valley and this state to have the latest extinctions under the ESA. The minnow is telling us that we have a river system that's in trouble on a number of fronts. The city of Santa Fe proposed to put a straw in and take San Juan-Chama water out of the Rio Grande; Los Companas Development proposes to stick a small straw in and pull San Juan-Chama water out. Some of the communities upstream in this valley perhaps have eyes on the new surface water project.

The hatcheries and fish passage structures have been described as a way of dealing with the endangered species at this diversion point, but even for salmon, they have not been proven effective. Hatcheries do not save salmon; they have not brought salmon stocks back together. Fish passages for so small a minnow have not been proven.

There is no time to talk about how we make decisions, but I want to mention the report by Bill Miller that proposes we take a new look at some options that were among the 32 that were winnowed down to the present three alternatives. The proposal is to use southside waste water treated and recharged at the Tijeras Arroyo. This proposal was rejected because the City data showed that there were only about two feet per day of recharge occurring from the small ponds in the bed of the Tijeras Arroyo; in fact, a USGS study showed that there are about 60 feet of recharge.

This alternative was also rejected because of legal uncertainties with aquifer storage and recharge. One of the panelists pointed out this morning that we now have legislation supported by environmentalists and tribes to make recharge and recovery of groundwater possible and legal. The other issue that probably killed this alternative originally was public resistance to the idea of drinking recycled wastewater. In fact, there are a number of communities that have solved this problem with water treated to drinking water quality. The issue just raised about a possible superfund site in Tijeras Arroyo would be a problem generally for aquifer contamination, not just for recharge basins.

John Gaston, member and former Chair of Environmental Protection Agency National Drinking Water Advisory Council; Vice President of Board of Directors of American Water Works Association.

Your drinking water program increases reliability by using both groundwater and surface water so that if there is a problem with one, the other can be used. This is a holistic approach considering both quality and resource needs. I applaud you for looking into water recycling as an irrigation concept and for looking into aquifer storage and recovery technology as an effective way of implementing conjunctive use. This involves taking water in the winter that's not being used, putting it in the ground and taking it out in the summer when you have additional demand.

Tom Turney, State Engineer, has supervisory responsibilities for the measurement, apportionment, and distribution of the waters of the state has set a goal to develop a water resources strategy that protects existing water right holders while addressing the growing population pressures on New Mexico's limited water supplies.

On a worldwide basis, water is coming to be recognized as a critical issue. Wars in the Middle East are being fought over it. The New York Times this last week talked about water replacing oil as the new liquid gold. Water is critical to the existing population as well as the future development of the City of Albuquerque. Albuquerque is on the right track and needs to fully develop and use its San Juan-Chama water as soon as possible in order to protect it and reduce the unsustainable use of local ground water.

I commend John Stomp and your staff for an extensive, effective and multi-faceted conservation program. The City's 23% reduction in water per capita consumption over 6 years is excellent, but ultimately the goal may need to be set even lower than 175 gallons per capita in total consumption. The Middle Rio Grande is fully appropriated and New Mexico faces substantial challenges in keeping its total consumption within its Rio Grande Compact allocation. Much of this water is consumed by evaporation from the river environment and Elephant Butte Reservoir. Any new use of surface water requires use of the equivalent amount of surface water to be discontinued.

As soon as we receive the application to begin diverting the San Juan-Chama contract water, we will begin the statutory public notification process. The State Engineer can approve this application if it is determined that it will not impair existing water rights, is not against the public welfare, and is not contrary to public or city conservation of water within the state.

Susan Gorman, City Indicators Progress Commission, described the role of the Commission in measuring progress toward city goals. One of the goals is protecting and enhancing Albuquerque's places and natural environments--mountains, river, bosque, volcanoes, arroyos, clean air and underground water supply, as measured by use of renewable versus nonrenewable sources of water supply.

We have been depleting our aquifer at an alarming rate and if this continues we will be faced with increased costs to pump and purify the deeper water, land subsidence, and eventual exhaustion of the aquifer. The Water Resources Management Strategy has been developed with plenty of input from the community and we need to implement it. The Strategy contains a graphic seen several times today that shows projected water demand at 2050. It shows that by 2040 or so we'll need to

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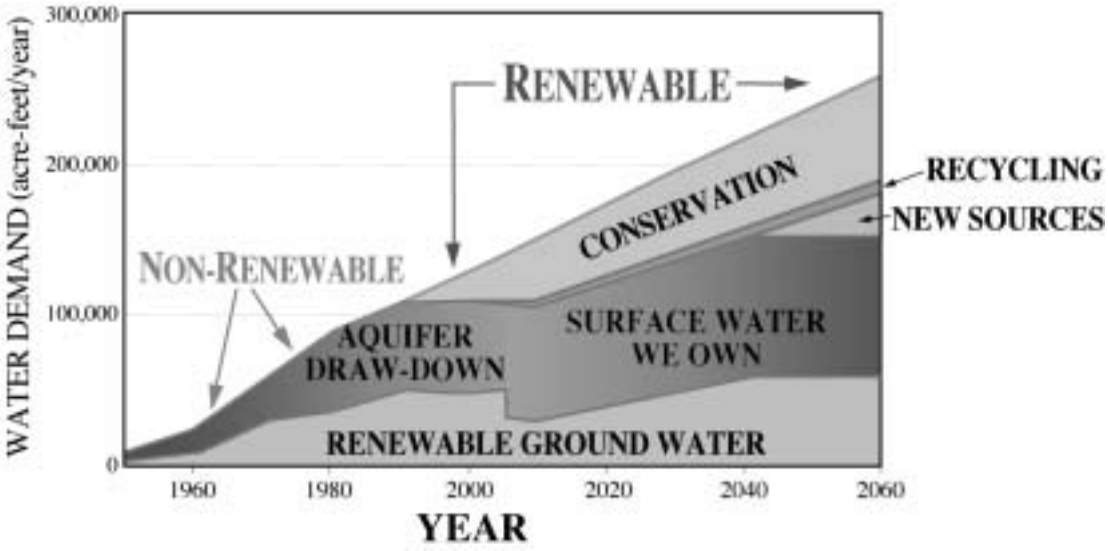
– Tom Turney

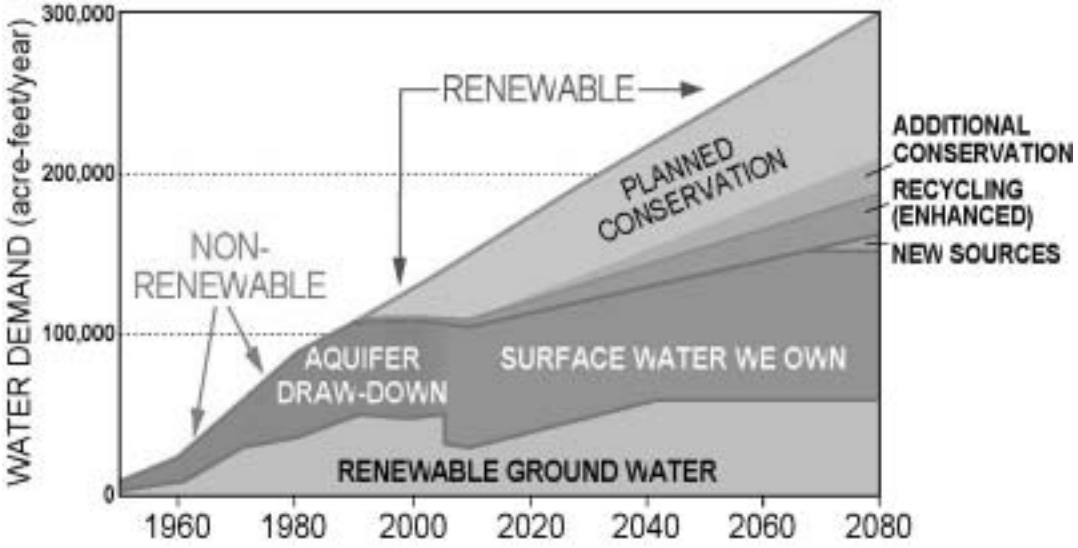
We cannot continue to mine the aquifer without causing irreversible damage and lost capacity as well as damage to the river and the bosque. Continuing to pump faster than the recharge rate means that we will lose it all.

– Susan Gorman

find other sources of water, unless we do more conservation and water recycling. The major variables determining actual water consumption 50 years from now are the number of customers served and per capita water use. We have many opportunities to influence these variables through our personal actions. After several years of reduction, conservation efforts have stalled at 23% and we didn't make any progress during 2000. If any of you do not know what actions you can take to conserve water, just ask a fourth grader.

The rate of population growth used in the Strategy is 1.1% per year. The actual sources and rates of population growth depend on decisions that we all make about moving to or away from Albuquerque, and also decisions that are made in our bedrooms, the growth management policy, subdivision approvals, road construction, economic health, and many other factors. A lower rate of growth combined with lower per capita use will postpone the day when we must resume mining the aquifer.





I am most concerned that community complacence will overtake us when we turn on our taps and start using the San Juan-Chama water. We may breathe a sigh of relief and believe that all our water problems have been solved, forgetting that

we must continue to conserve, to manage growth, and to give the river and bosque a fair share of the water. I'm also concerned that blind faith will cloud our vision, and that we'll sit back and leave it to the engineers and water managers to incorporate design elements, construction and operation practices into the implementation of the project-- to provide water for the river, the bosque, the minnows, the farmers and all the other communities with whom we must share scarce water resources. I do not believe that we must choose between a healthy bosque and river and water to drink; I think we can have both if we do this right and if we all participate.

We cannot continue to mine the aquifer without causing irreversible damage and lost capacity as well as damage to the river and the bosque. Continuing to pump faster than the recharge rate means that we will lose it all.

I look forward to reading and offering my comments on the Environmental Impact Statement (EIS) and hope that each of you will do so too. The EIS will provide specific information about the impact of each alternative as well as impacts if we do not act. Let's make a promise to not succumb to community complacence or blind faith; let's proceed together, participate in the EIS process to build the drinking water purification facility and divert the San Juan-Chama water with careful management. Let's increase conservation and get serious about both managements. Let's be an involved and caring community and do this right.

The City's 23% reduction in water per capita consumption over 6 years is excellent, but ultimately the goal may need to be set even lower than 175 gallons per capita in total consumption.

– Tom Turney

John Stomp, Water Resources Manager, City of Albuquerque and Mike Bitner, Project Manager, CH2M HILL, commented on the panel discussion. They emphasized the need to protect and preserve the aquifer and the need to take responsibility for meeting these challenges and continue to balance the range of community values as the project moves forward.

2. Questions from the Audience

How will using surface water change water quality? Will it improve the hardness? How will it affect arsenic concentrations?

John Stomp -Water quality in the river will not be much different than it is in the aquifer as both have the same source in snow melt; but we will see a significant reduction in arsenic. Arsenic in the stream system is about 6-8 micrograms per liter, which is below the proposed Federal standard. The city will be able to save about a hundred million dollars initially on arsenic treatment costs.

If there is a surplus of San Juan-Chama water that's not used, could that water be injected back into the aquifer?

Mike Bitner - The plan is for the City to treat and inject surplus water into the aquifer in the winter months when customers' demand is lower than the capacity of the treatment plant, then to pump it out the following summer when peak demands are high again. This would be done by gravity through injection wells.

How is the 50% return flow number set? Does it include return flow from Kirtland or other non-City customers?

Tom Turney - The 50% return flow credit is an estimate based on measurements done many years ago. The State Engineer gives return flow credit upon what you actually return, which may be higher or lower.

John Stomp - The City's return flow has been metered for years and the actual flow to the river is about 52-54% depending on how you measure it. We do benefit from non-water system providers like Kirtland Air Force Base and UNM that discharge wastewater to the City's system. But that return flow credit offsets their own pumping against the same aquifer.

Do you (Steve Harris) recognize the fact that during the past 40 years we have created two tributaries to the Rio Grande that were never part of the natural surface flow system-one, the San Juan-Chama Diversion and two, the return flow from the treated waste water produced by mining the aquifer?

Steve Harris - Yes. There's a third tributary that's been created, from groundwater of the San Luis Valley, a closed basin project, and the natural system is dependent on it. There are technical issues regarding amount of wastewater return flows, recharge, and amount of water coming from the river into the aquifer. Diverting less is probably the only objective that will work to the benefit of river flow. When we're doubling the diversion and take out a hundred thousand acre feet to get out 50,000 acre feet of benefit, we need to consider the cost to the diversion.

What is wrong with the Angostura dam alternative, especially since it is an existing facility?

Mike Bitner - The problem is that it can't be used just as it is. Because we can't just screen out the 94,000 acre feet of the City's water, we have to add a fish screen and fish bypass structure in order to screen out all of the water that's diverted at Angostura and that becomes a much larger and more expensive construction effort. There is also limiting capacity in the existing conveyance works between Angostura and Albuquerque so you end up with huge construction costs in retrofitting and expanding the capacity of the canal drain and siphons. Finally, there is already concern about the 15 river miles of slightly reduced native flows; if we took the water out at Angostura you would add another 27 miles to that reach of river. Then there is the small matter of crossing three or four sovereign nations.

How were the 135 CFS and 70 cfs cut off points for diversion determined? Might they be changed?

Mike Bitner - They might change based on the outcome of the EIS. They were arrived at as a first cut lower threshold that we thought would provide enough water to maintain a wet river between the diversion point and return flows downstream of the diversion. The biologists, including US Fish and Wildlife, are taking a hard look at just what the impacts of those set points will be, and the thresholds could change.

How is the City dealing with antibiotics and estrogen found in river water? How will you monitor radioactive wastes that may flow downstream? Aren't we already drinking wastewater of Rio Rancho and Santa Fe?

John Gaston - The treatment process using biological activated carbon will take care of any contaminants. The water quality fingerprint produced by the water treatment facility will be very close to what you already have in ground water. There's probably no molecule of water in the world that hasn't passed through wastewater discharges one or more times. Public health will continue to be protected.

Pete Maggiorre - Regarding the pharmaceutical piece of the question, nationally this is a new and emerging issue and New Mexico is on the forefront in determining what is out there and what are the concentrations. You can see a preliminary report on our website www.nmeav.state.nm.us. We're seeing some compounds in the parts per trillion range. The conventional wastewater treatment technologies do not treat some of these compounds, but as John Gaston indicated the activated carbon in our water treatment scenario is very effective for most.

Do we need more public education and what is effective?

Susan Gorman - Yes. Education in the schools is being provided by the City of Albuquerque, Rio Rancho and Los Lunas. My organization coordinates the Children's Water Festival in which 925 students 10 or 11 years old participated in 2000, and they will be more knowledgeable citizens 10 or 15 years from now. The turnout today is wonderful, but it's a small percentage of the total water users in Albuquerque. Most people just expect that water is always going to be there when we need it.

Steve Harris - In my capacity as a river guide, I see that the relative level of sophistication about growth and water issues among people from Albuquerque is quite high. They are covered in the newspapers and people want to talk about them; these issues are at the top of everyone's radar screen.

Joy Nicholopoulos - Public outreach should be increased, and the Fish and Wildlife Service is very active in educating the public on endangered species and habitat needs. New Mexico is quite sophisticated in its knowledge and most people realize that both human and species needs can coexist in this project with proper coordination.

How will canoeing and fishing be affected?

John Stomp - Because we'll be next to the Paseo bridge we'll have an opportunity to work in some recreational amenities and other public amenities such as restrooms and water fountain. We'll have the opportunity to create an environment that has recreational opportunities we can use and enjoy here in Albuquerque.

What is the estimated life expectancy of the adjustable height dam and what is its maintenance history? Have other communities used it or is this the first? How difficult is it to repair or replace?

Mike Bitner - These are in use all over the country now. They are durable and sturdy so they last for quite a while. It has a modular construction so there are a series of different balloons or pillows that can be replaced in sections at a time without losing its operation.

How do the fish know where to go?

Joy Nicholopoulos -Silvery minnows like slow, mossy water-all kinds of backwater calm areas. So if the fish passageway is built with habitat that is conducive to the natural needs of fish, they will seek it out.

Will the dam always be inflated when the diversion is in operation?

Mike Bitner - Most of the time, maybe 8 or 9 months of the year, it will be elevated somewhat. When the natural flow is highest, the dam can come down all the way.

How far upstream will the water back up?

Mike Bitner - It depends on how high the dam is raised but probably on the order of a few thousand feet at the most.

Do the costs quoted by you include the purification plant and recharge cost? If not, how much extra cost is associated with all the elements?

Mike Bitner - The cost estimate is between $170-180 million dollars, including the facilities, the diversion, the raw water conveyance to the treatment plant, the treatment plant and the transmission pipelines out into the system.

What would the average household experience in the way of rate increases? Are you considering rates that would encourage conservation without adversely affecting low income households?

John Stomp - The Water Strategy financial plan adopted by the Council in 1997 included a set of water rate increases to make sure that the revenues were available over time. The average water and sewer bill quoted in the Strategy was about $33 before the Strategy and about $43 after the increases. In addition to a fixed charge, the rate increases are based on the amount of water used in order to encourage conservation.

This is referred to as the Drinking Water Project. What percentage of this water is actually consumed for drinking, what percentage goes on turf, and what percentage is for general household use such as washing machines and toilets?

John Stomp - As shown on our website, about 60% of our use is indoor and 40% is outdoor in an average household. We have several reuse and reclamation projects that will allow for non-potable uses on large turf areas throughout the city, which will affect that percentage as the use of high quality drinking water on turf declines.

The City will need to expand the wastewater treatment facility. Why not put this facility just south of the withdrawal site? That way 15 miles of river would not have reduced flows.

John Stomp - In evaluating the location of the diversion facility we looked at many different options and held a series of workshops with regulators. Moving the diversion point further down by the wastewater treatment facility significantly increases the costs to pump that water up and increases the amount of construction and impact on the bosque because of the amount of pipes through the bosque and the river corridor which would be needed to get water back up to the surface water treatment plant.

What impact will this project have on irrigation costs for downstream farmers? How will flow through the city's ditches be impacted?

Tom Turney - There should not be much impact on irrigation because the water we're using is the San Juan-Chama water and the flows in the river will change so slightly that we would anticipate only very minor changes in the adjacent drains and ditches.

John Stomp - One of the requirements for approval from the State Engineer is that we cannot impair the water rights of the conservancy district or pueblos and other downstream users. We must address that issue in our permit in order to avoid costly litigation.

Agriculture consumes much more water than any other sector. What is being done to encourage more conservation techniques and methods as well as conservation by other sectors?

Tom Turney - Practically none of the turnouts are metered in the Middle Rio Grande. In other areas, water consumption went down when turnout meters went in because people knew how much they were using. Metering could be implemented here for a cost of about $220,000, but no one is pushing to do that. Both of these questions are addressing likely impacts to the operation of the MRGCD within the city; there will likely be great adjustments required.

Please summarize the coordination with MRGCD on this project.

John Stomp - We have been coordinating and it's in our long term best interest to continue a positive working relationship with our partners at the MRGCD.

Why is the city going to buy land for the new treatment plant before the EIS is done and the planning and approval process is complete? It sounds like the decision has already been made to adopt the San Juan-Chama Diversion alternative.

John Stomp - We identified 16 sites and narrowed those down to 4. We had public input on the location and the public told us that it should be located in the NE heights by the gravel pit, which will take care of an existing air quality problem. It

makes sense to buy the site as quickly as possible because land prices don't go down, and there are limited sites available. The plant has to move forward and whether we do a diversion dam at Paseo or someplace else, we need the land and need to provide for that now.

Please respond to the issue raised by Steve Harris, that new technologies are available and that re-use will protect the minnow.

Mike Bitner - We evaluated every option and looked at some 20 different approaches that combined different technologies. Even though there are some newer technologies than what we contemplate for the purification plant, we've arrived at the most conservative and appropriate solution.

How can a water supply plan be complete without addressing limits to growth?

Susan Gorman - City departments have specific responsibilities and the job of the water department is to deliver water. It doesn't mean that it isn't somebody's job to think about growth management, and we should all think about that. Once this project is done, we'll know exactly how much water we have now and into the future and so it should be easier to look at how many people can live here depending on the amount of water that we want to use per person and address that as a community.

Mike Bitner - The City is developing a growth management strategy, and we've taken that into account in our forecasts. Since half the aquifer is not being replenished, we need the drinking water project now regardless of the growth rate in the future. If the growth rate is slower than what's projected, then we can defer the need to acquire more sources of water or defer the point at which we have to start mining the aquifer again.

Steve Harris - I'm a great believer in the self-fulfilling prophecy. If we continue to advertise that we have all of these wonderful amenities, we will encourage in-migration. The reality of the water supply is that we're scrambling; 1.1% per annum is a huge growth rate and is not sustainable. When I go out into the community and talk to folks, this is what concerns people.

How is water use planning being coordinated with growth planning? If it's not the responsibility of the water resources utility, where is it?

John Stomp - The City's planning department is in charge of the planned growth strategy and the City Council will release a plan soon.

How can we help the City provide additional water for the silvery minnow through enhancements projects over and above the regular flow?

John Stomp - The City has provided a significant amount of water to the conservancy district over many years for the minnow. If we are not able to provide water in a particular instance for habitat, we can help by providing a refugium or captive breeding.

What are the safety issues for neighbors at the purification plant with respect to chemicals and transpore residuals?

John Stomp - The purification plant will be a light industrial facility and we will follow all federal, state and local regulations in delivering and storing chemicals. We have and will work with the neighborhoods so they know exactly what is being stored at the site and what the potential hazards are. The treatment plant will be very safe.

How are we coordinating with Rio Rancho and other regional water users?

John Stomp - We are participating in the on-going effort to create a Middle Rio Grande Regional Water Plan. This plan will address many issues similar to what Albuquerque is facing, for all communities in the Middle Rio Grande.

Pete Maggiorre - We've recently created a Middle Rio Grande water quality standards work group. The State of New Mexico establishes surface water quality standards only for the segments of the river that we have authority over, but we don't have authority to set standards for the pueblos and they often adopt standards that are quite different. In addition, the Federal government issues permits for municipalities to discharge into the river. There's a high need to understand the needs of the sovereign nations and integrate water quality standards to make the framework along the Rio Grande more predictable and less litigious.

Regarding the Angostura Dam, is it necessary to build fish bypass and strainers whether or not we use the dam for the Albuquerque water project?

Joy Nicholopoulos - Yes, fish passages on all diversion structures are necessary. We would hope that they would already be in place because the silvery minnow is critically imperiled and last year it was on the brink of extinction. Angostura is one that we need to look at in the near future.

Is the San Juan-Chama water arsenic-free?

Pete Maggiorre - No. There is naturally occurring arsenic but less than the concentrations in our local groundwater.

The refugium seems like an excellent idea for the bosque. I would like to hear more about it and the environmental improvement of the bosque.

Joy Nicholopoulos - The refugium is a captive propagation facility and although we support all efforts at captive propagation, we can't forget the naturalized areas in the river and should not forgo protecting the river by building artificial refugia where the minnow can survive. This is augmentation; it is not the solution. The minnow needs to survive in the wild in the river. We wholeheartedly support all efforts that will assist in repopulating areas where we have captive propagation, but that is not the solution to keeping a healthy river and the silvery minnow in that healthy river.

Steve Harris - At the times that the dam is elevated, it might be possible to use that 2000 ft. pool behind the dam to get it up and over the banks of the river and if that occurs in May and June when the cottonwood seeds are flying, cottonwood regeneration might be a possible result of about 1/4 of a mile section.

John Stomp - One of the issues we're going to talk about in the breakout sessions is what is important to the participants and how we can prioritize the enhancements for the project. When we have peak spring runoff in May and June we'll have an opportunity to raise the dam and provide flooding much more significant than a thousand or two thousand feet. Mike was talking about the pool of the dam during low flow periods. Enhancement is a long-term program aimed at removing non-native species and restoring the cottonwood forest as it once was. Read the Bosque Biological Management Plan. The bosque is not a healthy ecosystem even though we've had more water in the system over the last 15-20 years than ever in the history of the Rio Grande. Restoring health means other things besides water-periodic flooding, reduction in the inside channel inlets, removal of non-native species. We have an opportunity to do these kinds of things to enhance the bosque and make it more healthy and productive and an asset to this community because of this project.

Steve Harris - If the dam goes up three feet, it's not going to flood much.

John Stomp - What we're proposing is to cut out the river bank all the way to Alameda Bridge. When you have high peak spring run-off of 2000-5000 CFS any blockage is going to help spread out that flooding over a longer stretch of the river.

How do scientists differentiate between historical projects on the Rio Grande and this project as they relate to impacts on endangered species? Does this have to do with the baseline question you were talking about earlier?

Joy Nicholopoulos - The Fish and Wildlife Service under the Section 7 analyzes the environmental baseline for all species. All local projects should be included in that baseline, so you can determine what project impact occurred on species, species' habitat, and species' potential to reproduce. We include anything that has occurred previously in the environmental baseline and examine the difference between that state, where we are today, and where we would be with the drinking water project.

Steve Harris - The environmental baseline is quite impacted in this area; it also includes radical recent changes resulting from the Cochti Reservoir. One key reason the bosque is dying is the sediment in the river. The river simply doesn't have enough water to move its sediments and spread them around anymore, and this is an large ecological question. We are in the process of deciding how to manage and keep a bosque, and it's going to be up to the citizens to say whether or not this is a priority.

B. Results of Break-Out Groups

Participants had a chance to give their input during eight break-out discussion groups which met for two hours in the afternoon to address key questions about the implementation of the project and how it might be enhanced. Each group reported out their key findings at a plenary session. The following is a summary and analysis of results of these discussions with priorities indicated based on voting within the group and/or reporting out by that group.

Susan Gorman, reporting out group results

Two-thirds (66%) of the participants were in favor of moving forward

1 Attitudes about moving forward

Question #1 asked whether the City should move forward with implementation of the preferred alternative using the adjustable height dam.

Two-thirds (66%) of the participants were in favor of moving forward; an additional 19% were undecided or gave a conditional approval; and 15% said they were opposed. People were undecided because they wanted more information and/or wanted to wait until the environmental impact process (EIS) had been completed.

Reasons in favor of moving forward with the adjustable height dam (66%)

The majority of participants supported the City's use of the San Juan diversion in order to "save the aquifer," reduce arsenic levels, and "provide a sustainable source of water for the future."

■ COST, TIMING, AND LEGAL ISSUES

Most thought the adjustable height dam was the best of the three choices. Half the groups cited lower cost as an important reason for their support. This is the "cheapest, most cost effective alternative." It is "affordable, cost efficient."

Many also expressed a need to move quickly with a solution that would work. "The proposal seems reasonable, doable, time efficient." The City has to "use or lose"

its San Juan-Chama water. "We need to take action now." The adjustable dam avoids having to cross pueblo land and can be immediately implemented. These groups were satisfied with the analysis that had been done, and thought that exploring other technical solutions would take too much time. "We have to do something, and this seems the best of the alternatives presented."

■ TECHNICAL SUPERIORITY

Participants thought that "The engineering and hydrology make sense." This is a "well worked out, thoughtful plan." Specific technical reasons for supporting the adjustable height dam rather than the underground collectors or the Angostura dam were as follows:

- ***Flexibility*** in responding to stream conditions. "The movable dam is such a unique thing." "It has the ability to be moved up or down and adjust to different river flows." "Diversion can be done in a creative way that improves the river environment.
- ***Reliable Maintenance.*** The Rio Grande is very sedimented. The underground alternative seems to have problems with clogging, and would be a maintenance problem (20-25 ft. deep) "The dam can't clog with silt like in-stream wells would."
- ***Less intrusive on the bosque and river.*** Construction of the infiltration pipes would be too disruptive to the river and bosque. The dam would divert water for a shorter distance than Angostura, maintaining the flow levels further upstream. The dam "is the only alternative that provides for overbank flooding for the bosque in Albuquerque."
- ***Other Reasons*:**
  This option more easily channels water for the silvery minnow, and allows for river recreation.

■ Some supported moving forward but thought that a conservation package should go along with the project. "We need to divert water, but people shouldn't have the idea that they can use more water."

Reasons for being undecided about the dam (19%)

■ NEED FOR MORE INFORMATION, MORE STUDY

The most prevalent reason given for being undecided is a perceived need for more information and a related concern about moving too quickly. "This is premature." "There are too many issues left to cover in order to decide." Participants saw the environmental impact statement (EIS) process as an important next step. We "can't proceed without the EIS." "The process required in the EIS would confirm whether this is the best alternative."

Participants identified the primary issues to be resolved as:

- Impact on the endangered Silvery Minnow. - Need for proving that the minnow would be able to navigate the dam.
- Bosque - Need for a firm commitment that the City will make the bosque

habitat more healthy, and not "gut" the river

Other issues on which people requested more information were:

- Impact of project on river - hydrology of river between diversion and return points
- Historical data
- Baseline hydrological assessment, baseline information on connection of aquifer and the water table.
- More information about water control, metering, water volume for irrigation
- Information on water quality before and after discharge
- More information on sediment precipitation through modeling.
- Acres impacted in bosque
- Information on water treatment facility - process, flow, quality standards and how the water will be treated to bring it to drinkable standards
- Release of stored water - How much is the City planning to release and where? How big will the diversion be? 100 cubic feet per second (cfs)? 300 cfs? At what point will you divert?
- Safety - If there is a need to shut down, how many days of protective water supply will there be?

Alternatives Analysis Process

Some wanted to see the entire study of alternatives and revisit the process used to reach the preferred alternative. The option most frequently mentioned as needing more analysis was that of using underground horizontal collectors and the idea of "rainy collectors" that are raised up. Possible benefits to be looked at were: higher quality water, flushing out with reverse pumping, and fish/ wildlife advantages. "There is good cost comparison with upstream alternative Angostura - but what about this 3rd option?"

The other alternative mentioned as needing further exploration was that of injecting San Juan Chama water or treated water back into the aquifer.

Reasons for being opposed to moving forward (15%)

■ Impact on the river

Some participants saw the preservation of the river as an overriding concern and questioned the impact of diverting native water to be returned 16 miles downstream. "The time when the water is most needed for the river, is when it is most needed for city users." "There would be a huge difference in impact depending on the flow and the plan to use San Juan-Chama and native water."

Two groups out of eight thought that the diversion itself should be reconsidered: "We need to ask basic questions, need alternatives to diverting the water." Some in these groups were opposed to constructing any kind of dam. "There's nothing that can be done to make me feel happy about an additional dam on the river."

■ Need to Conserve More

Some were concerned that the availability of more water could make the community complacent and less motivated to conserve. "Will this make people save less?" "The heat will be off, essentially." Two groups wanted increased conservation

of existing water sources-including recycling and recharging--to be considered as a viable alternative to diverting the river. "Conservation should come first. The diversion should be a source of last resort."

■ **Growth Impact**

Some participants feared that the project would open the door for more development and growth putting more pressure on over-extended resources. "If we build it they will come."

2 Actions to be Taken

Question #2 asked participants to suggest actions to minimize potential negative impacts and increase the benefits of the project so that it addresses concerns and adds value for the community.

This discussion yielded a long list of constructive ideas, which for ease of reading, have been grouped by Shared vision into categories or themes. The first four themes listed have to do with immediate actions that can be taken to enhance the project.

THEME #1 - ***Design the withdrawl facility to minimally impact the environment. Incorporate educational, environmental, recreational and energy saving features into the design of the new facilities. Pilot the plant as an observation/ learning environment. (7 groups, 7 priorities)****

**Note: The relative priority from the town hall is indicated in parentheses by the number of groups that came up with that idea and the priority they gave it. No reference means that the idea came from one group but they did not list it as a priority.*

The water treatment plant should be an educational asset as well as serve an engineering purpose. It should be integrated with recreational features (e.g. the nature refuge and bike paths). *(7 groups, 2 priorities)* Educational and recreational elements that could be incorporated include:

- Windows for viewing the operations
- Demonstration of water returned to the aquifer
- Fountain with river water
- Use of water conscious landscaping

The facilities should use ecological or "green" construction materials (e.g. wood and adobe), and alternative energy sources, e.g. solar power. The dam should be self sufficient in its use of energy. *(4 groups, 2 priorities)*

Once the facilities are in operation, they should be offered to the community as a teaching tool: *(7 groups)*

- Conduct educational tours to educate the public about the functions
- Offer teaching spaces and study programs about water and energy conservation and other water issues.

THEME #2 - *Fully utilize the adjustable aspects of the dam to reduce the negative impact of the diversion, enhance the river environment, and accommodate changing conditions (5 groups 4 priorities)*

The adjustable height dam presents an opportunity to adjust to different water flow situations. There was some debate on the flow conditions related to the timing of diversions considering the native water level needed to maintain habitat. One group pointed out the additional need to fully "use or lose" the annual quota.

- Manage the dam to be sensitive to and retain the river's natural flow regime and reduce impact of the diversion on the river. *(4 groups, 3 priorities).* Establish a high low-flow threshold higher than 70 cfs *(2 groups, 2 priorities)*
- Use the dam to manage sediment; flush sediment by the timing of dam releases to increase aquatic habitat *(1 group priority)*
- Use full annual quota *(1 group priority)*

Further investigation and on-going monitoring is needed to establish these numbers and conditions for diversion.

- Analyze when is the best time to divert and not to divert and the % of time annually *(2 groups, 2 priorities)*
- Model the impacts of a dam on sediment.
- Continually monitor fish and water in the river for public reassurance to make sure everything is functioning as needed. *(2 groups, 1 priority)*
- Keep researching and incorporating the latest and best technologies.

THEME #3 - *Maintain and improve the condition of the bosque generally and during project implementation. (7 groups, 6 priorities)*

Preservation and restoration of the health of the bosque is a strong value common to all of the groups, who hoped that periodic flooding made possible by the adjustable height dam could help to restore the bosque.

- Use the dam to help conserve the bosque; encourage and mandate overbank flooding to restore the bosque and cottonwoods *(6 groups, 6 priorities)*
- Conduct major restoration and reparation of the riparian area impacted by the diversion below the point of diversion to the point of return *(1 group priority)*
- As part of the construction project, eradicate high water use, non-native species (salt cedar, Russian olive, exotics) and replant, restore native species (Cottonwood) *(5 groups, 5 priorities)*
- Revise zoning to prohibit building in the bosque floodplain *(1 group priority)*

One group spent time detailing ideas for a new organization formed for the purpose of taking citizen based initiatives to restore the pre-development bosque.

- Develop a continuous citizen involvement program for the bosque, leverage resources through partnerships with environmental and governmental organizations *(1 group priority)*

THEME #4 - *Provide enhancements and locate new water facilities to mitigate the impact of the water diversion*

- Support the minnow, include the fish passageway and fish habitat and ensure

that it will work effectively before implementation *(5 groups, 2 priorities)*
- Provide sedentary backwater areas to improve the minnow environment *(2 groups, 1 priority)*

To completely eliminate the 16 mile diversion zone, two groups came up with the idea of co-locating diversion and return facilities and gave it high priority.

- Locate return flows closer to the point of diversion; locate the new wastewater treatment plan in the north valley or west side near the diversion *(2 groups, 2 priorities)*

THEME #5 - *Increase water conservation, enforcement, monitoring and accountability for water usage (8 groups, 14 priorities)*

In order to address the concern that the new sources of water would cause people to become complacent and conserve less, many participants thought that a conservation package should accompany the project. They suggested requiring dual systems in new development, using "grey" water for fire fighting, irrigation and industrial uses. They sought greater emphasis on financial incentives as the preferred method of accomplishing conservation goals.

- City take the lead in increasing conservation efforts with the goal of 150 gallons of use per person per day; new and improved conservation efforts emphasizing philosophy of the precious value of water; include reducing the City's own water usage *(4 groups, 3 priorities)*
- Develop a sustainable water plan for sustaining the river and change a water-wasting lifestyle *(1 group priority)*
- Develop land use and vegetation standards that are more xeric to minimize irrigation use of water; use more high yield, low water crops *(2 groups)*
- Negotiate solutions to agricultural waste
- Require dual water distribution systems in new developments. Use lower quality grey water for non-potable purposes such as irrigation and industrial uses; use deep well water for drinking only; re-use more treated wastewater *(4 groups, 2 priorities)*
- Revise rate structure to reward conservation and penalize waste, with bigger premiums for largest users; revise rates to reflect the actual cost of water *(2 groups, 1 priority)*
- Provide tax incentives and penalties to bring people off wells and on to city system.
- Link water supply with growth planning and establish a "sustainable threshold" for population that water resources will support. *(2 groups, 2 priorities)*
- Educate the community about living in the desert, using the "Desert Life" conservation package from Tucson in schools and public relations activities *(1 group priority)*

Along with conservation measures, there needs to be a more accurate accounting of all inflows and outflows throughout the Middle Rio Grande Conservancy District, including wells and agricultural uses. *(5 groups, 4 priorities)*

- Meter all uses including wells, city and agricultural; use irrigation gates to measure agricultural uses of water more accurately. *(4 groups, 3 priorities)*
- Tax wells for aquifer use and establish accountability.

THEME #6 - *Build trust with the public by increasing two-way communication including all stakeholders so people feel invested (7 groups, 2 priorities)*

People were supportive of the town hall format: "I would like to congratulate the city on having these open meetings so at least some of us are getting informed." The town hall afforded people an opportunity to express their views and resulted in a desire for further information and communication.

Communication with the public should provide for continued open information exchange and interactive format. "This is a massive project." "People have to know who is doing what to whom."

- Increase education, public outreach, and citizen involvement with all stakeholders, so people won't feel "done to" but "doing"; continue to hold open meetings. Improve community communication through open, free 2-way town hall meetings; hold forums with organizations; more input processes. *(7 groups, 3 priorities)*
- Examine all alternatives; examine process for selecting preferred alternative and study for narrowing 32 options *(7 groups, 4 priorities)*
- Involve environmentalists and skeptics, and address their concerns about what this project will do to the Rio Grande.

People had suggestions on messages and approaches to public involvement:

- Standardize measurements and terms (e.g. acre feet per year or cubic feet per second) to enable the public to better understand the project.
- Include ALL aspects of the San Juan-Chama project - including treatment and distribution systems--in the discussions *(1 group priority)*
- Help people understand the ecological basis for concerns about the silvery minnow and the effect on the bosque; show where and how the water travels

THEME #7- *Share responsibility regionally for protecting the river.*

- Emphasize regional education, planning and buy-in, especially for Rio Rancho which has no San Juan-Chama diversion ownership. *(3 groups, 3 priorities)*
- Reach out to everyone affected along the river, especially tribes to ensure that habitat for wildlife will continue.
- Maintain a continuous consistent flow upstream to help wildlife (Heron, Abiqui).
- Work with all communities (MRGCD, pueblos) to develop an aqueduct ditch and arroyo system that includes fish passageways.

THEME #8 - *Connect the community to the river and make it more accessible for recreational use* *(3 groups, 1 priority)*

Some felt that awareness and appreciation of the value of the Rio Grande as a river would be broadened by increasing access for community enjoyment. One group favored enhancing limited areas such as Tingley as a destination with economic benefits (e.g. San Antonio).

- Create a destination for the community, with trails and high quality water uses

THEME #9 - *Ensure a long-term supply of water*

- Buy additional surface water rights. *(3 groups)*
- Initiate a long-term plan for water supplies past the year 2060.

3 Water Quality

Question #3 asked participants how confident they were that the river water will be safe to drink, on a scale of 1 (not confident) to 10 (totally confident).

All groups rated their confidence in the mid to high ranges, with the lowest group average at 5.25 and the highest at 9.4. Three groups had a high confidence level at or above 9.

Groups were not asked to rate their confidence in groundwater versus river water for purpose of comparison, but it may be useful to establish such a benchmark now before the transition begins in order to measure how it changes over time.

Confidence did not increase when participants were told that the treated river water must by law meet or exceed standards required by state and federal regulators in that it must be made safe and aesthetically pleasing to drink; most stated that they had already factored that into their rating.

■ Actions to Increase Confidence Levels

Better testing and reporting.

When asked what would increase their confidence levels, participants most often cited the need for the City to rethink how it monitors and reports water quality to customers.

- Make water quality a priority and keep it at the forefront of public awareness.
- Conduct continuous, frequent testing for all types of contamination *(5 groups, 2 priority)*
- Monitor surface water for drugs or possible sabotage
- Assess and protect source water; monitor upstream discharge
- Conduct random sampling at the tap on a standard schedule

The test results should be communicated often in understandable terms:

- Publish results daily with baseline comparisons to normal safe ranges so the data is meaningful
- Simplify the water report; use standardized terms in communicating

Higher Standards

Another suggestion to increase confidence in water safety is to raise standards, especially higher arsenic standards and Federal funding to help meet them.

Reduce Contamination

Actions recommended to reduce contamination of both surface and groundwater included maintaining the pipes to houses in good condition, reducing the use of chemicals in agriculture and lawns, stricter regulations on private well drilling, industry accountability (no "pollute and pull out" mentality) and more money for groundwater protection.

■ Paying Extra

When asked whether they would be willing to pay extra to enable Albuquerque's water quality standards to exceed those required by state and federal governments, almost all groups answered a qualified "Yes" with consideration for lower socioeconomic levels, citing qualities for which they would be willing to pay more as:

- "Polish" at the tap
- Not have lower quality than we have now
- For lower turbidity closer to groundwater
- For sustainable water supply
- To protect the river

Only one group thought it was not necessary to pay more because the water must meet safety and appearance standards anyway, and one group preferred using a water filter in their home that the City would supply.

■ Qualities of Drinking Water

When asked what qualities were most important in addition to safety, those mentioned by a majority of groups were:

- Good tasting - no change from present water, taste "with character" and "Makes a good cup of coffee"as a reliable test
- Not smelly, odorless
- Clear colorless appearance

Other desired traits mentioned at least once were: no staining or deposits, reliability of service, free of carcinogens, and non-corrosive to pipes.

4 Transitioning to Surface Water

Question #4 asked participants what should be done to prepare the public for the transition from drinking groundwater to drinking river water.

The best preparation is for water quality to "remain as good as it is now" so there will be no complaints to begin with. In addition, participants gave the highest priorities to conducting a public outreach campaign with full media coverage-and secondly to more public input processes and special events introducing the new water supply.

■ Publicity

Adequate preparation of the public for change will require a long term "public outreach blitz" similar to the water conservation campaign and using a variety of venues: newspaper inserts, radio, videos, pamphlets and newsletters, TV, web site, PSA's during prime time; televised programming for 1/2 hour every week, ads on buses and billboards. (This campaign would be especially critical when water bills are rising).

Other suggestions:

- Build a model that shows where water comes from and goes - take to malls and other events.
- Water bill stuffer announcing changes, with questionnaire that is easy to understand
- Testimonials from citizens, celebrities.
- News reports giving water quality updates every day.
- Survey before and after - design public outreach program based on the results.

■ Public input processes

The public should have more opportunities to participate in open town meetings that are free and provide for 2-way communication. The City should "keep communicating with more input processes." Forums, publications, electronic and print communications are needed to continually build relationships of trust with the public.

Participants liked the Tucson approach of creating a speakers' bureau to go out to neighborhoods and other established groups such as senior centers, trade and business organizations and schools, to present clearly what is happening. An educational package on water issues should be made part of the school curriculum.

■ Pilot programs

The transition needs to be managed carefully by conducting adequate testing of small samples first:

- Test impact of treated water on the existing distribution system (priority).
- Conduct taste tests and water sampling programs early on-not for marketing but to determine the cost and quality of the water and modify the water treatment process.
- Consider "Ambassador neighborhood" program modeled by Tucson, in which water is trucked in and tried by pilot neighborhoods.

■ Marketing and promotion

- Hold "splashy" public events and introduce taste (e.g. a "water parade", "water and cheese" parties)
- Give out samples of bottled water at local gatherings and festivals.
- Label bottled water, "This is a precious resource, handle with care."

■ Messages

Giving Reasons - Publicity and presentations should explain WHY it is necessary to use surface water. A theme of "Preserving our Precious Aquifer" would garner widespread public support, combined with information about the San Juan-Chama diversion, water scarcity and increased public awareness about the river and watershed.

Telling People What to Expect - Case studies of other communities' successes can help to reassure people, by explaining that 70% of communities rely on the treatment of surface water for drinking.

Describing Benefits - e.g. the reduction in arsenic content.

Conclusion of discussions