Water 2120: Securing our Water Future

Water Resources
Management Strategy

September 2016

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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

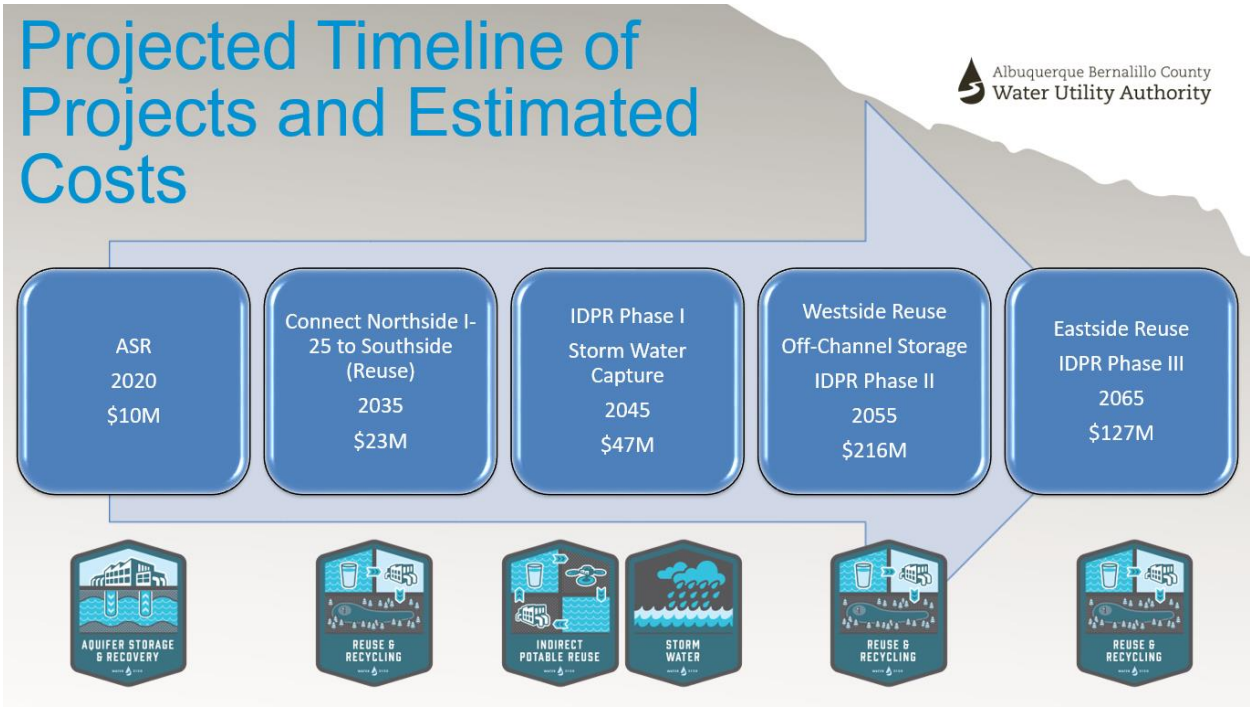
This updated Strategy incorporates the projects previously identified to be implemented in the 2007 Strategy consisting primarily of the first phase of large scale aquifer storage and recovery (ASR), enhanced storage in Abiquiu Reservoir and native flood flows storage in Abiquiu Reservoir.

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.

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.