Albuquerque Bernalillo County
Water Utility Authority

Agenda Item No. 9c

Meeting Date: September 21, 2016
Staff Contact: Mark S. Sanchez, Executive Director

TITLE: R-16-12 - Water 2120: Securing Our Water Future

ACTION: Recommend Approval

SUMMARY:
Water Authority staff are introducing the second decade update to the Water Resources Management Strategy entitled, "Water 2120: Securing Our Water Future," which outlines a plan to provide its ratepayers a resilient and sustainable water supply for the next century.

Implementation of the first two water resource management strategies, adopted in 1997 and 2007, respectively, have been quite successful. The Water Authority's accomplishments include the reduction in water use measured in gallons per capita per day from 251 gallons in 1995 to 127 gallons per day in 2015, and the recovery of the regional aquifer water-table by at least 15 ft. with continued rising projected for another decade or beyond. Despite six consecutive years of drought, the aquifer is rising which is clearly evident in the network of monitoring wells that were installed in cooperation with the U.S. Geologic Survey (USGS).

In addition, about seventy percent of water demand in 2016 has been provided from the San Juan – Chama Drinking Water Project (DWP). The non-potable projects on the Northside and Southside of Albuquerque continue to provide non-potable water for many of the green spaces in Albuquerque. These projects combined with the implementation of the Water Authority's first aquifer storage and recovery facility in Bear Canyon Arroyo have reduced groundwater usage causing the rising levels in the aquifer.

As proposed, "Water 2120" is building on the successes of the previous two strategies, by incorporating an adaptive management approach considering potential climate change impacts to the surface water supply, protecting the watershed by participating in established forest restoration projects, using fully the existing water resources currently available, increasing the use of non-potable reuse of wastewater supplies, and increasing the storage capacity of the aquifer with potentially construction of off-channel storage facilities.

Features of the new strategy will allow the Water Authority to move conservation above and beyond currently levels, while maintaining the quality of life we expect in our

community. Water 2120 calls for managing the aquifer more conservatively than has been done in the past by the establishment of a groundwater reserve and management level, and decreases the long-term impacts on the Rio Grande by implementing an environmental and Rio Grande Compact pools, and keeping the Water Authority from actively participating in any additional pre-1907 water rights transfers.

Water 2120 includes an overview section, a policy document, and a report.

The policies, listed below, have been taken from the previous water resources strategies and maintained in their original structure with one additional policy and some additional sub-policies incorporated to allow for the implementation of new water resource development plans, such as watershed restoration.

Water 2120 Policies:

- Policy A - Water Budget Planning and Reporting
- Policy B - Fully Utilize and Protect Existing Water Rights and Water Resources
- Policy C - Establish and Maintain a Groundwater Reserve
- Policy D - Update and Maintain the Water Conservation Strategy
- Policy E - Support Regional Water Resources Planning and Management
- Policy F - Utilize Conjunctive Management and Diversify Water Resources Portfolio
- Policy G - Develop and Implement Long-Term Water Resources Acquisition Plan
- Policy H - Implement the Water Quality Protection Policy and Action Plan
- Policy I - Protect and Enhance Storage of Native, San Juan-Chama Water and other water resources
- Policy J - Protect Valued Environmental and Cultural Resources
- Policy K - Preserve and Enhance the Quality of Life in the Region
- Policy L - Link Land Use Planning with Water Management
- Policy M - Encourage and Facilitate Public Involvement

There are more than 60 sub-policies that provide guidance and direction regarding implementation of the plan along with technical studies that need to be completed as part of the next steps of the plan.

<u>Public Involvement Process</u>

There was extensive public involvement as part of the development of Water 2120 including the following:

- Water Authority Board Updates – September 2015 to May 2016
- Technical Customer Advisory Committee Meetings – 14 Meetings over 2 Years
- Two Initial Public Meetings – February 2016
- Five Technical Reports
- Four Customer Conversations – May/June 2016

- Town Hall – July 2016
- Westside and Eastside Neighborhood Coalition Meetings – July/August 2016

Water Authority Board Updates

Public presentations were made to the Water Authority Board during their regular meetings in September 2015, January 2016, March 2016 and May 2016. The Water 2120 Plan was introduced to the Water Authority Board in August 2016. The presentations to the Board including demand, supply, climate change, groundwater reserve management plan, alternatives, range of potential supply gaps, and supply portfolios to fill the medium demand/medium supply gap.

Technical Customer Advisory Committee (TCAC) Meetings

The Water Authority Board established a citizen board consisting of nine members of the public to meet and discuss important water policy and other important matters of the Water Authority. There were fourteen meetings over two years working collaboratively with the TCAC on the update to the 2007 Water Resources Management Strategy (WRMS). Extensive presentations were provided and five technical documents were produced for review and comment. The documents produced were as follows:

- Chapter 2 – Water Demand
- Chapter 3 – Supply
- Chapter 4 – Groundwater Management
- Chapter 5 – Alternatives
- Chapter 6 – Filling in Future Gaps in Supply

The reports documented the evaluation of historical and projected supplies and demands, forecasted impacts of climate change to surface water supplies, and the evaluation of supply gaps and proposed alternatives to meet future demand scenarios as predicted by integrated model simulations run using the Office of the State Engineer's Administrative model (based on MODFLOW) and the Upper Rio Grande Simulation Model, or URGSIM.

There were more than 1,300 comments received and addressed from the TCAC on the documents which were posted and available to the public on the Water Authority's website starting in June 2016 with Chapter 6 posted prior to the Town Hall meeting.

The TCAC recommended adoption by the Water Authority Board of the new policies at the August 1, 2016 meeting.

Two Initial Public Meetings

The Water Authority hosted two public meetings (around 40 participants) in February 2016 to provide the public with the opportunity to discuss the need for a new 100-year water supply plan and to provide feedback on the plan prior to the plan elements and

alternatives established. The meetings went very well and overall there was very positive feedback on discussing what the new plan might consist of.

Four Customer Conversations

There were four customer conversations held in May and June 2016 (about 200 customers). These meetings were held over a two hour period and provided our customers the opportunity to provide feedback on a number of topics related to the new water supply plan. The meetings included a presentation on the update and status of the development of the plan, followed by two exercises examining several alternatives in an effort to afford our customers the opportunity to experience what it was like trying to fill the supply gaps.

The customers were separated into groups at tables where they were provided three different supply scenarios (historical, central tendency climate change, and hot-dry climate change along with a water conservation alternative. Given the gaps presented to them, they worked together to select alternatives based on a variety of criteria including the amount of water they would provide, environmental and financial impact to name a few. The selected alternatives provided an opportunity to obtain productive feedback about customer choices. For example, the customers really liked the idea of capturing and using storm water as a future alternative water supply. Based on that feedback, we added storm water as a component of Portfolio 1.

Town Hall

The purpose of the Town Hall was to obtain community input on the revised policies to ensure a safe and sustainable water supply into the future. The Water Authority seeks to reach its water resources management decisions through a public process so that they may reflect community values. The Town Hall brought significant input regarding community values and priorities and how they can be reflected in water resources activities.

The Town Hall was held July 22nd and over 200 customers attended the four hour meeting. The morning was spent in informational plenary sessions where customers learned about different elements of the proposed strategy and were able to ask questions of the presenters. The afternoon was spent in small groups discussions led by individual facilitators and recorders to gather input on customer preference on supply alternatives and proposed policies. Water Authority staff were also circulating through the small group sessions to address questions on the strategy as they arose. The close of the meeting brought all the participants back together for a report out on the results of their small group discussions. Customer preferences for supply alternatives were very similar to the preferences expressed in the Customer Conversations. Results of the Town Hall meeting are in the appendix.

FISCAL IMPACT: None

ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

BILL NO. R-16-12

RESOLUTION

ADOPTING WATER 2120 – SECURING OUR WATER FUTURE (2016 WATER RESOURCES MANAGEMENT STRATEGY) AS THE WATER AUTHORITY'S WATER SUPPLY AND DEMAND POLICY.

WHEREAS, the Albuquerque/Bernalillo County Comprehensive Plan requires the water resources in the metropolitan area to be managed to provide a permanent, adequate water supply; and

WHEREAS, a water resources management policy is needed to help guide and plan for water resources and to meet the Comprehensive Plan directive; and

WHEREAS, the Albuquerque Water Resources Management Strategy was adopted in 1997 as the City of Albuquerque's water supply policy; and

WHEREAS, the Water Authority adopted the 2007 Water Resources Management Strategy as the water supply policy; and

WHEREAS, the Water Authority has successfully implemented the majority of the policies and projects described in the 2007 Strategy; and

WHEREAS, the Water Authority established a Technical Customer Advisory Committee (TCAC), whose purpose was to provide input on the Authority's policies, plans and programs. The TCAC reviewed the technical documents and worked on revising the policies of the current Strategy over the last two years; and

WHEREAS, the Water Authority had an extensive public process for the community to provide input on the plan including selection of the name for the Strategy (Water 2120 – Securing our Water Future); and

WHEREAS, there were two public meetings early during the process, four Customer Conversations and a Water Resources Town Hall in July 2016 where the community provided input on the policies and assisted with selection of the various water supply alternatives; and

WHEREAS, a large majority of the participants of the Town Hall felt that there time was well spent and that the Water Authority really cared about their input; and

WHEREAS, the new 100-year plan was presented to a variety of entities including Federal, State and regional water management entities; and

WHEREAS, the TCAC has endorsed the revised policies of the 2016 Water Resources Management Strategy.

BE IT RESOLVED BY THE WATER AUTHORITY:

Section 1. The 2016 Water Resources Management Strategy entitled Water 2120 – Securing Our Water Future, attached as “Exhibit A”, is hereby adopted as the Water Authority’s water supply and demand policy.

Section 2. The Executive Director is directed to implement the policies, technical studies and projects identified in the Strategy.

Section 3. The Executive Director is directed to report to the Water Authority Board on an annual basis regarding the progress on the implementation of the Strategy.

Albuquerque Bernalillo County
Water Utility Authority

WATER 2120
SECURING OUR WATER FUTURE

Water 2120: Securing Our Water Future

ABCWUA BOARD MEETING
SEPTEMBER 21, 2016

Key Elements of the Plan

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- Based on the same policies implemented in the 1997 and 2007 WRMS
- Uses existing resources
- Implements additional conservation
- No purchase of pre-1907 water rights
- Data-driven and based on the best available science
- Considers climate change
- Adaptive Management Approach provides flexibility for the future
- Extensive two-year public process
- Significant technical documentation
- Significant support from the stakeholder community
- No rate increases needed to implement the Plan
- Implementing the Plan would exceed financial rating agencies' best practices

Stakeholder Support

- Congresswoman Michelle Lujan-Grisham
- Technical Customer Advisory Committee (TCAC)
- Bureau of Reclamation
- Corps of Engineers
- The Nature Conservancy
- Rio Grande Water Fund
- NM Interstate Stream Commission
- Business Water Task Force
- MRGCD
- NAIOP
- Albuquerque Economic Development
- NM Home Builders Association
- Albuquerque Economic Forum
- Albuquerque Chamber of Commerce
- New Mexico Water Collaborative
- US Fish & Wildlife Service

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How was the Plan Developed?

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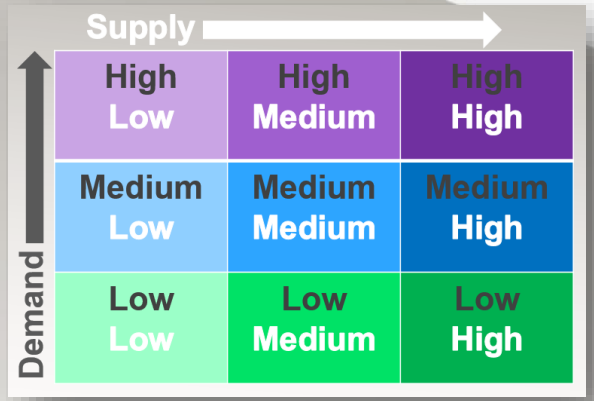
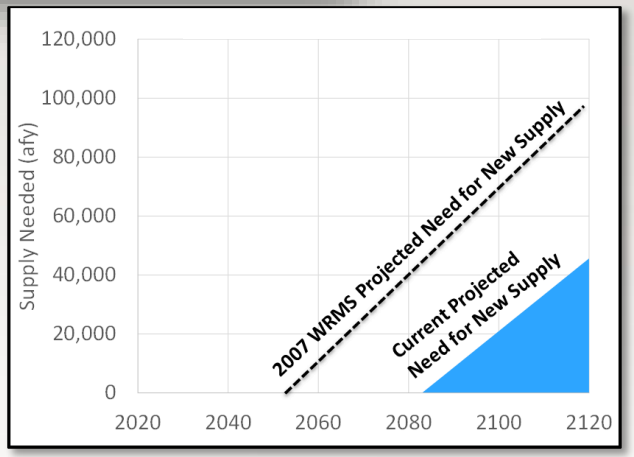
- Demand – How much water do we need?
- Supply – How much water do we have?
- Gaps – Do we need additional supply?
- Filling the Gaps – What will the new supplies be?





Meeting the Demand

Portfolio 1

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- Existing supplies (groundwater and surface water)
- Conservation – 110 GPCD in 20 years
- Reuse – includes ASR and/or new storage
- Connect North I-25 Nonpotable to Southside Reuse
- Storm water capture
- Indirect potable reuse (IDPR)
- Watershed management

Supply Gap is Filled by Portfolio 1

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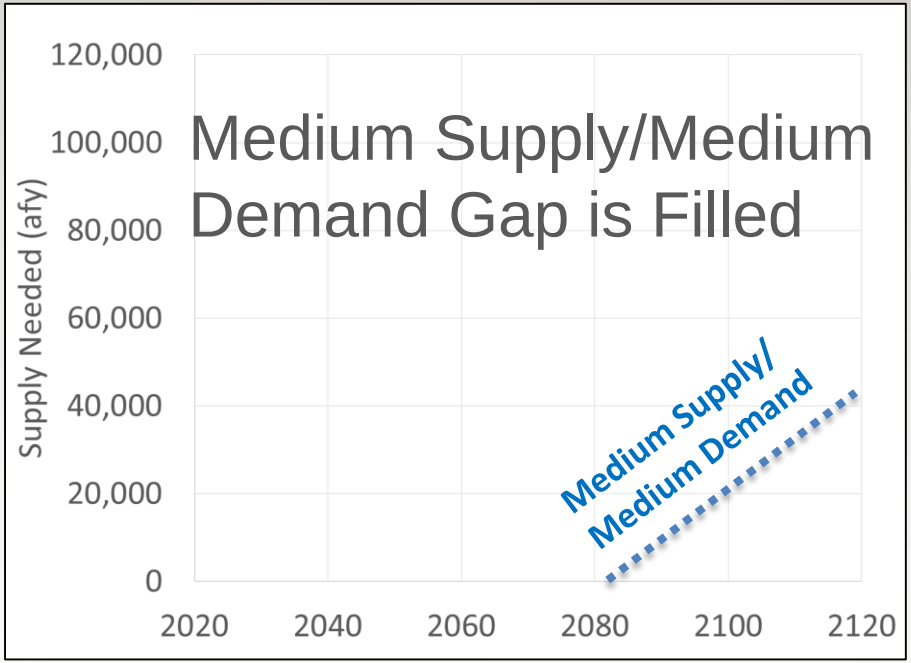
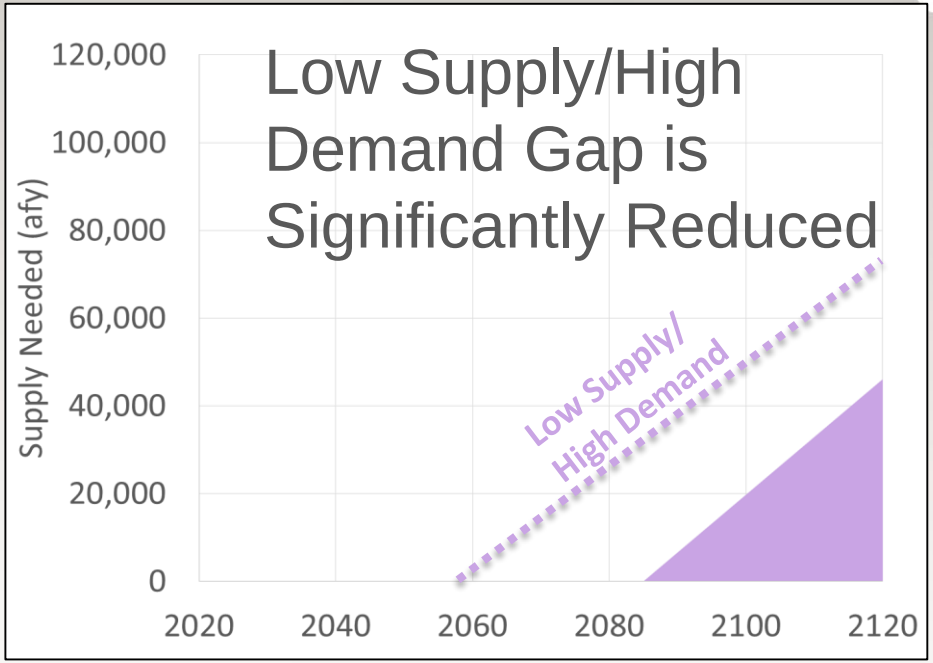




Projected Timeline of Projects and Estimated Costs

Albuquerque Bernalillo County Water Utility Authority

2020

ASR

$10M

2035

Connect Northside I-25 to Southside (Reuse)

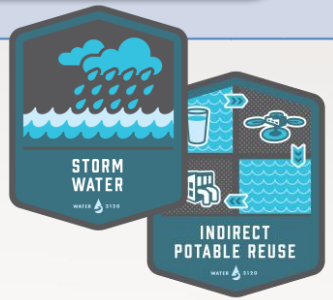
$23M

2045

IDPR Phase I

Storm Water Capture

$47M



2055

Westside Reuse

Off-Channel Storage

IDPR Phase II

$216M

2065

Eastside Reuse

IDPR Phase III

$127M

Education, Outreach and Monitoring

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Inputs

Select Demand, Supply, and Portfolio

Change Demand — Demand: ***Low***

Change Supply — Supply: ***Medium (climate change = central tendency)***

Change Portfolio — Portfolio: ***Portfolio 3 (10 gpcd reduction, outdoor only)***

Viewer Controls

View Simulation

Simulation Time

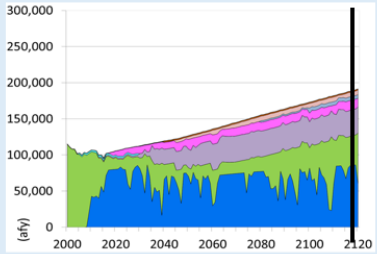
2015 — 2120

Enter Year for Results (5-year increments): **2120**

Results

Supplies Meeting Demand

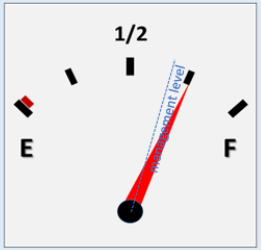
click on image to enlarge



- Stormwater
- Brackish Groundwater
- New Storage - ASR
- Wastewater Reuse
- Groundwater
- New Storage - Reservoir
- Interbasin Transfer
- Non-Potable Project
- Groundwater in Excess of Permit
- DWP

Aquifer Drawdown

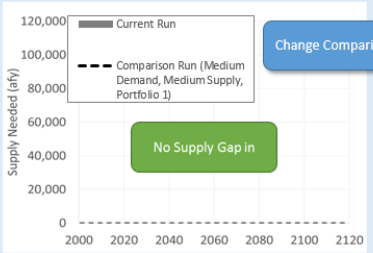
click on image for details



Based on inputs above, aquifer drawdown is estimated to be 99 ft in year 2120, without new supplies. Compare to 125 ft in 'comparison' run specified to right.

Supply Gaps

click on image to enlarge



Based on inputs above, no new supplies needed by 2120. Compare to year 2118 in 'comparison' run specified above.

What's Next?

Albuquerque Bernalillo County Water Utility Authority

- Groundwater Management Plan development
- Reuse and Recycling Plan development
- Conservation Plan development
- Adaptive Management Approach Plan development
- Storage Plan
- Environmental Plan
- Public model development and education program for high-school and college students

Questions?

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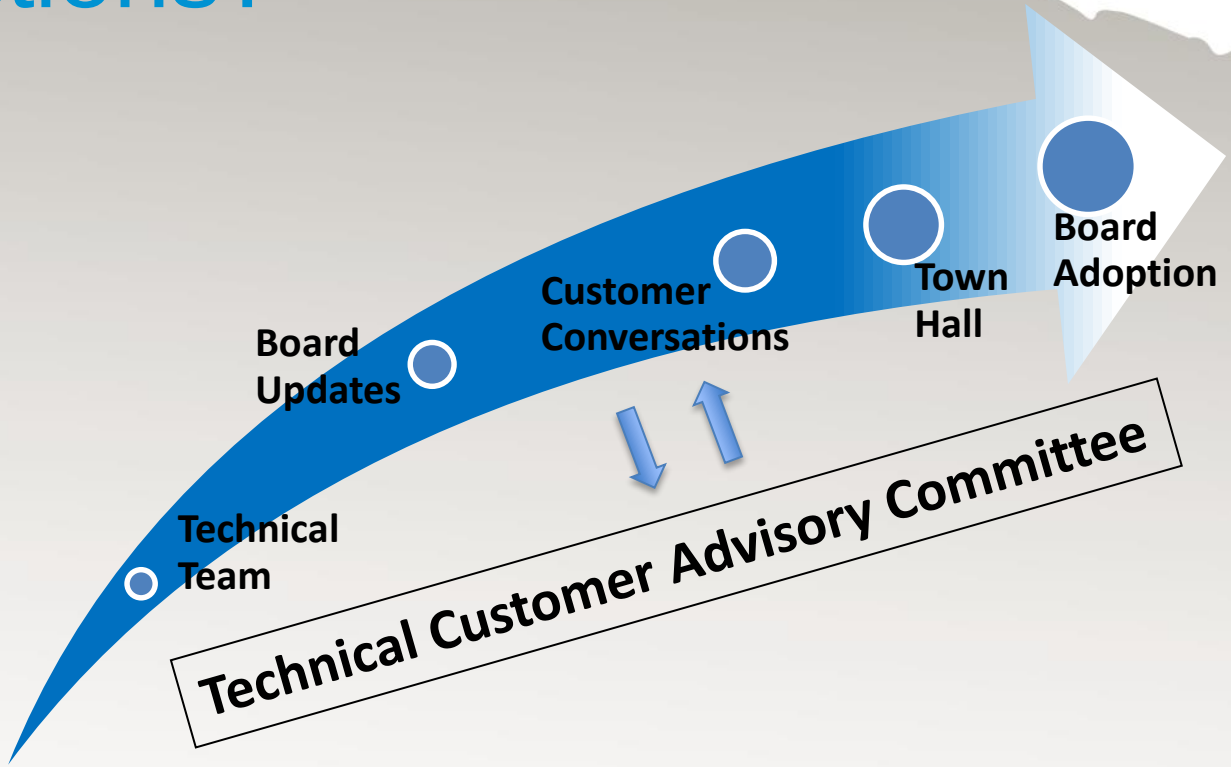

Policy Comparison

Albuquerque Bernalillo County Water Utility Authority

2007 WRMS Policy	2017 WRMS Policy
A. Update and Maintain a Water Budget	**A.** Implement a Long-term Adaptive Management Water Budget Planning Framework
B. Balance Demand with Renewable Supply by Using San Juan-Chama Water as the Primary Source of Supply	**B.** Fully Utilize and Protect Existing Water Rights and Resources
C. Establish and Maintain a Groundwater Drought Reserve	**C.** Establish and Maintain a Groundwater Reserve
D. Update and Maintain the Water Conservation Strategy	**D**. Update and Maintain the Water Conservation Strategy
E. Support Regional Water Resources Planning and Management	**E.** Support Regional Water Resources Planning and Management
F. Pursue the Conjunctive Management of Available Water Resources	**F.** Utilize Conjunctive Management and Diversify the Water Resources Portfolio
G. Develop and Implement Long-Term Water Acquisition Plan	**G.** Develop and Implement Long-Term Water Acquisition Plan
H. Implement the Water Quality Protection Policy and Action Plan	**H.** Implement the Water Quality Protection Policy and Action Plan
I. Equitably Incorporate the Costs of Providing a Safe and Sustainable Water Supply Into Rates	Completed and Codified in the Rate Ordinance (1-1-3 F, 1-1-1 H, 1-1-8 C)
NEW POLICY	**I.** Protect and Enhance Storage of Native and San Juan-Chama Water
J. Protect Valued Environmental and Cultural Resources in the Region	**J**. Protect Valued Environmental and Cultural Resources
K. Preserve and Enhance the Quality of Life in the Region	**K.** Preserve and Enhance the Quality of Life in the Region
L. Link Land Use Planning with Water Management	**L**. Link Land Use Planning with Water Management
M. Encourage and Facilitate Public Involvement and Support	**M.** Encourage and Facilitate Public Involvement and Support

- No change
- Identical policy with broadened language
- New policy
- Removed and moved to rate ordinance

A. Water Budget Planning and Reporting

POLICY A. The Authority shall utilize an adaptive management approach to water resources planning and reporting. The water budget established shall be reported annually to the Authority Board and updated no less than every five years.

RATIONALE: The Adaptive Management Approach (AMA) adopted as part of the 2017 WRMS is intended to provide an iterative process by which supply and demand can be re-evaluated as needed in the future. The intent of AMA is to provide an iterative process for robust decision-making in the face of uncertainty, with the aim or reducing uncertainty over time via monitoring. Since both supply and demand projections are uncertain and may be revised in the future, AMA allows for re-evaluation of currently-identified predicted supply gaps, and subsequent revision of these gaps, if necessary. Future revisions to the supply and demand analyses may be made based on new technical understanding, availability of new technical tools, and/or revisions to current predictions of supply and/or demand. A key aspect of the Authority's AMA will be monitoring groundwater levels in the Groundwater Reserve.

SUB-POLICIES:

1. The Authority should update the Water Resources Management Strategy using the best available science following the Adaptive Management Approach (AMA) every ten years or more frequently as requested by the Authority Board.
2. The Authority shall report on an annual basis to the Authority Board to provide a water budget for the upcoming year which includes estimated groundwater and surface water use along with estimated non-potable water reuse.
3. The Authority shall report to the Authority Board every five years regarding the aquifer level and the projected level for the next five years as compared to the groundwater management level established in Policy C.

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B. Fully Utilize and Protect Existing Water Rights and Water Resources

POLICY B. The Authority shall protect its right to fully use its San Juan-Chama and Rio Grande surface water as a direct water supply and transition to other renewable supplies when available and appropriate. The Authority shall limit the use of groundwater except when exercising wells, providing supply during peak demand periods or when surface water supplies are not available (e.g., droughts).

RATIONALE: The Water Authority holds the rights to about 26,396 acre-feet of vested and acquired Rio Grande water rights and 48,200 acre-feet of San Juan-Chama water. Meeting future water demands will require full utilization of these water rights and resources, including the increasing volume of excess wastewater which will be available for reuse. A safe and sustainable water supply for the Authority is based on using the existing water rights and resources which will reduce the long-term acquisition of additional water supplies. This involves using groundwater and limiting the long-term use of the aquifer to preserve a portion for future generations while preserving the right to fully utilize our groundwater permits during droughts and when surface water supplies are unavailable.

SUB-POLICIES:

1. The Authority shall take all the necessary steps to protect its existing water rights and water resources.
2. The Authority should utilize a combination of renewable supplies including the groundwater reserve, direct diversion of San Juan-Chama and native surface water, industrial and municipal effluent, impaired groundwater and recycled water.
3. The Authority should utilize all available excess return flows as part of a reuse and recycling plan that consists of aquifer storage and recovery, indirect potable and non-potable reuse.
4. The Authority should prepare for a basin adjudication or seek alternative legal strategies (negotiated settlements) in addition to the traditional adjudication process.

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C. Establish and Maintain a Groundwater Reserve

POLICY C: The Authority shall establish a groundwater reserve that maintains sufficient water in aquifer storage to provide water supply during catastrophic drought or other unforeseen, largely unquantifiable events. The groundwater reserve shall be accessible without causing adverse impacts to the aquifer and shall be partitioned into a safety reserve and a working reserve. The safety reserve is that portion of the groundwater reserve prudently maintained for emergency use only, while the working reserve is the balance of the groundwater reserve above the safety reserve. A management level goal of aquifer drawdown shall be set within the working reserve. The management level provides explicit operational guidance to the implementation of Policy B in that it balances full utilization of the Authority's existing water rights with no long-term change in groundwater storage.

RATIONALE: The aquifer is generally rising throughout the Middle Rio Grande. This began in 2008 with the implementation of the Drinking Water Project. The water levels are expected to rise for more than a decade longer and it is important to develop and implement an explicit policy for managing the aquifer in the future to prevent a return to pre-1997 practice under which continuing drawdown was unsustainable. This augmented Policy C makes minimal nomenclature changes to the 2007 Policy C and adds specific language to guide management of the aquifer itself.

SUB-POLICIES:

1. The reserve terminology should be implemented by reference to average level of drawdown in Authority wells from pre-development conditions as defined by the Office of the State Engineer's Administrative model. Accordingly, the initial 2017 reserve settings should be:
    a. Groundwater Reserve. This reserve extends from fifty feet of drawdown to three hundred feet of drawdown, the latter constituting the threshold of irreversible subsidence.
    b. Safety Reserve. That portion of the Groundwater Reserve extending from two hundred and fifty feet of drawdown to three hundred feet of drawdown.
    c. Working Reserve. The residual portion of the Groundwater Reserve extending from fifty feet of drawdown to two hundred and fifty feet of drawdown.
    d. Management Level. This is set at one hundred and ten feet of drawdown which would maintain seventy percent of the Working Reserve.
2. If drawdown in the Working Reserve should fall below the Management Level, then projects should be implemented to add supply to the Authority portfolio to restore it to the Management Level.

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Water Utility Authority

D. Update and Maintain the Water Conservation Strategy

POLICY D. Implementation of the Water Conservation Plan has been a key aspect of the success of the 2007 Water Resources Management Strategy. Continued progress in conservation to achieve a gallons per capita per day (GPCD) water usage of 110 will further extend our water supplies even in the face of climate change. The Authority shall utilize the conservation program to reduce GPCD to 110 by 2037.

RATIONALE: Water conservation has proven to be a powerful tool for managing water resources over the past twenty years. GPCD has been reduced from 250 in 1995 to 127 in 2015. This has led to an overall reduction in production from approximately 125,000 acre-feet in 1995 to approximately 98,000 acre-feet in 2015. Further water conservation efforts over the 100-year planning period are a key element to secure a resilient, affordable water supply for the Water Authority's service area. In addition to representing wise stewardship and management of our water resources, successful implementation of an effective conservation plan is required by the State for obtaining future permits and funding water projects.

SUB-POLICIES:

1. Conservation is the primary way in which customers participate in extending the need for additional water resources. The Authority shall continue its public outreach efforts to involve all customer classes in water conservation efforts.
2. The Authority shall update the Water Conservation Plan consistent with the 110 GPCD goal.
3. The Water Conservation Plan shall be updated at least every ten years and shall be reviewed annually so that updates to incentive, education and deterrent programs can be kept current with program needs.
4. The Authority shall work with the City and County to foster the efficient management and use of water in development and infrastructure.

Albuquerque Bernalillo County Water Utility Authority

E. Support Regional Water Resources Planning and Management

POLICY E. The Authority shall pursue efforts to enhance regional water resources planning and management activities within the Middle Rio Grande Valley. The Authority shall work cooperatively with its neighbors—the Pueblos, the Middle Rio Grande Conservancy District, Middle Rio Grande Valley cities and counties, and involved state and federal agencies. The Authority shall continue to be involved in and monitor the progress of regional and interstate water management initiatives that may affect the Authority and the region.

RATIONALE: The Authority recognizes the need to work in cooperation with other entities that share use of the Middle Rio Grande Valley's water resources. Regional water resources planning needs to address uses for public and domestic water supply, irrigated agriculture, livestock, commerce, industry, fish, wildlife and recreation. The Authority, neighboring jurisdictions, and other water users need to work with State, regional, and federal agencies with water management responsibilities.

SUB-POLICIES:

1. The Authority shall continue its proactive role to ensure that the necessary technical investigations with U.S. Geological Survey and others are completed efficiently and expeditiously and that they result in an improved understanding of surface and groundwater.
2. The Authority is committed to seek common solutions within a regional context. The Authority shall work with others in the Middle Rio Grande Valley on updates and implementation of the Regional Water Plan.
3. When appropriate, the Authority should share their experience in groundwater management to assist other planning efforts in transitioning to renewable supplies and to limit long-term groundwater usage.
4. The Authority shall work with federal and state agencies including the U.S. Bureau of Reclamation, U.S. Army Corps of Engineers and U.S. Bureau of Land Management, the New Mexico Office of the State Engineer and the Interstate Stream Commission to continue to find common solutions for water management on the Rio Chama and the Rio Grande.
5. The Authority shall collaborate with the Middle Rio Grande Conservancy District (MRGCD) to develop and implement a plan to support and promote agriculture in the Middle Rio Grande.
6. The Authority shall promote and develop green infrastructure including storm water infrastructure to promote efficient water resources management and aquifer storage.

Albuquerque Bernalillo County Water Utility Authority

F. Utilize Conjunctive Management and Diversify Water Resources Portfolio

POLICY F. The Authority shall enhance the resiliency and sustainability of the water supply by effectively combining the use of surface water, recycled and reclaimed water, the shallow and deep aquifer, and other supplies as needed to meet current and future demand.

RATIONALE: Enhancing the efficiency of the Authority's water use, requires conjunctive management and use of all available resources: surface water for municipal and industrial supply and for irrigation, groundwater for exercising wells, peaking, and when surface water supplies are not available (e.g., drought), ASR for municipal and industrial supply, and other supplies as available.

Reclamation and reuse of existing water supplies, where economically feasible and protective of human health and the environment, represents a method of maximizing and increasing the usefulness of a limited water supply. Consideration must also be given to satisfying the return flow needs of the Rio Grande from water-rights-permitting, Rio Grande Compact Compliance and environmental standpoints.

The use of groundwater will always be a key component of the Authority's supply portfolio. Following a conservative Groundwater Management Plan that limits long-term groundwater production and establishes a Safety Reserve positions the Authority for indefinite use of the aquifer while maintaining a significant volume of water for unforeseen events. Using the Authority's surface water and other sources for municipal and industrial supply will protect the aquifer so that it is available to meet seasonal peak demands and when surface water is not available (e.g., drought). Without a groundwater component of supply, the Authority would need to abandon use of significant investment in groundwater assets and transition to expensive additional surface water storage facilities adding larger and more costly treatment facilities to meet seasonal peak demands.

Aquifer storage and recovery is a key component of balancing groundwater use during times when surface water is not available (e.g., droughts). Using stored surface water during these times will reduce overall long-term use of groundwater during the planning period. In Albuquerque, this requires artificial recharge of the aquifer with deep recharge wells. It is essential that this capability be expanded. Stored surface water will not increase overall groundwater use because there will always be a need to utilize groundwater to exercise wells or to meet seasonal peak demands which will provide the native water component needed to facilitate use of imported San Juan-Chama water.

In addition, the Authority should be opportunistic in utilizing other sources to extend supply that may not always be available. These sources could include relinquishment credit water, contaminated groundwater, excess San Juan-Chama water and native flood flows in addition to leased San Juan-Chama water. Each of these sources has been available for use in the Middle Rio Grande in the past and may be available for limited use in the future. Utilizing these sources extends supply by saving other resources for future use.

(Subpolicies for POLICY F listed on next slide)

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Water Utility Authority

POLICY F - SUB-POLICIES:

1. The Authority shall use various sources of supply (potable and contaminated groundwater, surface water, reuse water, etc.) to meet demand over the planning period. The quality of the water supplied will be matched to its use to reduce treatment costs and to optimize available excess supplies when available.
2. The Authority shall prepare and implement plans to utilize water sources that are typically only available sporadically (excess San Juan-Chama water, relinquishment credit water, etc.).
3. The Authority should investigate and enter into agreements for short-term leases in times when wet water is available to be stored and used during times of drought and for aquifer recharge.
4. The Authority shall develop a reuse and recycling master plan to address current and future reuse demand, excess available wastewater supplies and the associated infrastructure needs over the planning period.
5. The Authority shall use pumping from the aquifer to meet seasonal demands, well exercising and when surface water is not available (e.g., droughts).
6. The Authority shall continue to develop and implement methods to store available surface water and other reuse supplies in the aquifer and to recover it from storage as needed to meet current and future demands.
7. The Authority should develop and implement the use of storm water and native water flood flows when supplies are available considering permitting and environmental criteria along with Rio Grande Compact Compliance.

Albuquerque Bernalillo County
Water Utility Authority

G. Develop and Implement Long-Term Water Resources Acquisition Plan

POLICY G. The Authority shall pursue a portfolio of potential additional sources of supply.

RATIONALE: Establishing and maintaining a groundwater reserve (Policy C) will require the Water Authority to rely less on the local aquifer and to secure additional sources of supply to meet future demands. A more diversified water supply portfolio that includes more renewable sources is essential to provide a resilient and sustainable water supply that can meet customer demands in perpetuity.

While this Water Resources Management Strategy does not contemplate the need for acquisition of additional supplies, the Authority should continue to pursue these additional supply sources over the long-term which will allow the Authority to be ready when those supplies become available. Full consideration will be given to the financial implications in addition to the regional context including agricultural and environmental issues.

SUB-POLICIES:

1. The Authority should seek legislation to allow for water leasing and banking on a local, regional and interstate basis.
2. The Authority should continue to develop the potential for use of brackish groundwater as a future supply considering financial, environmental and carbon footprint criteria.
3. The Authority should stay active in evaluating other water rights transfers in the Middle Rio Grande and should take proactive stances when necessary.
4. The Authority should investigate the opportunity to import water supplies outside of the Middle Rio Grande when available considering financial, environmental and other criteria.
5. The Authority shall discontinue acquisition of native pre-1907 water rights.

H. Implement the Water Quality Protection Policy and Action Plan

Albuquerque Bernalillo County Water Utility Authority

POLICY H. The Authority shall take steps to fully implement the Water Quality Protection Policy and Action Plan.

RATIONALE: The Albuquerque/Bernalillo County Water Quality Protection Policy and Action Plan (County Resolution No. AR 121-93 and City Enactment No. 81-1994) is another cornerstone of this Water Resources Management Strategy. The Authority revised the Groundwater Protection Policy and Action Plan in 2009 to add surface water protection measures, recognizing the use of San Juan-Chama water as a primary drinking water source. Protection of both groundwater and surface resources from known or potential sources of contamination is essential for maintaining a safe drinking water supply and aquifer storage and recovery program. Their protection from contamination is of paramount importance.

SUB-POLICIES:

1. The Authority should continue to be proactive in identifying potential water quality threats to surface and groundwater resources and should implement programs to the extent possible to protect the water resources in the MRG.
2. The Water Protection Advisory Board (WPAB) shall provide annual updates on the implementation of the Water Quality Protection Policy and Action Plan (WQPPAP) to the Authority Board through submission of the Annual WPAB Reports and presentations at regular WPAB meetings.
3. The Authority shall provide pertinent information regarding updates to the water resource management strategy activities to the WPAB during its triennial review of the WQPPAP implementation activities.
4. The Authority should consider the occurrence, fate and potential treatment of emerging contaminants in current and future water supplies and should actively participate in research which will become more important as the availability of water resources becomes more constrained.
5. The Authority should coordinate with the City, County and State to maintain the quality of groundwater and surface waters.

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Water Utility Authority

I. Protect and Enhance Storage of Native, San Juan-Chama Water and other water resources.

POLICY I. The Authority shall protect the rights to store native, San Juan-Chama and other water resources including reuse and recycled water in a variety of storage facilities including Heron, Abiquiu and Elephant Butte Reservoirs. The Authority should seek additional off-channel storage capacity locally or within the Middle Rio Grande as needed to maximize the use of excess wastewater or other water resources in the future.

SUB-POLICIES:

1. The Authority should protect and enhance its storage rights in Abiquiu Reservoir for native and San Juan-Chama water which will provide opportunities to continue to cooperate with environmental, local, state and federal entities to maximize the benefit for the MRG.
2. The Authority should examine the need for additional short and long-term off-channel storage locally and within the MRG to be prepared when excess San Juan-Chama water, native flood flows, or other water resources are available.
3. The Authority should consider the aquifer as a reservoir to be used conjunctively with above ground storage to optimize the use of current and future water supplies.
4. The Authority should develop and implement a Rio Grande Compact pool within the Authority storage space working with the Interstate Stream Commission (ISC) and the Office of the State Engineer (OSE).
5. The Authority should continue providing space in Abiquiu Reservoir for environmental purposes.
6. The Authority should seek long-term storage of San Juan-Chama water in Elephant Butte Reservoir.

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J. Protect Valued Environmental and Cultural Resources

POLICY J. The Authority shall identify and provide resources to preserve and protect valued environmental resources of the region. The Authority shall work independently and in partnerships to ensure that its activities do not irreparably harm the aquifer, river, Bosque, source watersheds and the cultural resources.

RATIONALE: The regional aquifer, Bosque and Rio Grande are exceptional resources of great economic, ecological, aesthetic and cultural value. The Authority should cooperate to develop and implement environmentally conscious water resource development activities that protect the environmental and cultural values of our community.

SUB-POLICIES:

1. The Authority should continue to participate in the Endangered Species Collaborative Program and Recovery Implementation Efforts for multiple species in the MRG.
2. The Authority should encourage the State to recognize instream flows as a beneficial use.
3. The Authority should consider the impacts on environmental and cultural resources when implementing new water resources projects and take appropriate steps to mitigate unavoidable effects.
4. The Authority should work collaboratively and provide funding to protect and restore watersheds of the San Juan-Chama and Rio Grande.
5. The Authority should work with the City, Middle Rio Grande Conservancy District and others to protect and enhance the Rio Grande State Park and the Bosque.
6. The Authority should work with the City and County to provide incentives to increase beneficial tree canopy coverage within Bernalillo County and the MRG.

Albuquerque Bernalillo County
Water Utility Authority

K. Preserve and Enhance the Quality of Life in the Region

POLICY K. The Authority seeks a Water Resources Management Strategy that will preserve and enhance the quality of life within the region. The implementation of the Authority's water resources strategy will take advantage of opportunities to enhance the quality of life in the region whenever possible.

RATIONALE: As the largest water utility in New Mexico, the Water Authority recognizes its obligation to protect and enhance the quality of life within the region. Factors influencing quality of life include continued socioeconomic growth and development, support of public amenities, healthy ecosystems and green spaces, and minimizing environmental impacts. The Water Authority will provide sustainable water services to meet indoor demands, optimize efficiency of outdoor demands by utilizing recycled, reused and non-potable supplies , and return quality water to the Rio Grande for downstream users in the region.

SUB-POLICIES:

1. The Authority shall work with the City of Albuquerque, Albuquerque Public Schools, Bernalillo County and others to ensure that green spaces (parks, golf courses, athletic fields, etc.) are water efficient and provide incentives where appropriate.
2. The Authority should continue to reduce its carbon footprint by taking advantage of opportunities to reduce the energy usage of current infrastructure and by building new infrastructure with energy efficiency in mind.
3. The Authority shall expand its current green energy projects (solar and biogas) and implement additional green energy projects to reduce its water and energy footprints.

L. Link Land Use Planning with Water Management

POLICY L. The Authority shall coordinate and cooperate with the City, County and all other entities with planning authority to integrate water management policies with land use decisions. The Authority recognizes that managing the use of groundwater while conserving and using existing water resources including maximizing the use of excess resources when available should significantly reduce acquisition of new supplies to serve future customers.

RATIONALE: With the membership of the Water Authority consisting of elected officials from the City of Albuquerque, Bernalillo County and Village of Los Ranchos, future growth and development in the region requires coordination to integrate land use, transportation, infrastructure, economic improvement, urban infill and planning efforts with water resources management.

SUB-POLICIES:

1. The Authority should work with the City and County to update the Albuquerque/Bernalillo County Comprehensive Plan and/or other plans to ensure that system expansion is concurrent with infrastructure service levels and that the extension of facilities and services be phased in an efficient and orderly manner.
2. The Water Authority should ensure that its capital planning process is based on the City and County growth and development master plans so that land use and infrastructure policies are consistent.
3. The Water Authority should support the increase of urban building densities and infill development consistent with adopted land use plans as higher density development uses less water.
4. The Water Authority should encourage the City, County and State to adopt low-water-use Building Codes and low-water-use landscaping standards for all new construction.
5. The Water Authority should continue its review process so that each new residential, commercial, industrial and institutional development will have a resilient, sustainable water supply.

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M. Encourage and Facilitate Public Involvement

POLICY M. The Authority shall continue its education programs for both children and adults to keep the public informed about the choices and tradeoffs involved in making water management decisions and invite public comment and participation in implementation of these policies.

RATIONALE: When the Water Authority partners with the public, the educated public can help shape the policies that are the foundation of the Water Resources Management Strategy. The public then contributes to the successful implementation of water resource management solutions, because they have been part of their design. Children who attend Water Authority field trips will know the value of water and be wise stewards of our resources for many years to come.

SUB-POLICIES:

1. The Authority shall continue its water resource education programs and field trips to teach children the importance, value and appropriate use of water in the region.
2. The Authority shall continue its interactive public meeting process to give customers information and get their input on upcoming programs, policies and projects.
3. The Authority shall continue its adult education programs so that all customers can participate in a resilient and sustainable water supply.
4. The Authority shall continue to partner with real estate, design, building and construction groups, building managers, etc. to educate their membership concerning water resources.
5. The Authority shall continue its current marketing and public relations campaigns to keep everyone in the service area informed about effective water resource management.
6. The Authority shall continue its process of involving the public in updates to the Water Resources Management Strategy in all future updates to the strategy.

Water 2120: Securing our Water Future

Water Resources
Management Strategy

September 2016

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Albuquerque Bernalillo County Water Utility Authority
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Commissioner Art De La Cruz, Vice-Chair
Mayor Richard J. Berry
Councilor Pat Davis
Commissioner Debbie O'Malley
Councilor Ken Sanchez
Commissioner Maggie Hart Stebbins
Trustee Pablo Rael, Ex Officio

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Elaine Hebard
Mike Hightower
Dave Hill
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Overview

A. Introduction

This document sets forth the Albuquerque Bernalillo County Water Utility Authority's (Water Authority) 2017 Water Resources Management Strategy (Strategy) – a 100-year long-range water supply plan for the metropolitan area. The name of the Strategy, Water 2120: Securing our Water Future, was selected by the Water Authority rate payers during a series of public meetings (Customer Conversations) in May and June 2016. The purpose of Water 2120 is to provide a safe, sustainable and resilient water supply for the metropolitan area by (1) Utilize an adaptive management planning approach using the best available science to periodically update this water supply plan; (2) Use the existing water resources and rights already owned by the Water Authority including excess supplies when available; (3) Work proactively with Federal, State, regional and local entities to seek solutions working cooperatively together and (4) Set a management level of the aquifer to manage long-term use leaving water in the aquifer and the opportunities it provides for future generations. The 2017 Strategy is designed to ensure Water Authority customers a safe, sustainable and resilient water supply to the year 2120.

The Strategy provides for a continuation of the policies in the original Strategy adopted by the Albuquerque City Council in 1997 and updated and adopted by the Water Authority in 2007. The 2017 Strategy provides policies and sub-policies including a new water conservation goal and projects to be implemented starting in about year 2035. The Water Authority has been a leader in water resources management in the Southwest starting with the implementation of the 1997 Strategy almost twenty years ago. The highlights of our planning efforts include the following:

- Per capita use has dropped almost 50% (251 gallons per person per day to 130 gpcd)
- Overall water use in 2015 as low as water usage in 1983
- Reuse and recycling projects are providing non-potable water to large turf areas in the north and south part of the metropolitan area
- Drinking Water Project (DWP) has been on-line since December 2008
- Aquifer storage and recovery (ASR) projects are operational with large scale program underway

The results have been amazing and tell an incredible story of what happens when you plan for the future:

- Aquifer levels have been and continue to rise when the DWP came on-line
- River depletions are declining due to reduced groundwater usage
- Consumptive use continues to decline (less than 40,000 acre-feet in 2015)
- Overall supply resilience has increased

B. Policies

Water 2120 consists of thirteen policies and more than sixty sub-policies to guide implementation of the plan including programs and projects needed to provide a safe and sustainable water supply for the next 100-years. Many of the policies below are a continuation of the existing policies set forth in the 1997 and 2007 Strategies and are listed in no particular order or priority.

- Policy A - Water Budget Planning and Reporting
- Policy B - Fully Utilize and Protect Existing Water Rights and Water Resources
- Policy C - Establish and Maintain a Groundwater Reserve
- Policy D - Update and Maintain the Water Conservation Strategy
- Policy E - Support Regional Water Resources Planning and Management
- Policy F - Utilize Conjunctive Management and Diversify Water Resources Portfolio
- Policy G - Develop and Implement Long-Term Water Resources Acquisition Plan
- Policy H - Implement the Water Quality Protection Policy and Action Plan
- Policy I - Protect and Enhance Storage of Native, San Juan-Chama Water and other water resources
- Policy J - Protect Valued Environmental and Cultural Resources
- Policy K - Preserve and Enhance the Quality of Life in the Region
- Policy L - Link Land Use Planning with Water Management
- Policy M - Encourage and Facilitate Public Involvement

Some of the highlights of the new sub-policies include the following:

- Policy A–1: The Water Authority should update the Water Resources Management Strategy using the best available science following the Adaptive Management Approach (AMA) every ten years or more frequently as requested by the Water Authority Board.
- Policy B–3: The Water Authority should utilize all available excess return flows as part of a reuse and recycling plan that consists of aquifer storage and recovery, indirect potable and non-potable reuse.
- Policy C–2: If drawdown in the Working Reserve should fall below the Management Level, then projects should be implemented to add supply to the Water Authority portfolio to restore it to the Management Level.
- Policy E-5: The Water Authority shall collaborate with the Middle Rio Grande Conservancy District (MRGCD) to develop and implement a plan to support and promote agriculture in the Middle Rio Grande.
- Policy G-5: The Water Authority shall discontinue acquisition of native pre-1907 water rights.

- Policy I-4: The Water Authority should develop and implement a Rio Grande Compact pool within the Water Authority storage space working with the Interstate Stream Commission (ISC) and the Office of the State Engineer (OSE).
- Policy J-4: The Water Authority should work collaboratively and provide funding to protect and restore watersheds of the San Juan-Chama and Rio Grande.
- Policy J-6: The Water Authority should work with the City and County to provide incentives to increase beneficial tree canopy coverage within Bernalillo County and the MRG.
- Policy K-2: The Water Authority should continue to reduce its carbon footprint by taking advantage of opportunities to reduce the energy usage of current infrastructure and by building new infrastructure with energy efficiency in mind.

C. Projects

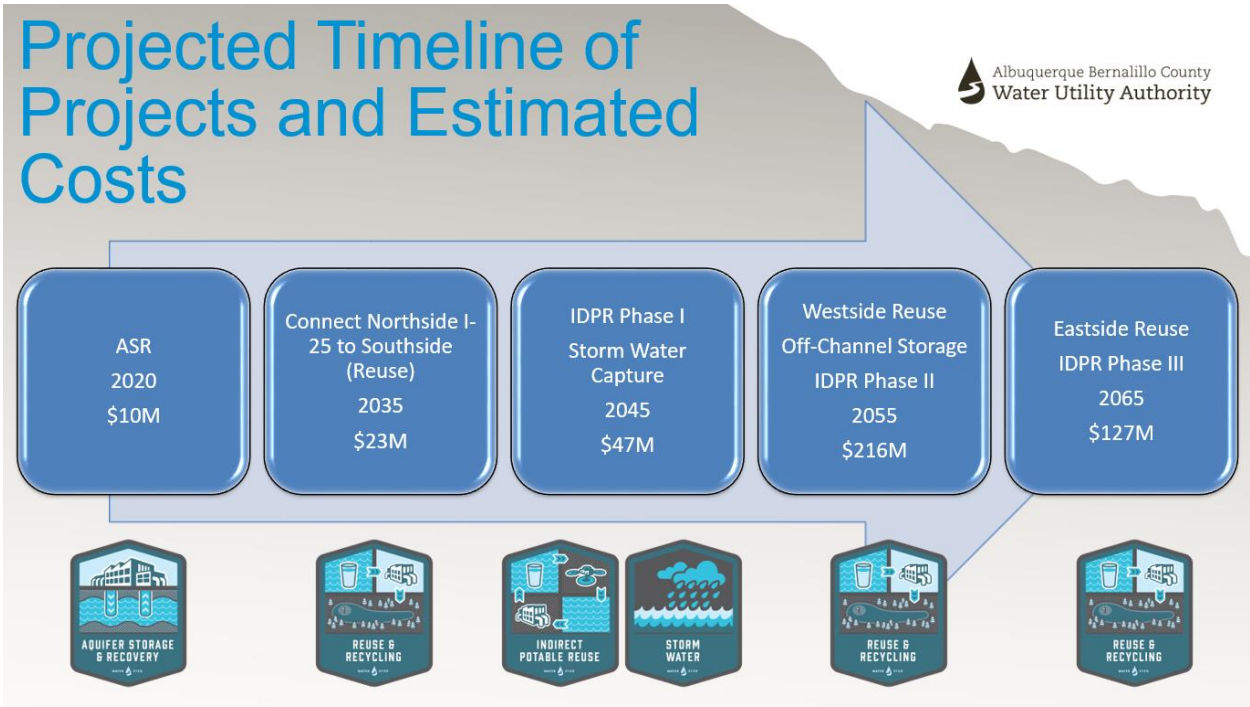
This updated Strategy incorporates the projects previously identified to be implemented in the 2007 Strategy consisting primarily of the first phase of large scale aquifer storage and recovery (ASR), enhanced storage in Abiquiu Reservoir and native flood flows storage in Abiquiu Reservoir.

Water 2120 includes implementation of a new water conservation goal and several additional projects (Portfolio 1) over the 100-year planning period. The implementation dates were determined comparing the medium projected demand and medium projected supply. The actual need and time for implementation of the additional projects will be determined using the adaptive management approach (Policy A) as actual demand and supply data is known which can then be used to update this plan which would be presented to the Water Authority Board.

The combination of these projects over the planning period eliminated the supply gap for the medium demand/medium supply while staying above the groundwater management level (see Chapter 6 – Filling in Future Gaps in Supply). Although the projects are listed in date order, they do not necessarily have to follow the specific order as listed or the date shown as some projects could be implemented earlier depending on water resources availability, permitting and funding.

- Additional Full Scale ASR (2020)
- Connect the Northside I-25 Reuse to the Southside Reuse including additional eastside reuse sites (2035)
- Additional ASR/Indirect Potable Reuse (IDPR) Phase 1 and Stormwater Capture and Use (2045)
- Westside Reuse, Off-Channel Storage and ASR/IDPR Phase II (2055)
- Eastside Reuse and ASR/IDPR Phase III (2065)

Figure 1 – Portfolio 1 with Projected Timeline of Projects and Estimated Costs



Each of the alternatives listed above were analyzed and ranked based on many factors including environmental, financial, permitting, frequency of availability and others (see Chapter 5 – Alternatives). Further detailed analysis will be needed as these projects are developed and implemented.

In addition to the development and implementation of the above listed conceptual projects, several activities must be undertaken, including:

- Reuse and Recycling Plan – utilize excess return flows for aquifer storage and recovery, indirect potable and non-potable use.
- Groundwater Management Plan – develop plan for annual measurement and reporting of aquifer levels, incorporate groundwater quality, location and size of existing groundwater contamination sites and the need for and siting for replacement and aquifer storage and recovery wells.
- Water Conservation Plan – implementation plan for 110 gpcd over the next 20-years including education and rebates.
- Storage Plan – this plan will include existing storage capabilities and the need for future additional off-channel storage sites for excess return flows.
- Environmental Plan – need to assemble overall plan including watershed restoration, endangered species, Bosque restoration and other activities.

D. Public Involvement

There was extensive public involvement as part of the development of Water 2120 including the following:

- Water Authority Board Updates – September 2015 to May 2016
- Technical Customer Advisory Committee Meetings – 14 Meetings over 2 Years
- Two Initial Public Meetings – February 2016
- Five Technical Reports
- Four Customer Conversations – May/June 2016
- Town Hall – July 2016
- Westside and Eastside Neighborhood Coalition Meetings – July/August 2016

Water Authority Board Updates

Public presentations were made to the Water Authority Board during their regular meetings in September 2015, January 2016, March 2016 and May 2016. The Water 2120 Plan was introduced to the Water Authority Board in August 2016. The presentations to the Board including demand, supply, climate change, groundwater reserve management plan, alternatives, range of potential supply gaps, and supply portfolios to fill the medium demand/medium supply gap.

Technical Customer Advisory Committee (TCAC) Meetings

The Water Authority Board established a citizen board consisting of nine members of the public to meet and discuss important water policy and other important matters of the Water Authority. There were fourteen meetings over two years working collaboratively with the TCAC on the update to the 2007 Water Resources Management Strategy (WRMS). Extensive presentations were provided and five technical documents were produced for review and comment. The documents produced were as follows:

- Chapter 2 – Water Demand
- Chapter 3 – Supply
- Chapter 4 – Groundwater Management
- Chapter 5 – Alternatives
- Chapter 6 – Filling in Future Gaps in Supply

There were more than 1,300 comments received and addressed from the TCAC on the documents which were posted and available to the public on the Water Authority's website starting in June 2016 with Chapter 6 posted prior to the Town Hall meeting. The TCAC recommended adoption by the Water Authority Board of the new policies at the August 1, 2016 meeting.

Two Initial Public Meetings

The Water Authority hosted two public meetings (around 40 participants) in February 2016 to provide the public with the opportunity to discuss the need for a new 100-year water supply plan and to provide feedback on the plan prior to the plan elements and alternatives established. The meetings went very well and overall there was very positive feedback on discussing what the new plan might consist of.

Four Customer Conversations

There were four customer conversations held in May and June 2016 (about 200 customers). These meetings were held over a two hour period and provided our customers the opportunity to provide feedback on a number of topics related to the new water supply plan. The meetings included a presentation on the update and status of the development of the plan, followed by two exercises examining several alternatives in an effort to afford our customers the opportunity to experience what it was like trying to fill the supply gaps.

The customers were separated into groups at tables where they were provided three different supply scenarios (historical, central tendency climate change, and hot-dry climate change along with a water conservation alternative. Given the gaps presented to them, they worked together to select alternatives based on a variety of criteria including the amount of water they would provide, environmental and financial impact to name a few. The selected alternatives provided an opportunity to obtain productive feedback about customer choices. For example, the customers really liked the idea of capturing and using stormwater as a future alternative water supply. Based on that feedback, we added stormwater as a component of Portfolio 1.

Town Hall

The purpose of the Town Hall was to obtain community input on the revised policies to ensure a safe and sustainable water supply into the future. The Water Authority seeks to reach its water resources management decisions through a public process so that they may reflect community values. The Town Hall brought significant input regarding community values and priorities and how they can be reflected in water resources activities.

The Town Hall was held July 22nd and over 200 customers attended the four hour meeting. The morning was spent in informational plenary sessions where customers learned about different elements of the proposed strategy and were able to ask questions of the presenters. The afternoon was spent in small groups discussions led by individual facilitators and recorders to gather input on customer preference on supply alternatives and proposed policies. Water Authority staff were also circulating through the small group sessions to address questions on the strategy as they arose. The close

of the meeting brought all the participants back together for a report out on the results of their small group discussions. Customer preferences for supply alternatives were very similar to the preferences expressed in the Customer Conversations. Results of the Town Hall meeting are in the appendix.

Westside and Eastside Neighborhood Coalition Meetings

The Water Authority presented the new 100-year water supply plan to members of five different neighborhood coalitions including the Westside Coalition of Neighborhoods and five Eastside Coalition of Neighborhoods. The plan was presented and questions and answers were provided to give another opportunity for public feedback on the plan.

Policies

A. Water Budget Planning and Reporting

POLICY A. The Water Authority shall utilize an adaptive management approach to water resources planning and reporting. The water budget established shall be reported annually to the Water Authority Board and updated no less than every five years.

RATIONALE: The Adaptive Management Approach (AMA) adopted as part of the 2017 WRMS is intended to provide an iterative process by which supply and demand can be re-evaluated as needed in the future. The intent of AMA is to provide an iterative process for robust decision-making in the face of uncertainty, with the aim or reducing uncertainty over time via monitoring. Since both supply and demand projections are uncertain and may be revised in the future, AMA allows for re-evaluation of currently-identified predicted supply gaps, and subsequent revision of these gaps, if necessary. Future revisions to the supply and demand analyses including continued examinations of climate change may be made based on new technical understanding, availability of new technical tools, and/or revisions to current predictions of supply and/or demand. A key aspect of the Water Authority's AMA will be monitoring groundwater levels in the Groundwater Reserve.

SUB-POLICIES:

1. The Water Authority should update the Water Resources Management Strategy using the best available science following the Adaptive Management Approach (AMA) every ten years or more frequently as requested by the Water Authority Board.

2. The Water Authority shall report on an annual basis to the Water Authority Board to provide a water budget for the upcoming year which includes estimated groundwater and surface water use along with estimated non-potable water reuse.

3. The Water Authority shall report to the Water Authority Board every five years regarding the aquifer level and the projected level for the next five years as compared to the groundwater management level established in Policy C.

B. Fully Utilize and Protect Existing Water Rights and Water Resources

POLICY B. The Water Authority shall protect its right to fully use its San Juan-Chama and Rio Grande surface water as a direct water supply and transition to other renewable supplies when available and appropriate. The Water Authority shall limit the use of groundwater except when exercising wells, providing supply during peak demand periods or when surface water supplies are not available (e.g., droughts).

RATIONALE: The Water Authority holds the rights to about 26,396 acre-feet of vested and acquired Rio Grande water rights and 48,200 acre-feet of San Juan-Chama water. Meeting future water demands will require full utilization of these water rights and resources, including the increasing volume of excess wastewater which will be available for reuse. A safe and sustainable water supply for the Water Authority is based on using the existing water rights and resources which will reduce the need for long-term acquisition of additional water supplies. This involves using groundwater and limiting the long-term use of the aquifer to preserve a portion for future generations while preserving the right to fully utilize our groundwater permits during droughts and when surface water supplies are unavailable.

SUB-POLICIES:

1. The Water Authority shall take all the necessary steps to protect its existing water rights and water resources.

2. The Water Authority should utilize a combination of renewable supplies including the groundwater reserve, direct diversion of San Juan-Chama and native surface water, industrial and municipal effluent, impaired groundwater and recycled water.

3. The Water Authority should utilize all available excess return flows as part of a reuse and recycling plan that consists of aquifer storage and recovery, indirect potable and non-potable reuse.

4. The Water Authority should prepare for a basin adjudication or seek alternative legal strategies (negotiated settlements) in addition to the traditional adjudication process.

C. Establish and Maintain a Groundwater Reserve

POLICY C: The Water Authority shall establish a groundwater reserve that maintains sufficient water in aquifer storage to provide water supply during catastrophic drought or other unforeseen, largely unquantifiable events. The groundwater reserve shall be accessible without causing adverse impacts to the aquifer and shall be partitioned into a safety reserve and a working reserve. The safety reserve is that portion of the groundwater reserve prudently maintained for emergency use only, while the working reserve is the balance of the groundwater reserve above the safety reserve. A management level goal of aquifer drawdown shall be set within the working reserve. The management level provides explicit operational guidance to the implementation of Policy B in that it balances full utilization of the Water Authority's existing water rights with no long-term change in groundwater storage.

RATIONALE: The aquifer is generally rising throughout the Middle Rio Grande. This began in 2008 with the implementation of the Drinking Water Project. The water levels are expected to rise for more than a decade longer and it is important to develop and implement an explicit policy for managing the aquifer in the future to prevent a return to pre-1997 practice under which continuing drawdown was unsustainable. This augmented Policy C makes minimal nomenclature changes to the 2007 Policy C and adds specific language to guide management of the aquifer itself.

SUB-POLICIES:

1. The reserve terminology should be implemented by reference to average level of drawdown in Water Authority wells from pre-development conditions as currently defined by the Office of the State Engineer's Administrative model. Accordingly, the initial 2017 reserve settings should be:

    a. Groundwater Reserve. This reserve extends from fifty feet of drawdown to three hundred feet of drawdown, the latter constituting the threshold of irreversible subsidence.
    b. Safety Reserve. That portion of the Groundwater Reserve extending from two hundred and fifty feet of drawdown to three hundred feet of drawdown.
    c. Working Reserve. The residual portion of the Groundwater Reserve extending from fifty feet of drawdown to two hundred and fifty feet of drawdown.
    d. Management Level. This is set at one hundred and ten feet of drawdown from pre-development conditions as determined by examining a variety of groundwater and monitoring wells. This new management level will maintain seventy percent of the Working Reserve.

2. If drawdown in the Working Reserve should fall below the Management Level, then projects should be implemented to add supply to the Water Authority portfolio to restore it to the Management Level.

D. Update and Maintain the Water Conservation Strategy

POLICY D. Implementation of the Water Conservation Plan has been a key aspect of the success of the 2007 Water Resources Management Strategy. Continued progress in conservation to achieve a gallons per capita per day (GPCD) water usage of 110 will further extend our water supplies even in the face of climate change. The Water Authority shall utilize the conservation program to reduce GPCD to 110 by 2037.

RATIONALE: Water conservation has proven to be a powerful tool for managing water resources over the past twenty years. GPCD has been reduced from 250 in 1995 to 127 in 2015. This has led to an overall reduction in production from approximately 125,000 acre-feet in 1995 to approximately 98,000 acre-feet in 2015. Further water conservation efforts over the 100-year planning period are a key element to secure a resilient, affordable water supply for the Water Authority's service area. In addition to representing wise stewardship and management of our water resources, successful implementation of an effective conservation plan is required by the State for obtaining future permits and funding water projects.

SUB-POLICIES:

1. Conservation is the primary way in which customers participate in extending the need for additional water resources. The Water Authority shall continue its public outreach efforts to involve all customer classes in water conservation efforts.

2. The Water Authority shall update the Water Conservation Plan consistent with the 110 GPCD goal.

3. The Water Conservation Plan shall be updated at least every ten years and shall be reviewed annually so that updates to incentive, education and deterrent programs can be kept current with program needs.

4. The Water Authority shall work with the City and County to foster the efficient management and use of water in development and infrastructure.

E. Support Regional Water Resources Planning and Management

POLICY E. The Water Authority shall pursue efforts to enhance regional water resources planning and management activities within the Middle Rio Grande Valley. The Water Authority shall work cooperatively with its neighbors—the Pueblos, the Middle Rio Grande Conservancy District, Middle Rio Grande Valley cities and counties, and involved state and federal agencies. The Water Authority shall continue to be involved in and monitor the progress of regional and interstate water management initiatives that may affect the Water Authority and the region.

RATIONALE: The Water Authority recognizes the need to work in cooperation with other entities that share use of the Middle Rio Grande Valley's water resources. Regional water resources planning needs to address uses for public and domestic water supply, irrigated agriculture, livestock, commerce, industry, fish, recreation and wildlife. The Water Authority, neighboring jurisdictions, and other water users need to work with State, regional, and federal agencies with water management responsibilities.

SUB-POLICIES:

1. The Water Authority shall continue its proactive role to ensure that the necessary technical investigations with U.S. Geological Survey and others are completed efficiently and expeditiously and that they result in an improved understanding of surface and groundwater.

2. The Water Authority is committed to seek common solutions within a regional context. The Water Authority shall work with others in the Middle Rio Grande Valley on updates and implementation of the Regional Water Plan.

3. When appropriate, the Water Authority should share their experience in groundwater management to assist other planning efforts in transitioning to renewable supplies and to limit long-term groundwater usage.

4. The Water Authority shall work with federal and state agencies including the U.S. Bureau of Reclamation, U.S. Army Corps of Engineers and U.S. Bureau of Land Management, the New Mexico Office of the State Engineer and the Interstate Stream Commission to continue to find common solutions for water management on the Rio Chama and the Rio Grande.

5. The Water Authority shall collaborate with the Middle Rio Grande Conservancy District (MRGCD) to develop and implement a plan to support and promote agriculture in the Middle Rio Grande.

6. The Water Authority shall promote and develop green infrastructure including storm water infrastructure to promote efficient water resources management and aquifer storage.

F. Utilize Conjunctive Management and Diversify Water Resources Portfolio

POLICY F. The Water Authority shall enhance the resiliency and sustainability of the water supply by effectively combining the use of surface water, recycled and reclaimed water, the shallow and deep aquifer, and other supplies as needed to meet current and future demand.

RATIONALE: Enhancing the efficiency of the Water Authority's water use, requires conjunctive management and use of all available resources: surface water for municipal and industrial supply and for irrigation, groundwater for exercising wells, peaking, and when surface water supplies are not available (e.g., drought), ASR for municipal and industrial supply, and other supplies as available.

Reclamation and reuse of existing water supplies, where economically feasible and protective of human health and the environment, represents a method of maximizing and increasing the usefulness of a limited water supply. Consideration must also be given to satisfying the return flow needs of the Rio Grande from water-rights-permitting, Rio Grande Compact Compliance and environmental standpoints.

The use of groundwater will always be a key component of the Water Authority's supply portfolio. Following a conservative Groundwater Management Plan that limits long-term groundwater production and establishes a Safety Reserve positions the Water Authority for indefinite use of the aquifer while maintaining a significant volume of water for unforeseen events. Using the Water Authority's surface water and other sources for municipal and industrial supply will protect the aquifer so that it is available to meet seasonal peak demands and when surface water is not available (e.g., drought). Without a groundwater component of supply, the Water Authority would need to abandon use of significant investment in groundwater assets and transition to expensive additional surface water storage facilities adding larger and more costly treatment facilities to meet seasonal peak demands.

Aquifer storage and recovery is a key component of balancing groundwater use during times when surface water is not available (e.g., droughts). Using stored surface water during these times will reduce overall long-term use of groundwater during the planning period. In Albuquerque, this requires artificial recharge of the aquifer with deep recharge wells. It is essential that this capability be expanded. Stored surface water will not increase overall groundwater use because there will always be a need to utilize groundwater to exercise wells or to meet seasonal peak demands which will provide the native water component needed to facilitate use of imported San Juan-Chama water.

In addition, the Water Authority should be opportunistic in utilizing other sources to extend supply that may not always be available. These sources could include relinquishment credit water, contaminated groundwater, excess San Juan-Chama water and native flood flows in addition to leased San Juan-Chama water. Each of these sources has been available for use in the Middle Rio Grande in the past and may be available for limited use in the future. Utilizing these sources extends supply by saving other resources for future use.

SUB-POLICIES:

1. The Water Authority shall use various sources of supply (potable and contaminated groundwater, surface water, reuse water, etc.) to meet demand over the planning period. The quality of the water supplied will be matched to its use to reduce treatment costs and to optimize available excess supplies when available.

2. The Water Authority shall prepare and implement plans to utilize water sources that are typically only available sporadically (excess San Juan-Chama water, relinquishment credit water, etc.).

3. The Water Authority should investigate and enter into agreements for short-term leases in times when wet water is available to be stored and used during times of drought and for aquifer recharge.

4. The Water Authority shall develop a reuse and recycling master plan to address current and future reuse demand, excess available wastewater supplies and the associated infrastructure needs over the planning period.

5. The Water Authority shall use pumping from the aquifer to meet seasonal demands, well exercising and when surface water is not available (e.g., droughts).

6. The Water Authority shall continue to develop and implement methods to store available surface water and other reuse supplies in the aquifer and to recover it from storage as needed to meet current and future demands.

7. The Water Authority should develop and implement the use of storm water and native water flood flows when supplies are available considering permitting and environmental criteria along with Rio Grande Compact Compliance.

G. Develop and Implement Long-Term Water Resources Acquisition Plan

POLICY G. The Water Authority shall pursue a portfolio of potential additional sources of supply.

RATIONALE: Establishing and maintaining a groundwater reserve (Policy C) will require the Water Authority to rely less on the local aquifer and to secure additional sources of supply to meet future demands. A more diversified water supply portfolio that includes more renewable sources is essential to provide a resilient and sustainable water supply that can meet customer demands in perpetuity.

While this Water Resources Management Strategy does not contemplate the need for acquisition of additional supplies, the Water Authority should continue to pursue these additional supply sources over the long-term which will allow the Water Authority to be ready when those supplies become available. Full consideration will be given to the financial implications in addition to the regional context including agricultural and environmental issues.

SUB-POLICIES:

1. The Water Authority should seek legislation to allow for water leasing and banking on a local, regional and interstate basis.

2. The Water Authority should continue to develop the potential for use of brackish groundwater as a future supply considering financial, environmental and carbon footprint criteria.

3. The Water Authority should stay active in evaluating other water rights transfers in the Middle Rio Grande and should take proactive stances when necessary.

4. The Water Authority should investigate the opportunity to import water supplies outside of the Middle Rio Grande when available considering financial, environmental and other criteria.

5. The Water Authority shall discontinue acquisition of native pre-1907 water rights.

H. Implement the Water Quality Protection Policy and Action Plan

POLICY H. The Water Authority shall take steps to fully implement the Water Quality Protection Policy and Action Plan.

RATIONALE: The Albuquerque/Bernalillo County Water Quality Protection Policy and Action Plan (County Resolution No. AR 121-93 and City Enactment No. 81-1994) is another cornerstone of this Water Resources Management Strategy. The Water Authority revised the Groundwater Protection Policy and Action Plan in 2009 to add surface water protection measures, recognizing the use of San Juan-Chama water as a primary drinking water source. Protection of both groundwater and surface resources from known or potential sources of contamination is essential for maintaining a safe drinking water supply and aquifer storage and recovery program. Their protection from contamination is of paramount importance.

SUB-POLICIES:

1. The Water Authority should continue to be proactive in identifying potential water quality threats to surface and groundwater resources and should implement programs to the extent possible to protect the water resources in the MRG.

2. The Water Protection Advisory Board (WPAB) shall provide annual updates on the implementation of the Water Quality Protection Policy and Action Plan (WQPPAP) to the Water Authority Board through submission of the Annual WPAB Reports and presentations at regular WPAB meetings.

3. The Water Authority shall provide pertinent information regarding updates to the water resource management strategy activities to the WPAB during its triennial review of the WQPPAP implementation activities.

4. The Water Authority should consider the occurrence, fate and potential treatment of emerging contaminants in current and future water supplies and should actively participate in research which will become more important as the availability of water resources becomes more constrained.

5. The Water Authority should coordinate with the City, County and State to maintain the quality of groundwater and surface waters.

I. Protect and Enhance Storage of Native, San Juan-Chama Water and other water resources

POLICY I. The Water Authority shall protect the rights to store native, San Juan-Chama and other water resources including reuse and recycled water in a variety of storage facilities including Heron, Abiquiu and Elephant Butte Reservoirs. The Water Authority should seek additional off-channel storage capacity locally or within the Middle Rio Grande as needed to maximize the use of excess wastewater or other water resources in the future.

SUB-POLICIES:

1. The Water Authority should protect and enhance its storage rights in Abiquiu Reservoir for native and San Juan-Chama water which will provide opportunities to continue to cooperate with environmental, local, state and federal entities to maximize the benefit for the MRG.

2. The Water Authority should examine the need for additional short and long-term off-channel storage locally and within the MRG to be prepared when excess San Juan-Chama water, native flood flows, or other water resources are available.

3. The Water Authority should consider the aquifer as a reservoir to be used conjunctively with above-ground storage to optimize the use of current and future water supplies.

4. The Water Authority should develop and implement a Rio Grande Compact pool within the Water Authority storage space working with the Interstate Stream Commission (ISC) and the Office of the State Engineer (OSE).

5. The Water Authority should continue providing space in Abiquiu Reservoir for environmental purposes.

6. The Water Authority should seek long-term storage of San Juan-Chama water in Elephant Butte Reservoir.

J. Protect Valued Environmental and Cultural Resources

POLICY J. The Water Authority shall identify and provide resources to preserve and protect valued environmental resources of the region. The Water Authority shall work independently and in partnerships to ensure that its activities do not irreparably harm the aquifer, river, Bosque, source watersheds and the cultural resources.

RATIONALE: The regional aquifer, Bosque and Rio Grande are exceptional resources of great economic, ecological, aesthetic and cultural value. The Water Authority should cooperate to develop and implement environmentally conscious water resource development activities that protect the environmental and cultural values of our community.

SUB-POLICIES:

1. The Water Authority should continue to participate in the Endangered Species Collaborative Program and Recovery Implementation Efforts for multiple species in the MRG.

2. The Water Authority should encourage the State to recognize instream flows as a beneficial use.

3. The Water Authority should consider the impacts on environmental and cultural resources when implementing new water resources projects and take appropriate steps to mitigate unavoidable effects.

4. The Water Authority should work collaboratively and provide funding to protect and restore watersheds of the San Juan-Chama and Rio Grande.

5. The Water Authority should work with the City, Middle Rio Grande Conservancy District and others to protect and enhance the Rio Grande State Park and the Bosque.

6. The Water Authority should work with the City and County to provide incentives to increase beneficial tree canopy coverage within Bernalillo County and the MRG.

K. Preserve and Enhance the Quality of Life in the Region

POLICY K. The Water Authority seeks a Water Resources Management Strategy that will preserve and enhance the quality of life within the region. The implementation of the Water Authority's water resources strategy will take advantage of opportunities to enhance the quality of life in the region whenever possible.

RATIONALE: As the largest water utility in New Mexico, the Water Authority recognizes its obligation to protect and enhance the quality of life within the region. Factors influencing quality of life include continued socioeconomic growth and development, support of public amenities, healthy ecosystems and green spaces, and minimizing environmental impacts. The Water Authority will provide sustainable water services to meet indoor demands, optimize efficiency of outdoor demands by utilizing recycled, reused and non-potable supplies, and return quality water to the Rio Grande for downstream users in the region.

SUB-POLICIES:

1. The Water Authority shall work with the City of Albuquerque, Albuquerque Public Schools, Bernalillo County and others to ensure that green spaces (parks, golf courses, athletic fields, etc.) are water efficient and provide incentives where appropriate.

2. The Water Authority should continue to reduce its carbon footprint by taking advantage of opportunities to reduce the energy usage of current infrastructure and by building new infrastructure with energy efficiency in mind.

3. The Water Authority shall expand its current green energy projects (solar and biogas) and implement additional green energy projects to reduce its water and energy footprints.

L. Link Land Use Planning with Water Management

POLICY L. The Water Authority shall coordinate and cooperate with the City, County and all other entities with planning authority to integrate water management policies with land use decisions. The Water Authority recognizes that managing the use of groundwater while conserving and using existing water resources including maximizing the use of excess resources when available should significantly reduce acquisition of new supplies to serve future customers.

RATIONALE: With the membership of the Water Authority consisting of elected officials from the City of Albuquerque, Bernalillo County and Village of Los Ranchos, future growth and development in the region requires coordination to integrate land use, transportation, infrastructure, economic improvement, urban infill and planning efforts with water resources management.

SUB-POLICIES:

1. The Water Authority should work with the City and County to update the Albuquerque/Bernalillo County Comprehensive Plan and/or other plans to ensure that system expansion is concurrent with infrastructure service levels and that the extension of facilities and services be phased in an efficient and orderly manner.

2. The Water Authority should ensure that its capital planning process is based on the City and County growth and development master plans so that land use and infrastructure policies are consistent.

3. The Water Authority should support the increase of urban building densities and infill development consistent with adopted land use plans as higher density development uses less water.

4. The Water Authority should encourage the City, County and State to adopt low-water-use Building Codes and low-water-use landscaping standards for all new construction.

5. The Water Authority should continue its review process so that each new residential, commercial, industrial and institutional development will have a resilient, sustainable water supply.

M. Encourage and Facilitate Public Involvement

POLICY M. The Water Authority shall continue its education programs for both children and adults to keep the public informed about the choices and tradeoffs involved in making water management decisions and invite public comment and participation in implementation of these policies.

RATIONALE: When the Water Authority partners with the public, the educated public can help shape the policies that are the foundation of the Water Resources Management Strategy. The public then contributes to the successful implementation of water resource management solutions, because they have been part of their design. Children who attend Water Authority field trips will know the value of water and be wise stewards of our resources for many years to come.

SUB-POLICIES:

1. The Water Authority shall continue its water resource education programs and field trips to teach children the importance, value and appropriate use of water in the region.

2. The Water Authority shall continue its interactive public meeting process to give customers information and get their input on upcoming programs, policies and projects.

3. The Water Authority shall continue its adult education programs so that all customers can participate in a resilient and sustainable water supply.

4. The Water Authority shall continue to partner with real estate, design, building and construction groups, building managers, etc. to educate their membership concerning water resources.

5. The Water Authority shall continue its current marketing and public relations campaigns to keep everyone in the service area informed about effective water resource management.

6. The Water Authority shall continue its process of involving the public in updates to the Water Resources Management Strategy in all future updates to the strategy.

Strategy for Use of Existing Supplies

This section describes the Water Authority's strategy for using the existing supplies to provide a safe and sustainable water supply for the next 100-years.

A. Use of Groundwater

The aquifer will no longer be the primary source of water as we have successfully transitioned to using our San Juan-Chama water along with reuse/reclamation projects. Under the new groundwater management reserve policy, groundwater will be used when surface water is not available (e.g., droughts), well exercising and to meet peak demands. As population increases over time, groundwater use will increase, but the Water Authority's policies are to implement projects over the 100-year timeframe to minimize long-term use of the aquifer to stay at or above the groundwater management level. The aquifer is rising and is projected to rise for another decade or two which will be monitored using both existing groundwater monitoring wells and production wells. The combination of less groundwater use along with aquifer storage and recovery will provide a long-term source of water for this community for many decades to come.

B. San Juan-Chama Drinking Water Project (DWP)

The San-Juan Chama Drinking Water Project (DWP) has been operational since December 2008. The DWP was slowly implemented into the system over the first three to four years to address potential chemical compatibility issues and water quality concerns that have plagued other municipalities (e.g., Tucson, AZ and Flint, MI). The DWP will be our primary source of supply over the next ten years and many decades to come. However, consumptive use in the Water Authority system has reduced to less than 40,000 acre-feet per year which means that we must implement additional aquifer storage and recovery projects to store San Juan-Chama water for use when surface water is not available.

The OSE permit has many conditions that limit the Water Authority's ability to utilize San Juan-Chama water especially during low flows commonly associated with droughts in the Middle Rio Grande. During those times, the Water Authority will shutdown the DWP and utilize groundwater or stored San Juan-Chama water when the large scale ASR projects are on-line and operational. San Juan-Chama not used during one year will be stored and be available for the following year(s) depending on hydrology conditions. Based on the OSE conditions and our current water usage patterns, the Water Authority can most likely meet about 70% of demand using the DWP with no interruptions due to low flows or other unscheduled events. For the next few years and sometime after that, the target will be to use at least 70% surface water and potentially more when the large scale ASR projects come on-line and water is stored which can be used to meet peak demands or when the DWP is reduced or shutdown.

C. Reclamation and Reuse Projects

The Water Authority will continue to operate and maintain the two existing reuse and recycling projects. As additional customers connect, additional reuse and recycled water will be used for large turf areas and potentially industrial demands. The Water Authority is committed to additional reuse projects under this plan including connecting the two existing reuse systems on

the eastside of the Rio Grande, construction of a new reuse system on the Westside and an additional system to treat effluent for reuse near Mesa del Sol.

D. Aquifer Storage and Recovery

The Water Authority has implemented the Bear Canyon Arroyo aquifer storage and recovery project. That project can provide about 1,000 acre-feet of supply over a two year period until changes are made as planned to connect the Northside Reuse system to the Southside Reuse system whereby non-potable municipal effluent can be used for irrigation and more water will be available for infiltration of San Juan-Chama water during the winter months.

The Large Scale ASR project is underway with the permit submitted to the OSE and approval from NMED for the demonstration project. Under this project, purified San Juan-Chama water will be injected directly into the aquifer via the construction of a new well and also through infiltration via a newly constructed vadose system well. Water stored during the winter months will be available for recovery from the new well during the summer months. The demonstration project will attempt to get up to 5,000 acre-feet of water into the aquifer annually and then recovery that amount later in the same year or store it for future withdrawal.

Appendix A

2016 Water Resources Town Hall Report

2016

Town Hall

Albuquerque Bernalillo County
Water Utility Authority

Town Hall
July 22, 2016

Introduction

The Water Authority conducted a four hour Town Hall on July 22, 2016 that focused on the update to the Water Resources Management Strategy (now called Water 2120: Securing our Water Future) and the Policies to implement the strategy. The meeting was held at the Uptown Marriot in Albuquerque and hosted over 200 customers.

The Town Hall (Agenda – Attachment D) opened with two presentations in plenary to provide background information on:

- Future Supply Alternatives
- Water Resource Policies

The Town Hall participants were then divided into ten groups and with the support of professional facilitators and recorders were asked to participate in the below activities.

- Activity 1: Prioritizing Future Supply Alternatives
- Activity 2: Focused Input on Four Water Resource Policies.

ACTIVITY 1

The small groups first reviewed the supply alternatives commenting on those alternatives they most liked and why. They were then given six marbles to place in plastic cups labeled with the name of each alternative. They were asked to place 3 marbles in their first choice, two in second, and one in third.

ACTIVITY 2

The goal of Activity 2 was to review four key policies for discussion and input (Attachment E). The four policies were:

- Policy B: Fully Utilize and Protect Existing Water Rights and Water Resources
- Policy D: Update and Maintain the Water Conservation Strategy
- Policy J: Protect Valued Environmental and Cultural Resources
- Policy M: Encourage and Facilitate Public Involvement

Small Group Work

Group A

Ed McCorkindale, *Facilitator*

Lily Gates, *Recorder*

ACTIVITY 1

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: It's low cost and is relatively well balanced.

#3 – Lease Additional San Juan — Chama Water

#4 – Interbasin Transfer

- Concern: It's expensive.

#5 – Indirect Potable Reuse

- Like: It has worked in other places. We already have the resources.
- Like: We already have the plant.

#6 – Rio Grande Compact Relinquishment Credit Water

- Concern: Issues with Texas and the amount of water we gave to them

#7- Brackish Groundwater

- Concern: It's the most expensive and it's just "a last resort".

#8 – Stormwater Capture

- Like: It's environmentally friendly and we might as well take advantage of it.

#9 – Additional Reuse — Westside/Eastside and ASR

#10 – Watershed Restoration

- It's good for insurance.

General

- We should promote xeriscaping.
- Continue educating public about where water comes from (especially adults)

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery
- Connect Southside to Northside with Expansion in the Middle
- Stormwater Capture

ACTIVITY 2

POLICY B:

CONCERN:

- Will our water rights conflict with other city's water rights?

POLICY D:

LIKE:

- Should encourage xeriscaping

POLICY J:

LIKE:

- Key sub policies: J–4 and J–6

Policy M:

LIKE:

- Key sub policies: M–3

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- The group didn't choose one in particular.

What types of outreach are most effective?

- Didn't choose just one, need to combine all of them

Group B

Scott McKitrick, *Facilitator*

Raye Myers, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: Meets all of the criteria and good for the environment
- Like: Meets for all of the reasons and a blend of all factors
- Like: Provides the highest volume of water
- Like: It has less (negative) impact on the environment.

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: Provides a high yield for water

- Like: Is low cost and efficient
- Question: Why is the environmental impact less? Is it due to new infrastructure?

#3 – Lease Additional San Juan — Chama Water

- No comment.

#4 – Interbasin Transfer

- No comment.

#5 – Indirect Potable Reuse

- No comment.

#6 – Rio Grande Compact Relinquishment Credit Water

- No comment.

#7- Brackish Groundwater

- No comment.

#8 – Stormwater Capture

- Like: Has impressive yield
- Like: The cost is negligible.
- Like: It is an easy resource to capitalize on.
- Comment: Nature gives us the water, so let's make use of it.

#9 – Additional Reuse — Westside/Eastside and ASR

- No comment.

#10 – Watershed Restoration

- Like: Provides long-term environmental benefits
- Like: Protects water quality and is available
- Comment: We should protect what we have and be proactive.

General

- Do these alternatives only apply to the source of the water and not the uses?
- Why is it the law that we can only have water for 96 hours after a power outage?
- We should use what we have by capturing stormwater.
- We should protect what we have, which is why it is proactive to go with the Watershed Restoration alternative.
- Why can't we do all of these alternatives?

- How does the Water Authority interact with PNM?
- What percent of the water goes where/for what purpose?

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery
- Connect Southside Reuse to Northside with Expansion in the Middle
- Stormwater Capture
- Watershed Restoration

ACTIVITY 2

POLICY B:

COMMENTS:

- Every resource has different people and purposes associated with it.
- There needs to be an introduction that says it is a plan and more education so that people are aware of it and see that it's written down somewhere (in regard to all of the policies and goal of 110 GPCD).

QUESTIONS:

- Are there things we need to do now that are more forward-thinking?
- Are these policies permanent?
- What are the water rights related to the Juan-Chama River?
- Why would we need alternative legal strategies (in reference to sub-policy 4)?

SUB-POLICIES MISSING:

- None

POLICY D:

QUESTIONS:

- Is it always the case that conservation is the cheapest thing to do?
- How do the conservation efforts of the Water Authority compare to other desert communities and conservation goals?
- What can you attribute the success of Albuquerque water conservation to?
- How are agriculture, reduction (of resources), and growth (population) bringing the volume numbers down?

SUB-POLICIES MISSING:

- None

POLICY J:

QUESTIONS:

- Would this policy include restoration in the Bosque?
- J–6: Are there environmental benefits of tree canopy coverage other than quality of life?

LIKE:

- Provides watershed planning and funding
- Gives tree canopy importance
- Includes watershed protection and restoration in case of fires

SUB-POLICIES MISSING:

- None

POLICY M:

LIKE:

- Like current education programs and how the Water Authority is keeping 4th graders and children in general informed—education 10 years from now, will really be able to see the impact
- The website is awesome, well designed, and is a good way to inform the public.
- Like the newsletter, very informational

COMMENTS:

- Need to tell people that they have water when the power goes out
- Social media depends on the age and is good way to communicate with millennials.
- The app can be used more, and not many people know about it.
- Some people like paying bills electronically, so advertise that more.

QUESTIONS:

- Do you have programs on channel 16?
- Is it the state that sets service areas where the water reaches?
- Is billing based on meter size and are there separate meter sizes based on house size?

SUB-POLICIES MISSING:

- Try to get people focused on water usage/conservation

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- D–2: It is important that the public understands that this is the goal so that we can try and meet it and also that we have met a previous goal.
- J–4: Agree that watershed restoration is important and not many people know about it, put information in Bosque walks
- Support water reuse but need to get a better understanding of issues and health concerns
-

What types of outreach are most effective?

- Provide information in with the bill because people have to open the bill anyway
- Use app/website notifications and updates on the Water Authority

GENERAL:

- Town hall was a very well organized event.
- Like how the Water Authority is getting high school students involved
- Think the Water Authority seems very committed and interested in public involvement
- Want the Water Authority to tell the public more about the successes
- Interested in a comparison with other cities

~ ~

Group C

Sara Douglas, *Facilitator*

Bernadette Mitchell, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: A recovery process that will eventually replenish the aquifer.
- Like: It may one day put us back to the water levels we once had.
- Like: Storage is not subject to evaporation, so no water will be lost.
- Like: It has already been proven effective.
- Like: This option does not disrupt the environment.
- Like: Creates the most options for water use
- Concern: Testing standards
-

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Connecting the two will give the benefit of using waste water.

#3 – Lease Additional San Juan — Chama Water

- Concern: It took time to get these contracts in place so we should consider this option thoroughly before dismissing it.

#4 – Interbasin Transfer

- Water can be fully consumed with a portion being returned for reuse.

#5 – Indirect Potable Reuse

- Reclaimed highly treated water can be reused after a storage period.

#6 – Rio Grande Compact Relinquishment Credit Water

- No comment.

#7- Brackish Groundwater

- No comment.

#8 – Stormwater Capture

- Like: Collects and uses another source of water
- Like: Doesn't take any water from storage

#9 – Additional Reuse — Westside/Eastside and ASR

- Allows for more uses of waste water

#10 – Watershed Restoration

- Like: Will help advert wildfires and protect water gains
- Like: We need to take care of the water we have.

General

- The environment should be the most important consideration when choosing an option.

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery
- Additional Reuse – Westside/ Eastside and ASR
- Connect Southside reuse to Northside with Expansion in the Middle
- Watershed Restoration
- Stormwater capture
- Lease additional San Juan – Chama water
- Interbasin Transfer
- Indirect Potable Reuse

ACTIVITY 2

POLICY B:

LIKE:

- Protecting water rights that we already have
- Actively working so water rights are not limited or lost by seeking legal strategies

SUB-POLICIES MISSING:

- None

POLICY D:

LIKE:

- 110 GPCD is a great goal in water conservation.

SUB-POLICIES MISSING:

- None

POLICY J:

LIKE:

- Instream flows will be seen as a beneficial use.
- Restoring and protecting the watersheds help insure that water will not be wasted.
- Very important to enhance public green areas as long it is fully accessible to the public and doesn't just benefit a small percentage (i.e. golf courses).
- Trees are very important for our environment. Will increasing the tree canopy keep us in line with the 110 GPCD goal?

SUB-POLICIES MISSING:

- Incentives should apply to residential areas to increase canopy and to upkeep older trees in established neighborhoods.

POLICY M:

LIKE:

- Supports youth educational programs
- Support commercials

SUB-POLICIES MISSING:

- None

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- M–3: Work with neighborhood associations by having someone from the Water Authority come to HOA meetings and teach about conservation and show ways water is being wasted (i.e. over watering, washing vehicles).
- M–5: Commercials are a great reminder, but would like them to be more detailed, including how long to water.

What types of outreach are most effective?

- Technology and Social Media (apps, twitter, Facebook)
- Public Meetings

Group D

Ildi Oravecz, *Facilitator*

Ruby Gates, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: It will protect the water from evaporating.
- Like: It will be good for times of drought.

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: We can reuse water, and get more out of it.

#3 – Lease Additional San Juan — Chama Water

- Like: Accessing more for water conservation

#4 – Interbasin Transfer

- No input.

#5 – Indirect Potable Reuse

- Like: Reuse is an essential long term necessity.
- Like: It is the only one with no apparent issues.
- "Gross"

#6 – Rio Grande Compact Relinquishment Credit Water

- Like: Is all around good economically and at a low price

#7- Brackish Groundwater

- Concern: Alternative is not cheap

#8 – Stormwater Capture

- Like: If it is not used it will be polluted. This is a solution.
- Like: With the technology today we could do a lot.
- Like: The water is already there, now we just need to use it.
- Concern: Legal issues

#9 – Additional Reuse — Westside/Eastside and ASR

- Like: This option is all around good.
- Like: Volume
- Like: It is easy to continue.

#10 – Watershed Restoration

- Like: Wildfires do a lot of damage. They are less likely with this option or better controlled.
- Concern: It takes away from our drinking water projects.
- Like: It keeps some heat/sunlight off the ground that cause evaporation.
- Concern: There is not a lot of gain.
- Is this already done?

General

- Everyone is interested in reuse.
- Price and availability are important to everyone.

What is the relative priority of alternatives after the vote?

- Stormwater capture

ACTIVITY 2

POLICY B:

LIKE:

- Like everything about sub-policy 3.

- Taking advantage of everything

CONCERN:

- Legal issues

SUB-POLICIES MISSING:

- Direct potable reuse
- Water quality control, not just water policy

POLICY D:

LIKE:

- The fact of giving and showing small things makes people think more about water use.

CONCERN:

- Population will grow.
- We need to look into this more often (every other year).
- Will we be adjusting rates?
- How will we actually get there? We know the end result, just not everything in the middle.
- We need to break down the global GPCD into smaller more specialized categories (Turf, household…).

SUB-POLICIES MISSING:

- Requiring updated utilities

POLICY J:

Concerns:

- Dead trees and dirt are disturbing.
- Is this really what we want to spend money on?
-

Like:

- Sub-policy 5

Sub-Policies Missing:

- Protecting the urban environment

- We need to work on Bosque restoration and management.

Policy M:

LIKE:

- The younger you learn, the better.

SUB-POLICIES MISSING:

- Social media (Instagram)
- Go back to what does work and then make it better
- Get the information to everyone
- Provide more reminders on bills, websites, and everything
- Add more nonprofits on sub-policy 4.

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- B–5: Get the information to everyone, especially the people who want to do something.

What types of outreach are most effective?

- Social Media

Group G

Elizabeth Phillip, *Facilitator*

Celina Hill, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: Protects aquifer
- Like: Stores excess water
- Like: Has no evaporation, high yield, available and low cost

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- No comments

#3 – Lease Additional San Juan — Chama Water

- No comments

#4 – Interbasin Transfer

- No comments

#5 – Indirect Potable Reuse

- Like: Low environmental impact

#6 – Rio Grande Compact Relinquishment Credit Water

- No comments

#7- Brackish Groundwater

- No comments

#8 – Stormwater Capture

- Concern: Stormwater is being wasted.
- Like: Has no evaporation, high yield, available and low cost

#9 – Additional Reuse — Westside/Eastside and ASR

- No comments

#10 – Watershed Restoration

- Like: Has more than one benefit

General

- Cost was a low priority for the group.

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery
- Stormwater Capture
- Indirect Potable Reuse
- Watershed Restoration

ACTIVITY 2

POLICY B:

LIKE:

- Uses something that we already have
- It is cost effective to continue work rather than to create new infrastructure.

SUB-POLICIES MISSING:

POLICY D:

LIKE:

- Supports continuous review

SUB-POLICIES MISSING:

- Involve the state more
- Provide services or financial aid for homes that want to do xeriscaping or remove sprinklers but do not have the means to do it.

POLICY J:

Like:

- Continues environmental efforts

Sub-Policies Missing:

- In addition to taking out non-native plant species, add new plants that will be helpful.

POLICY M:

LIKE:

- Makes information available

SUB-POLICIES MISSING:

- Gives more attention to climate change

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- Without attention on climate change, all of our conservation efforts will be ineffective.

What types of outreach are most effective?

- Pamphlet in their bill
- Involving neighborhood associations in the conservation and educational process
- Face to face meetings

~ ~

Group H

Karen Klein, *Facilitator*

Anna Horner, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: Useful to store water and use it later, makes sense
- Like: Provides long term solution, is easy on the environment, highly available with net to low cost
- Like: Aquifer has been depleted and we've seen success restoring it so far, stick with this practice to keep water in the ground for grandkids.
- Like: We've seen success and allows water for a long time.

- Like: Is fiscally responsible
- Like: Dilutes any bad things in the water
- Like: Provides better quality water for the future
- Like: Provides water for future generations and is good for the environment
- Like: Allow more water for environment and cost is low
- If you have the first alternative, then the 8th alternative (storm water catchment) makes sense.

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: Like the description, frees up water on Northside for other purposes
- Like: Provides for reuse
- Like: New communities are being built and old communities are being rebuilt.
- Like: It improve neighborhoods, improve communities, uses routes that are already established and saves money.

#3 – Lease Additional San Juan — Chama Water

- Like: Is low cost and a clean source

#4 – Interbasin Transfer

- Concern: Viability of this option

#8 – Stormwater Capture

- Like: It is good for the environment and a reasonable price.
- Cost of the alternative should be the bottom line.
- Like: keeps water out of the gutter
- Like: The practice is cost effective.
- Like: Don't like to see all that water wasted.

ACTIVITY 2

POLICY B:

LIKE:

- Continues to improve what is in place
- B–3: It is recycling and reusing
- We are fortunate to have this alternative because when there is drought we have options.

SUB-POLICIES MISSING:

- Capture and use stormwater as a part of using the water resources we have

- Provide understanding how we can legally capture and use rainwater and still fulfill our obligations to Texas
- Provide clear articulation of current utilization of existing water rights
- Are we fully using the rights we have?
- Policy should state if any of the current water rights haven't been adjudicated, then they need to be validated and incorporated into Water Authority.

POLICY D:

LIKE:

- We can adapt and change as needed.
- The Water Authority can and will stay on top of changes.

SUB-POLICIES MISSING:

- D-3: We need equity of conservation requirements, no discounts for big business, and an even playing field where we all conserve.
- Be aware of potential high cost to consumer
- Use language that requires a buffer between sidewalks and streets to catch water run-off from watering public parks
- Improve regulations for Parks and Engineers in regards to efficient water use, such that consumers are not stuck with inefficient water use systems in their homes
- Improve options for conversation – such as xeriscaping at schools with healthy options, not artificial turf that has carcinogens
- This policy talks a lot about external changes and conservation efforts. What is the Water Authority doing internally to conserve?

POLICY J:

LIKE:

- More trees mean less pollution.
- Tree canopy is very important to the health of the city and protects the future for grandkids and the city.

SUB-POLICIES MISSING:

- Involvement of boy scouts and prisoners in watershed management
- This is the desert — why do we need to have water in the river?
- Need to include the history of water and rivers in the desert
- Consider recreational use of water in Albuquerque

- Reconcile cultural use and importance of acequias with environmental impact

POLICY M:

LIKE:

- Rebates and lunch bring people in

SUB-POLICIES MISSING:

- We need community representation on the board.
- Location of the meeting is very important.
- There should be more meetings downtown and throughout the city.
- Concerns about cost of this meeting – have meetings in schools, rather than in hotels
- Business representation is not present at the town hall. There needs to be more outreach to businesses to get them to attend.
- Increase age range present at the meeting
- Encourage attendees to spread the word by word of mouth, tell everyone to tell at least one person about this opportunity
- Continue to use age appropriate methods to educate young folks to help hit 2120 goals

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- We did not get to this

What types of outreach are most effective?

- This seemed to be addressed in response to Policy M

PARKING LOT:

- Need to understand how implementing stormwater capture requires change of state law
- Need to increase public understanding of water law — especially in regards to farms' water rights — don't use them they lose them
- This requires farmers to water fallow fields!
- How do we get out more information about the rebate for planting trees?
- Concern about water unnecessarily going down the drain
-

Group I

Susan Chaudoir, *Facilitator*

Nicki Villansenor, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: This offers good environmental protection.
- Like: This reserves water for the future. By reducing evaporation the groundwater levels increase.
- Like: This alternative is not as expensive over the long run.
- Like: Here is high volume and frequency of availability.

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: This connection creates opportunity for other alternatives and expansion in the future.
- Like: Green spaces are important for the public to enjoy, this alternative sustains the existing parks.
- Like: This is a known strategy, with known yield and evidence that it works.

#3 – Lease Additional San Juan — Chama Water

#4 – Interbasin Transfer

#5 – Indirect Potable Reuse

#6 – Rio Grande Compact Relinquishment Credit Water

#7- Brackish Groundwater

#8 – Stormwater Capture

- Like: This alternative supports conservation, and if reused it can support he landscape.
- Like: Water is usable without treatment, which saves money.
- Like: It is a local supply, so it is not coming from elsewhere.
- Like: This is self-sustaining and recharges naturally.

#9 – Additional Reuse — Westside/Eastside and ASR

#10 – Watershed Restoration

- Green infrastructure requires us to focus on areas that require attention.
- The Bosque has many nonnative species.

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery
- Connect Southside reuse to Northside with expansion in the middle.
- Stormwater capture.

ACTIVITY 2

POLICY B:

POLICY D:

LIKE:

- This is helpful if they encourage education on how to use gray water safely.
- This can be reused with no treatment and can help meet conservation goals.
- I'm very concerned about the trees. They are dying. If rates go up more trees will die.
- The trees are the personal responsibility of the individual.

SUB-POLICIES MISSING:

POLICY J:

Like:

- No comments

POLICY M:

LIKE:

- This is currently being implemented. We are involved and participating. We are making decisions.
- We have the third largest canopy die off because education was not on trees but on lawns.
- Trees encourage mental health and provide shade.
- Technology will become available and we need aggressive education on what is out there.
- Rebates for smart controllers should be part of the strategy.
- We need education on how trees work.

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- Education on how to water trees correctly can help keep trees alive without wasting water.
- Knowing the meter alternatives can help customers track their use and conserve more water.
- Understanding gray water, the available systems, and how it can be used at home would be great information.

What types of outreach are most effective?

- Bill inserts are not great.
- For online billing an email attachment would work great.
- Facebook and other social media work well because not many read the newspaper anymore.
- Weekly stories on the evening news can update the community on usage and other projects.
- Target all ages through a variety of avenues

Group J

Lucy Moore, *Facilitator*

Ross Hibbett, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: Relatively cheap, high yield, good for the environment, always available, efficient, long term conservation, but can use in the meantime

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: High yield, available, low cost, reuse, ability to move water allows for greater flexibility, logical

#3 – Lease Additional San Juan — Chama Water

#4 – Interbasin Transfer

- This alterative is high yield but also high cost.

#5 – Indirect Potable Reuse

- Like: We will have to reuse water sometime in the future, so the sooner we start the better.
- Like: With increase in technology it can be done and is good for the long term.
- Concern: It is costly, but we should start investing.
- Concern: Doesn't like the thought of "toilet to tap."

#6 – Rio Grande Compact Relinquishment Credit Water

#7- Brackish Groundwater

- Concern: Is low yield, bad for environment, not available often, very high cost
- Concern: On a list it should be at the bottom.

#8 – Stormwater Capture

- Like: Is good for environment, low cost
- Concern: Regulations would have to be changed and water is not always available.

#9 – Additional Reuse — Westside/Eastside and ASR

#10 – Watershed Restoration

- Like: This is most important
- When fire damage is severe, river can run black.
- Like: This is good for environment, good availability, low cost

General

- Provide gray water at the personal scale
- "Reuse" water for recreation such as rafting on releases
- Need criteria of "time
- Has there been an increase in radio-nucleoids?
- Personal large scale conservation can have a large impact.

What is the relative priority of alternatives after the vote?

- Watershed Restoration
- Indirect Potable Reuse
- Connect Southside reuse to Northside with expansion in the middle
- Aquifer Storage and Recovery
- Stormwater capture
- Brackish groundwater

ACTIVITY 2

POLICY B:

LIKE:

- It is important to keep our right to use San Juan-Chama water
- Let's collaborate, expand it — we have neighbors

SUB-POLICIES MISSING:

- B-4: Clarification — could be intergovernmental

POLICY D:

LIKE:

- Willing to pay more for future generations

CONCERN:

- 110 gpcd is more than twice the world average.

QUESTION:

- How will Albuquerque change because of the 110 gpcd goal?
- Provide running paths, buffer around parks, and use less turf where it isn't used

POLICY J:

Like:

- Supports watersheds, but should be connected to H–1.

Concerns:

- How would this impact work on the Bosque?
- Mayor's development proposition doesn't support J.

Sub-Policies Missing:

- J-6: Dead trees are a fire hazard and need a beautiful tree canopy not a dead one.
- Elms have a short life.

POLICY M:

LIKE:

SUB-POLICIES MISSING:

- Place emphasis on kindergarten and elementary school, get them young
- Teach kids about planting, watering, and the water cycle (how it all works).

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- Not much said, refer to M.

What types of outreach are most effective?

- Advertising- water bill inserts, messages of the mayor, social media for younger people, news apps, new feeds, TV promotional stories

Las Cruces Group

Leslie Kryder, *Facilitator*

Cristina Hoberg, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: Should not have #1 without #10
- Agreement: #1 and #10 need to be a pair
- With new technologies there is a possibility of capturing humidity from the air.
- Like: Prefer to save, sensible to use less
- Like: Banking for the future, not taking natural resources for granted
- Like: Volume-wise we should go with this option vs. #10.
- Like: Believe in saving, reusing, recycling
- Like: Water is not subject to evaporation and keeps aquifer from draining.

#2 – Connect Southside Reuse to Northside with Expansion in the Middle

- Like: Increase the yield now
- Like: Low cost, long term strategy, less environmental

#3 – Lease Additional San Juan — Chama Water

- No comments

#4 – Interbasin Transfer

- No comments

#5 – Indirect Potable Reuse

- No comments

#6 – Rio Grande Compact Relinquishment Credit Water

- Question: What is the status of the State of Texas law suit about the compact? What is the amount of water they receive and potential that we will have to give them more?

#7- Brackish Groundwater

- No comments

#8 – Stormwater Capture

- Like: Has potential but has limitations
- Concern: The option requires dams designed for short-term storage; we cannot do this with our current design (or regulations); it will require more naturalistic treatment of arroyos because need impervious elements.

#9 – Additional Reuse — Westside/Eastside and ASR

- Like: An economical option to build on current system

#10 – Watershed Restoration

- Concern: Not well defined, should also promote grassland - deep root prairie grass not just trees in forests
- Like: We should do this from the beginning to protect water quality.
- Like: We could easily hire 5,000 people to clear excess deadwood/logs for watershed and forest management. This would provide both employment and economic resources.

General

- Everyone is interested in reuse.
- Price and availability are important to everyone.

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery

- Watershed Restoration
- Connect Southside to Northside with Expansion in the Middle

ACTIVITY 2

POLICY B:

LIKE:

- B–3: We need to get all use out of water instead of letting it disappear.

CONCERN:

- The challenge with reuse is that we don't get return flow credit when we discharge back to Rio Grande. It is a delicate balance and creates internal deficit in regards to the compact.
- B–1 is too general.

QUESTION:

- How are amounts of water quantified?

COMMENT:

- Needs main diversion channel
- Needs EPA quality water treatment facility so storm water discharged is returned through Alameda drain

POLICY D:

LIKE:

- D–2: We should be able to do this before 2037. The Water Authority has done a phenomenal job.
- D–3: Comprehensive and incorporates D–2
- D–1: Good job with consumer education/rebates and water audits.
- D–3: Support updating every 10 years, especially with climate change it good to review as innovation and new ways to conserve always come up
- D–1: Educator should focus on public outreach and education because it is affordable. People need to know about water use and conservation.

CONCERN:

- D-4: Flesh it out better, too passive of a statement, needs to be more of a practice statement

- Work with companies like Intel to put water back into river as a more proactive strategy
- "Development and infrastructure" needs to be more active to encourage and promote better city-wide developments and plans (medians with grass).
- Reach out to other groups, public sessions, churches

POLICY J:

QUESTION:

- How does food production and agriculture impact our dependence on water? Isn't it part of the issue? We need to maintain and develop additional food supply.

LIKE:

- J-2 seems practical but not sure but beneficial in-stream activities on Bosque.
- Need more canoeing/fishing
- You build awareness of resources when people use them.
- Engineer flows to provide recreational opportunities and big value of water in desert

CONCERNS:

- Need to recognize beneficial use to include economic impact of tourism in state.

POLICY M:

LIKE:

- M–4: Glad because takes care of commercial buildings, informs managers/owners on environment in building
- M–4 and M–5: Supports partnering with builders and designers
- Passage of time is fast for children to grow to the future, children's education has great returns.

QUESTION:

- Can we have an educational focus on how to retrofit homes for graywater use?
- What distinguishes "shall versus "should"? Is should is more adaptive?

On which sub-policies should we focus our educational efforts with the public to build understanding and support? Why?

- Broadcast successes and tie into policy M2/5 such as national award for children's education. It should be a headline.

What types of outreach are most effective?

- Conservation should be the focus of public announcements and be a long-term strategy.
- Place emphasis on what community has accomplished, 50% reduction in 10 years
- Albuquerque Museum exhibit shows how water is being used and how much we have reduced. Really like the exhibit.

QUESTION:

- Policy G–5, pre-1907 water rights: It is a bad decision to stop buying because Intel is actively pursuing/buying those water rights (as are other corporations) and so they won't stay in agricultural use just because the city does not buy them. It is contrary to good management to keep them in agriculture and to buy them and preserve them for that use.

Cimarron Group

Heidi Howley, *Facilitator*

Megan Lovato, *Recorder*

ACTIVITY 1

#1 – Aquifer Storage and Recovery

- Like: Provides frequency of availability once it's in the aquifer
- Like: " I see it working physically out of an Arroyo"
- Comment: I am willing to pay for this because I live in a desert.
- Comment: Has best returns across the board except for the cost
- Like: It has been proven to work.
- Like: It is available and that it's already been tested.
- Like: Allow water volume and has a positive effect on the environment

- Comment: This is good in all 4 categories and there are a lot of advantages to living in a desert so I am willing to pay for water.
- Environment is most important.
- Comment: The cost is okay since we live in a desert.
- Like: Protects the environment at a low cost

#5 – Indirect Potable Reuse

- Like: Provides huge volumes of water and is reliable
- Like: We always will have waste water available.

#6 – Rio Grande Compact Relinquishment Credit Water

- Like: Less costly and we can receive a credit for our water
- Like: Our storage space is good so we can hold more water.
- Comment: Cost is most important.

#8 – Stormwater Capture

- Like: Infrastructure is in place already and free rain!

#9 – Additional Reuse — Westside/Eastside and ASR

- Like: Includes alternative #1 and reuse
- Like: Provides reasonable water volume, good cost and availability

#10 – Watershed Restoration

- Comment: There are a lot of impacts from fires so preservation of our watersheds is important for the environment and this is low cost.
- Soil is important and we need to consider the environmental consequences in all aspects and for everyone.

General

- Being proactive is helpful, but who is paying for these alternatives? Who is shouldering these costs? We would like to see what is best for the community as a whole –cost wise.
- Alternatives 1 & 10 work well together.
- Comment: Should be used in conjunction with each other

What is the relative priority of alternatives after the vote?

- Aquifer Storage and Recovery
- Stormwater Capture
- Additional Reuse/Westside and Eastside and ASR
- Watershed Restoration

ACTIVITY 2

POLICY B:

CONCERN:

- Is there a potential threat that our water rights will be taken away?

SUB-POLICIES MISSING:

- We have to demonstrate that we are using our rights so "use it or lose it" needs to be made clearer.
- In Sub-policy 1, the "necessary steps" needs to be defined. What are the "steps"?

POLICY D:

CONCERN:

- "I am all about conserving water, but I don't want to preserve too much since I need to preserve trees as well.

SUB-POLICIES MISSING:

- Equitable use of water needs to be added to "efficiency" because water justice is important and needs to happen.

POLICY J:

CONCERNS:

- Use arroyos draining north so that a north detention pond can be incorporated with the Bosque.
- Does the city have a regulation that it is required to maintain landscape?

SUB-POLICIES MISSING:

- "In stream flow" needs a definition.
- Sub-policy 6 needs the word sustain added to it: "sustain and increase"

POLICY M:

CONCERN:

- Concern with $80,000 spent on TV commercial

SUB-POLICIES MISSING:

- There should be public education added in all areas.

- We need to educate on use of rainwater harvesting,

What types of outreach are most effective?

- Newspapers
- Email list updates
- Workplace training programs
- Collaborations with organizations such as appliance businesses and nurseries to educate about rebates available to their customers and the importance of water conservation

Large Group Report Out of Prioritization Results

#1– Aquifer Storage and Recovery – **264 votes**

#2 – Connect Southside Reuse to Northside with Expansion in the Middle – **122 votes**

#3 – Lease Additional San Juan – Chama Water – **28 votes**

#4 – Interbasin Transfer – **5 votes**

#5 – Indirect Potable Reuse – **38 votes**

#6 – Rio Grande Compact Relinquishment Credit Water – **22 votes**

#7 – Brackish Groundwater – **9 votes**

#8 – Stormwater Capture – **125 votes**

#9 – Additional Reuse/ Westside and Eastside and ASR – **22 votes**

#10 – Watershed Management – **97 votes**

Large Group Q and A

Questions/Comments after Presentation on Supply Alternatives:

- Need to swamp coolers with refrigerated air/using evaporative cooling as a means of conserving water
- Are some of the supply alternatives mutually exclusive?
- Did the mine spill complicate the San Juan Chama drinking water project?
- Does the Water Authority work with other agencies?
- What is the quality of the water that is stored in the aquifer?
- Why choose 135 GPCD as a goal if we are currently below that?
- Please provide information on swamp cooler thermostat rebates
- Why not plan further into the future (100 years versus every 10 for example)?
- How many actual sources of water do we have?
- How are the sources of water categorized?
- What is the security of our water supply like?
- How is the Water Authority handling heavy metals in the water supply? (testing)

Questions/Comments after Presentation on Water Policies:

- How much are TV commercials costing the Water Authority?
- How many water agencies are in NM and how often do you collaborate?
- Will these presentation power points be available?
- What is the extent of the Aquifer in ABQ?
- Is water going back into the aquifer when watering the lawn during good times of the day?
- Does this data include the city of Albuquerque only?
- Does the city of Rio Rancho and Intel effect our plan and aquifer?
- In collaborations with the MRGCD do you consider flood irrigation and how it recharges the aquifer?
- What is the delta between the current demands and how much do we need for high use water supply with and without conservation?
- How much money would a 1% increase in rate generate?
- What is the Cost per acre foot in respect to drops and alternatives?
- What can we do as citizens to educate on water conservation especially among young people and social media?
- There are new products of swamp coolers at the moment that can save water. The Water Authority claims six sources of water when there are only two, ground and surface, the rest is just maintenance.
- Thank you for having this, it's great to see such a great turn out.

Albuquerque Bernalillo County
Water Utility Authority

Town Hall Agenda 2016

July 22, 2016 • 10am–2pm

10:00 – 10:10	Welcome from ABCWUA Board Chair - Trudy Jones
10:10 – 10:20	Overview of Town Hall, Head Facilitator – Mary Davis Hamlin
10:20 – 10:30	Video
10:30 – 11:00	Presentation on Water 2120: Securing Our Water Future, Intera Vice President – David Jordan, P.E.
11:00 – 11:15	Panel Q & A
11:15 – 11:35	Presentation on Water 2120: Policies, ABCWUA COO -John M. Stomp III, P.E.
11:35 – 11:50	Panel Q & A
11:50 – 12:10	Get lunches and go to break-out groups
12:10 – 1:30	Break-out group activities A. Future Supply Alternatives B. Water Resource Policies

1:30 – 1:40 Return to Main Room

1:40 – 2:00 Report Out and Raffle

A. WATER BUDGET PLANNING AND REPORTING

POLICY A. The Authority shall utilize an adaptive management approach to water resources planning and reporting. The water budget established shall be reported annually to the Authority Board and updated no less than every five years.

RATIONALE: The Adaptive Management Strategy (AMS) adopted as part of the 2017 WRMS is intended to provide an iterative process by which supply and demand can be re-evaluated as needed in the future. The intent of AMS is to provide an iterative process for robust decision-making in the face of uncertainty, with the aim or reducing uncertainty over time via monitoring. Since both supply and demand projections are uncertain and may be revised in the future, AMS allows for re-evaluation of currently-identified predicted supply gaps, and subsequent revision of these gaps, if necessary. Future revisions to the supply and demand analyses may be made based on new technical understanding, availability of new technical tools, and/or revisions to current predictions of supply and/or demand. A key aspect of the Authority's AMS will be monitoring groundwater levels in the Groundwater Reserve.

SUB-POLICIES:

1. The Authority should update the Water Resources Management Strategy using the best available science following the Adaptive Management Strategy (AMS) every ten years or more frequently as requested by the Authority Board.

2. The Authority shall report on an annual basis to the Authority Board to provide a water budget for the upcoming year which includes estimated groundwater and surface water use along with estimated non-potable water reuse.

3. The Authority shall report to the Authority Board every five years regarding the aquifer level and the projected level for the next five years as compared to the groundwater management level established in Policy C.

B. FULLY UTILIZE AND PROTECT EXISTING WATER RIGHTS AND WATER RESOURCES

POLICY B. The Authority shall protect its right to fully use its San Juan-Chama and Rio Grande surface water as a direct water supply and transition to other renewable supplies when available and appropriate. The Authority shall limit the use of ground water except when exercising wells, providing supply during peak demand periods or when surface water supplies are not available (e.g., droughts).

RATIONALE: The Water Authority holds the rights to about 26,396 acre-feet of vested and acquired Rio Grande water rights and 48,200 acre-feet of San Juan-Chama water. Meeting future water demands will require full utilization of these water rights and resources, including the increasing volume of excess wastewater which will be available for reuse. A safe and sustainable water supply for the Authority is based on using the existing water rights and resources which will reduce the long-term acquisition of additional water supplies. This involves using groundwater and limiting the long-term use of the aquifer to preserve a portion for future generations while preserving the right to fully utilize our groundwater permits during droughts and when surface water supplies are unavailable.

SUB-POLICIES:

1. The Authority shall take all the necessary steps to protect its existing water rights and water resources.

2. The Authority should utilize a combination of renewable supplies including the groundwater reserve, direct diversion of San Juan-Chama and native surface water, industrial and municipal effluent, impaired groundwater and recycled water.

3. The Authority should utilize all available excess return flows as part of a reuse and recycling plan that consists of aquifer storage and recovery, indirect potable and non-potable reuse.

4. The Authority should prepare for a basin adjudication or seek alternative legal strategies (negotiated settlements) in addition to the traditional adjudication process.

C. ESTABLISH AND MAINTAIN A GROUNDWATER RESERVE

POLICY C: The Authority shall establish a groundwater reserve that maintains sufficient water in aquifer storage to provide water supply during catastrophic drought or other unforeseen, largely unquantifiable events. The groundwater reserve shall be partitioned into a safety reserve and a working reserve. The safety reserve is that portion of the groundwater reserve prudently maintained for emergency use only, while the working reserve is the balance of the groundwater reserve above the safety reserve. A management level goal of aquifer drawdown set within the working reserve shall be maintained so that the groundwater reserve shall be accessible without causing adverse, irreversible impacts to the aquifer. The management level provides explicit operational guidance to the implementation of Policy B in that it balances full utilization of the Authority's existing water rights with no long-term change in groundwater storage.

RATIONALE: The aquifer is generally rising throughout the Middle Rio Grande. This began in 2008 with the implementation of the Drinking Water Project. The water levels are expected to rise for more than a decade longer and it is important to develop and implement an explicit policy for managing the aquifer in the future to prevent a return to pre–1997 practice under which continuing drawdown was unsustainable. This augmented Policy C makes minimal nomenclature changes to the 2007 Policy C and adds specific language to guide management of the aquifer itself.

SUB-POLICIES:

1. The reserve terminology should be implemented by reference to average level of drawdown in Authority wells from pre-development conditions. Accordingly, the initial 2017 reserve settings should be:

    a. Groundwater Reserve. This reserve extends from fifty feet of drawdown to three hundred feet of drawdown, the latter constituting the threshold of irreversible subsidence.
    b. Safety Reserve. That portion of the Groundwater Reserve extending from two hundred and fifty feet of drawdown to three hundred feet of drawdown.
    c. Working Reserve. The residual portion of the Groundwater Reserve extending from fifty feet of drawdown to two hundred and fifty feet of drawdown.
    d. Management Level. This is set at one hundred and ten feet of drawdown which would maintain seventy percent of the Working Reserve.

2. If drawdown in the Working Reserve should fall below the Management Level, then projects should be implemented to add supply to the Authority portfolio to restore it to the Management Level.

D. UPDATE AND MAINTAIN THE WATER CONSERVATION STRATEGY

POLICY D. Implementation of the Water Conservation Plan has been a key aspect of the success of the 2007 Water Resources Management Strategy. Continued progress in conservation to achieve a gallons per capita per day (GPCD) water usage of 110 will further extend our water supplies even in the face of climate change. The Authority shall utilize the conservation program to reduce GPCD to 110 by 2037.

RATIONALE: Water conservation has proven to be a powerful tool for managing water resources over the past twenty years. GPCD has been reduced from 250 in 1995 to 127 in 2015. This has led to an overall reduction in production from approximately 125,000 acre-feet in 1995 to approximately 98,000 acre-feet in 2015. Further water conservation efforts over the 100-year planning period are a key element to secure a resilient, affordable water supply for the Water Authority's service area. In addition to representing wise stewardship and management of our water resources, successful implementation of an effective conservation plan is required by the State for obtaining future permits and funding water projects.

SUB-POLICIES:

1. Conservation is the primary way in which customers participate in extending the need for additional water resources. The Authority shall continue its public outreach efforts to involve all customer classes in water conservation efforts.

2. The Authority shall update the Water Conservation Plan consistent with the 110 GPCD goal.

3. The Water Conservation Plan shall be updated at least every ten years and shall be reviewed annually so that updates to incentive, education and deterrent programs can be kept current with program needs.

4. The Authority shall work with the City and County to foster the efficient management and use of water in development and infrastructure.

E. SUPPORT REGIONAL WATER RESOURCES PLANNING AND MANAGEMENT

POLICY E. The Authority shall pursue efforts to enhance regional water resources planning and management activities within the Middle Rio Grande Valley. The Authority shall work cooperatively with its neighbors—the Pueblos, the Middle Rio Grande Conservancy District, Middle Rio Grande Valley cities and counties, and involved state and federal agencies. The Authority shall continue to be involved in and monitor the progress of regional and interstate water management initiatives that may affect the Authority and the region.

RATIONALE: The Authority recognizes the need to work in cooperation with other entities that share use of the Middle Rio Grande Valley's water resources. Regional water resources planning needs to address uses for public and domestic water supply, irrigated agriculture, livestock, commerce, industry, fish, wildlife and recreation. The Authority, neighboring jurisdictions, and other water users need to work with State, regional, and federal agencies with water management responsibilities.

SUB-POLICIES:

1. The Authority shall continue its proactive role to ensure that the necessary technical investigations with U.S. Geologic Survey and others are completed efficiently and expeditiously and that they result an improved understanding of surface and ground water.

2. The Authority is committed to seek common solutions within a regional context. The Authority shall work with others in the Middle Rio Grande Valley on updates and implementation of the Regional Water Plan.

3. When appropriate, the Authority should share their experience in groundwater management to assist other planning efforts in transitioning to renewable supplies and to limit long-term groundwater usage.

4. The Authority shall work with federal and state agencies including the Bureau of Reclamation, Corps of Engineers and Bureau of Land Management, the State Engineer and the Interstate Stream Commission to continue to find common solutions for water management on the Rio Chama and the Rio Grande.

5. The Authority shall collaborate with the Middle Rio Grande Conservancy District (MRGCD) to develop and implement a plan to support and promote agriculture in the Middle Rio Grande.

6. The Authority shall promote and develop green infrastructure including storm water infrastructure to promote efficient water resources management and aquifer storage.

F. UTILIZE CONJUNCTIVE MANAGEMENT AND DIVERSIFY WATER RESOURCES PORTFOLIO

POLICY F. The Authority shall enhance the resiliency and sustainability of the water supply by effectively combining the use of surface water, recycled and reclaimed water, the shallow and deep aquifer, and other supplies as needed to meet current and future demand.

RATIONALE: Enhancing the efficiency of the Authority's water use, requires conjunctive management and use of all available resources: surface water for municipal and industrial supply and for irrigation, groundwater for exercising wells, peaking, and when surface water supplies are not available (e.g. , drought), ASR for municipal and industrial supply, and other supplies as available.

Reclamation and reuse of existing water supplies, where economically feasible and protective of human health and the environment, represents a method of maximizing and increasing the usefulness of a limited water supply. Consideration must also be given to satisfying the return flow needs of the Rio Grande from water-rights-permitting, Rio Grande Compact Compliance and environmental standpoints.

The use of groundwater will always be a key component of the Authority's supply portfolio. Following a conservative Groundwater Management Plan that limits long-term groundwater production and establishes a Safety Reserve positions the Authority for indefinite use of the aquifer while maintaining a significant volume of water for unforeseen events. Using the Authority's surface water and other sources for municipal and industrial supply will protect the aquifer so that it is available to meet seasonal peak demands and when surface water is not available (e.g. , drought). Without a groundwater component of supply, the Authority would need to abandon use of significant investment in groundwater assets and transition to expensive additional surface water storage facilities and larger and more costly treatment facilities to meet seasonal peak demands.

Aquifer storage and recovery is a key component of balancing groundwater use during times when surface water is not available (e.g., droughts). Using stored surface water during these times will reduce overall long-term use of groundwater during the planning period. In Albuquerque, this requires artificial recharge of the aquifer with deep recharge wells. It is essential that this capability be expanded. Stored surface water will not increase overall groundwater use because there will always be a need to utilize groundwater to exercise wells or to meet seasonal peak demands which will provide the native water component needed to facilitate use of imported San Juan-Chama water.

In addition, the Authority should be opportunistic in utilizing other sources to extend supply that may not always be available. These sources could include relinquishment credit water, contaminated groundwater, excess San Juan-Chama water and native flood flows in addition to leased San Juan-Chama

water. Each of these sources has been available for use in the Middle Rio Grande in the past and may be available for limited use in the future. Utilizing these sources extends supply by saving other resources for future use.

SUB-POLICIES:

1. The Authority shall use various sources of supply (potable and contaminated groundwater, surface water, reuse water, etc.) to meet demand over the planning period. The quality of the water supplied will be matched to its use to reduce treatment costs and to optimize available excess supplies when available.

2. The Authority shall prepare and implement plans to utilize water sources that are typically only available sporadically (excess San Juan-Chama water, relinquishment credit water, etc.).

3. The Authority should investigate and enter into agreements for short-term leases in times when wet water is available to be stored and used during times of drought and for aquifer recharge.

4. The Authority shall develop a reuse and recycling master plan to address current and future reuse demand, excess available wastewater supplies and the associated infrastructure needs over the planning period.

5. The Authority shall use pumping from the aquifer to meet seasonal demands, well exercising and when surface water is not available (e.g., droughts).

6. The Authority shall continue to develop and implement methods to store available surface water and other reuse supplies in the aquifer and to recover it from storage as needed to meet current and future demands.

7. The Authority should develop and implement the use of storm water and native water flood flows when supplies are available considering permitting and environmental criteria along with Rio Grande Compact Compliance.

G. DEVELOP AND IMPLEMENT LONG-TERM WATER RESOURCES ACQUISITION PLAN

POLICY G. The Authority shall pursue a portfolio of potential additional sources of supply.

RATIONALE: Establishing and maintaining a groundwater reserve (Policy C) will require the Water Authority to rely less on the local aquifer and to secure additional sources of supply to meet future demands. A more diversified water supply portfolio that includes more renewable sources is essential to provide a resilient and sustainable water supply that can meet customer demands in perpetuity.

While this Water Resources Management Strategy does not contemplate the need for acquisition of additional supplies, the Authority should continue to pursue these additional supply sources over the long-term which will allow the Authority to be ready when those supplies become available. Full consideration will be given to the financial implications in addition to the regional context including agricultural and environmental issues.

SUB-POLICIES:

1. The Authority should seek legislation to allow for water leasing and banking on a local, regional and interstate basis.

2. The Authority should continue to develop the potential for use of brackish ground water as a future supply considering financial, environmental and carbon footprint criteria.

3. The Authority should stay active in evaluating other water rights transfers in the Middle Rio Grande and should take proactive stances when necessary.

4. The Authority should investigate the opportunity to import water supplies outside of the Middle Rio Grande when available considering financial, environmental and other criteria.

5. The Authority shall discontinue acquisition of native pre-1907 water rights.

H. IMPLEMENT THE WATER QUALITY PROTECTION POLICY AND ACTION PLAN

POLICY H. The Authority shall take steps to fully implement the Water Quality Protection Policy and Action Plan.

RATIONALE: The Albuquerque/Bernalillo County Water Quality Protection Policy and Action Plan (County Resolution No. AR 121-93 and City Enactment No. 81-1994) is another cornerstone of this Water Resources Management Strategy. The Authority revised the Groundwater Protection Policy and Action Plan in 2009 to add surface water protection measures, recognizing the use of San Juan-Chama water as a primary drinking water source. Protection of both groundwater and surface resources from known or potential sources of contamination is essential for maintaining a safe drinking water supply and aquifer storage and recovery program. Their protection from contamination is of paramount importance.

SUB-POLICIES:

1. The Authority should continue to be proactive in identifying potential water quality threats to surface and ground water resources and should implement programs to the extent possible to protect the water resources in the MRG.

2. The Water Protection Advisory Board (WPAB) shall provide annual updates on the implementation of the Water Quality Protection Policy and Action Plan (WQPPAP) to the Authority Board through submission of the Annual WPAB Reports and presentations at regular WPAB meetings.

3. The Authority shall provide pertinent information regarding updates to the water resource management strategy activities to the WPAB during its triennial review of the WQPPAP implementation activities.

4. The Authority should consider the occurrence, fate and potential treatment of emerging contaminants in current and future water supplies and should actively participate in research which will become more important as the availability of water resources becomes more constrained.

5. The Authority should coordinate with the City, County and State to maintain the quality of groundwater and surface waters.

I. PROTECT AND ENHANCE STORAGE OF NATIVE, SAN JUAN-CHAMA WATER AND OTHER WATER RESOURCES.

POLICY I. The Authority shall protect the rights to store native, San Juan-Chama and other water resources including reuse and recycled water in a variety of storage facilities including Heron, Abiquiu and Elephant Butte Reservoirs. The Authority should seek additional off-channel storage capacity locally or within the Middle Rio Grande as needed to maximize the use of excess wastewater or other water resources in the future.

SUB-POLICIES:

1. The Authority should protect and enhance its storage rights in Abiquiu Reservoir for native and San Juan-Chama water which will provide opportunities to continue to cooperate with environmental, local, state and federal entities to maximize the benefit for the MRG.

2. The Authority should examine the need for additional short and long-term off-channel storage locally and within the MRG to be prepared when excess San Juan-Chama water, native flood flows, or other water resources are available.

3. The Authority should consider the aquifer as a reservoir to be used conjunctively with above ground storage to optimize the use of current and future water supplies.

4. The Authority should develop and implement a Rio Grande Compact pool within the Authority storage space working with the Interstate Stream Commission (ISC) and the Office of the State Engineer (OSE).

5. The Authority should continue providing space in Abiquiu Reservoir for environmental purposes.

6. The Authority should seek long-term storage of San Juan-Chama water in Elephant Butte Reservoir.

J. PROTECT VALUED ENVIRONMENTAL AND CULTURAL RESOURCES

POLICY J. The Authority shall identify and provide resources to preserve and protect valued environmental resources of the region. The Authority shall work independently and in partnerships to ensure that its activities do not irreparably harm the aquifer, river, Bosque, source watersheds and the cultural resources.

RATIONALE: The regional aquifer, Bosque and Rio Grande are exceptional resources of great economic, ecological, aesthetic and cultural value. The Authority should cooperate to develop and implement environmentally conscious water resource development activities that protect the environmental and cultural values of our community.

SUB-POLICIES:

1. The Authority should continue to participate in the Endangered Species Collaborative Program and Recovery Implementation Efforts for multiple species in the MRG.

2. The Authority should encourage the State to recognize instream flows as a beneficial use.

3. The Authority should consider the impacts on environmental and cultural resources when implementing new water resources projects and take appropriate steps to mitigate unavoidable effects.

4. The Authority should work collaboratively and provide funding to protect and restore watersheds of the San Juan-Chama and Rio Grande.

5. The Authority should work with the City, Middle Rio Grande Conservancy District and others to protect and enhance the Rio Grande State Park and the Bosque.

6. The Authority should work with the City and County to provide incentives to increase beneficial tree canopy coverage within Bernalillo County and the MRG.

K. PRESERVE AND ENHANCE THE QUALITY OF LIFE IN THE REGION

POLICY K. The Authority seeks a Water Resources Management Strategy that will preserve and enhance the quality of life within the region. The implementation of the Authority's water resources strategy will take advantage of opportunities to enhance the quality of life in the region whenever possible.

RATIONALE: As the largest water utility in New Mexico, the Water Authority recognizes its obligation to protect and enhance the quality of life within the region. Factors influencing quality of life include continued socioeconomic growth and development, support of public amenities and green spaces, and minimizing environmental impacts. The Water Authority will provide sustainable water services to meet

indoor demands, optimize efficiency of outdoor demands by utilizing recycled, reused and non-potable supplies , and return quality water to the Rio Grande for downstream users in the region.

SUB-POLICIES:

1. The Authority shall work with the City of Albuquerque, Albuquerque Public Schools, Bernalillo County and others to ensure that green spaces (parks, golf courses, athletic fields, etc.) are water efficient and provide incentives where appropriate.

2. The Authority should continue to reduce its carbon footprint by taking advantage of opportunities to reduce the energy usage of current infrastructure and by building new infrastructure with energy efficiency in mind.

3. The Authority shall expand its current green energy projects (solar and biogas) and implement additional green energy projects to reduce its water and energy footprints.

L. LINK LAND USE PLANNING WITH WATER MANAGEMENT

POLICY L. The Authority shall coordinate and cooperate with the City, County and all other entities with planning authority to integrate water management policies with land use decisions. The

Authority recognizes that managing the use of groundwater while conserving and using existing water resources including maximizing the use of excess resources when available should significantly reduce acquisition of new supplies to serve future customers.

RATIONALE: With the membership of the Water Authority consisting of elected officials from the City of Albuquerque, Bernalillo County and Village of Los Ranchos, future growth and development in the region requires coordination to integrate land use, transportation, infrastructure, economic improvement, urban infill and planning efforts with water resources management.

SUB-POLICIES:

1. The Authority should work with the City and County to update the Albuquerque/Bernalillo County Comprehensive Plan and/or other plans to ensure that system expansion is concurrent with infrastructure service levels and that the extension of facilities and services be phased in an efficient and orderly manner.

2. The Water Authority should ensure that its capital planning process is based on the City and County growth and development master plans so that land use and infrastructure policies are consistent.

3. The Water Authority should support the increase of urban building densities and infill development consistent with adopted land use plans as higher density development uses less water.

4. The Water Authority should encourage the City, County and State to adopt low-water-use Building Codes and low-water-use landscaping standards for all new construction.

5. The Water Authority should continue its review process so that each new residential, commercial, industrial and institutional development will have a resilient, sustainable water supply.

M. ENCOURAGE AND FACILITATE PUBLIC INVOLVEMENT

POLICY M. The Authority shall continue its education programs for both children and adults to keep the public informed about the choices and tradeoffs involved in making water management decisions and invite public comment and participation in implementation of these policies.

RATIONALE: When the Water Authority partners with the public, the educated public can help shape the policies that are the foundation of the Water Resources Management Strategy. The public then contributes to the successful implementation of water resource management solutions, because they have been part of their design. Children who attend Water Authority field trips will know the value of water and be wise stewards of our resources for many years to come.

SUB-POLICIES:

1. The Authority shall continue its water resource education programs and field trips to teach children the importance, value and appropriate use of water in the region.

2. The Authority shall continue its interactive public meeting process to give customers information and get their input on upcoming programs, policies and projects.

3. The Authority shall continue its adult education programs so that all customers can participate in a resilient and sustainable water supply.

4. The Authority shall continue to partner with real estate, design, building and construction groups, building managers, etc. to educate their membership concerning water resources.

5. The Authority shall continue its current marketing and public relations campaigns to keep everyone in the service area informed about effective water resource management.

6. The Authority shall continue its process of involving the public in updates to the Water Resources Management Strategy in all future updates to the strategy.

EVALUATIONS
Town Hall 2016

July 22, 2016

1. My time was well spent. – 4.4
2. I felt the Water Authority truly wanted my input. – 4.6
3. I would participate in this type of session again. – 4.2
4. The meeting structure allowed participants to provide feedback. – 4.6
5. I learned something about our long-term water supply needs and how we will address them in the future. – 4.6

COMMENTS

July 22, 2016

- John was great.
- I would like to receive any mailing through the mail; we do not own a computer.
- Great job organizing this! Reach the current future generations by promoting the phone app. Once downloaded it can be used to promote events, education, and conservation via push notifications.
- Large water users should pay more for the water they use — use more than the average of 110gpcd should pay more, those that use less pay less.
- Over the next 100 years ABQ's population will quadruple, but the water supply will remain relatively static. Why isn't the Water Authority doing anything to slow growth?
- Bottom line: How much is this going to cost the customers?
- Due to a large number of people, everybody did not get a chance to ask questions.
- More reuse plans.
- Good job, tough audience, nice morning presentations.
- Clarify #5 — I have been to community conversations plus years of following the utility — great work — 100 year plan is great.
- Very Informative — great proactiveness
- Inform the uneducated general public regarding agricultural versus municipal uses – irresponsible flooding of farms is 100 times more than our municipal use - $$ impact
- Inform regarding challenges of stormwater usage — next to impossible

- Toot your own horn because we are in great shape and have access to groundwater and surface sources because of visionaries from the 60's. Cities grow or die, we need solid growth to remain viable in the SW, or we will continue to lose population.
- The facilitators were great! This was a really good way to voice our ideas, concerns and hopes for the future in a controlled environment. I learned a great deal.
- I appreciate the enthusiasm of the presenters.
- Explain the difference between groundwater and surface water – remind people about the cost of water — public service messages re: water, trees, rebates, and conservation, desert living, rain barrels
- Well Done. The design was balanced, low tech with high involvement.
- Watersheds need to be the key focus of long-term planning for protection of water sources.
- Direct potable use could be another alternative.
- There was not enough time for feedback and not all feedback was captured despite the fact that it was stressed that all feedback would be captured. The voting of top 3 seems silly considering the fact it was said many of these were synergistic and not mutually exclusive. The panel was not that old. The Water Authority needs to start a social media campaign, set up a FB and LN page, hold these meetings at a time when younger people can attend, add technology as a component — such as sensors and smart controllers etc. We need an alternative for direct potable water reuse. Place PSA's on TV and local news and add info on conservation to the quarterly water quality mailings. Town Hall not perfect but worth the time.
- Good combination of large meeting and small work group yielded positive results
- I left thinking the Water Authority is proactive, environmentally aware and open minded. Keep it up — thank you and good work.
- In the future, giving us more info that would be covered would be very helpful. We could be better prepared to ask intelligence questions.
- Well planned and executed! Good use of student helpers-breakout sessions good size and limiting some proposals is good — all would be too much — well prepared speakers.
- Well organized and informative. WA successes and improvement to long-term prospects should be more publicized.
- Great job, I really enjoyed this.
- Great presentations – I am much more aware and educated. I appreciate the City Board and how you are organized for our water conservation and our future.
- Good job of making the community feel like their input matters, many thanks
- Excellent question and format – excellent job of educating public and all the planning and detail that goes into running a water program
- Thank you very much.
- I was impressed with the organized way this conference proved to be. It was reassuring to know that in the past 6 years of drought, our water supply was increasing instead of decreasing.
- Thank you, very well done.
- Thank you for this opportunity.
- This time was well spent.
- This was a well thought out seminar — very interesting — I really liked it.
- Great program — highly informative and well run
- Information in Spanish and sessions in Spanish as Spanish is a predominate language
- The people running these sessions were really very good — and very patient. The crises of climate change should be increasingly addressed by the Water Authority and other utilities in their public outreach and education for both adults and children; it is critical.

- I really appreciate the town hall type of agenda.
- Some was a repeat of the Customer Conversations
- Excellently run, on time, well organized, structures well to optimize what people needed to know and giving them the chance to provide both open ended feedback/complaint and targeted feedback based on the Water Authority's needs and questions to the group.
- Coordinate resources to prevent extra waste: recycling of plastic cans
- How were cooperators contacted? From and agency perspective having an invitation would be nice rather than knowing from receiving at residence.
- The elephant metaphor insults my intelligence — create a clever message to inform public about intelligent water use
- With regards to new water meters, be able to go on-line to see the exact water usage — not just in units but by gallons
- I can never digest/process John Stomps discourse because it is way too fast.
- Elder neighbors are not getting message and wasting enormous amount of water on driveways and tiny strips of dirt that can't hold it. Neighborhood Associations could educate.
- Very well thought out and organized event — great job — and thanks for the lunch and the $20 credit.
- Thank you for the opportunity to learn more. The program was well organized and there were many opportunities for people to share their thinking. Thank you for keeping of time and keeping people on track! Would be nice to have recycling for plastic cups and cans.
- Kudos for the whole process — well done!
- Why can't golf courses be covered with plastic grass? The golf course between the McKinley Light to Wyoming on Alameda for example. The amount of water distributed there is enormous! This is only one golf course! How many golf courses exist in Albuquerque using the same style and amount of water? We as resident here try our very best to be sparing in our use and we have ground scape in place and use a minimum amount — we did have a roof leak recently due to the swamp cooler. Spoke with Frank today, he is very good listener.
- Very informative, well done!
- Graywater use for residential, commercial, schools, motels etc.
- Please break the down on an individual basis — one of the most important things that I felt was imputed was how and when to water efficiently how to save our trees and not go bankrupt – also for giving us an understanding of the problems faced by our water authority.
- Agree you must use social media more to educate and persuade younger people —promote greywater use — save the dying trees all over the city will kept the city cooler — provide education on how to water tree