

April 13, 2022



Klarissa J. Peña
Board Chair
ABCWUA
P.O. Box 568
Albuquerque, NM 87103-0568

RE: MRGCD Water Delivery Operations and Conservation Activities

Dear Chairwoman Peña

At the Albuquerque Bernalillo County Water Utility Authority's (ABCWUA) March Board meeting, questions were raised regarding irrigation practices within the Middle Rio Grande Conservancy District (MRGCD) and water conservation practices implemented by the MRGCD and our farmers. I appreciate the invitation to present on these topics at ABCWUA's April Board meeting, but I thought it would be helpful to provide some background prior to the meeting.

MRGCD operations and water delivery have undergone significant changes over the past two decades. In the past, water was turned into ditches based on the available supply (river and storage), with little consideration to whether the water was needed or not. This was convenient for irrigators and easy for MRGCD personnel. During several unusually wet decades, there was adequate water for this practice. Drought, increasing competition for water supplies, Rio Grande Compact restrictions, and endangered species issues have forced a new operational policy. Now, water is placed into ditches based on the acreage served and crop water use patterns. Due to pressure on MRGCD to achieve greater efficiency, there is very little excess water in our canals, so deliveries must be scheduled well in advance. Irrigators continue to receive their allotment of water, but the convenience of receiving water whenever desired is a thing of the past. Since 2000 the MRGCD has cut its diversions from the river by 50%. To accomplish this, the MRGCD has invested in developing over 200 measurement structures within our facilities. The structures have allowed the MRGCD to better assess irrigation demand, inform decisions around reservoir releases, and facilitate equitable water distribution.

In early 2012, the MRGCD implemented an update to our Water Distribution Policy requiring irrigators to meet a minimum irrigation efficiency of one acre per hour. The MRGCD understood that significant investment into the valley would be required to achieve this standard. In recent years the MRGCD has begun to develop an On-Farm Program (OFP) as part of our broader Conservation Program. The OFP is intended to support small-scale infrastructure and farmland improvements that help farmers meet or exceed our efficiency requirements. Projects range from but are not necessarily limited to improved turnouts and farm delivery pads, irrigation pipelines, control boxes, laser leveling, and land use assistance.

P.O. Box 581
87103-0581
1931 Second St. SW
Albuquerque, NM
87102-4515
505.247.0234
Fax # 505.243.7308

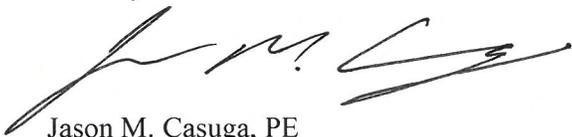
The MRGCD currently administers two different water leasing programs (Emergency Fallowing Program and Environmental Water Leasing Program) intended to offer farmers more operational flexibility to rest or rotate older crops when water is in short supply and allow the District more flexibility to meet the demand for water in the Middle Rio Grande Valley. The

Emergency Fallowing portion is intended to allow farmers to voluntarily fallow farmland annually in exchange for per acre payments funded through the State of New Mexico. The water conserved through this effort goes towards reducing the State of New Mexico's Rio Grande Compact debit. The Environmental Water Leasing Program is another voluntary opportunity for farmers to fallow land for per acre payments. The water leased from farmers in this program is delivered to strategic outfalls located along the river during the summer months to support Endangered Species and the District's obligations as specified in the 2016 Biological Opinion.

While the MRGCD has made great strides in efficiency and overall water stewardship, the current hydrologic realities, New Mexico's compact debt, and infrastructure restrictions have required the MRGCD to make difficult water delivery decisions requiring more sacrifices by our farmers. In 2021 water supply conditions were poor, MRGCD had limited ability to store water, and the accrued debit under the Rio Grande Compact was large. With these conditions, MRGCD recognized the need to maximize New Mexico Rio Grande Compact deliveries to Texas. Despite limited supplies and operational flexibility, MRGCD chose to not only delay irrigation season start-up by a month but also adhere to a demand curve that was a 20% reduction from total actual demand. The truncated irrigation season and reduced demands resulted in fewer irrigations and longer durations between irrigations for farmers and, in turn, lower depletions to Middle Rio Grande inflows. Water supply conditions now in 2022 are similar to 2021, except the accrued Rio Grande Compact debt has grown larger. The MRGCD chose to delay irrigation deliveries by several weeks in each division as a part of the 2022 irrigation season start-up and committed to not divert more than half of native Rio Grande inflows to the Middle Valley during spring runoff. These operational restrictions are intended to limit depletions to native inflows into the Middle Rio Grande from irrigation. Farmers bear the brunt of these reduced depletions as these operations will again limit the frequency and extend the duration between irrigation deliveries.

The MRGCD is committed to providing good stewardship of the limited water available to the Middle Valley, and I look forward to attending ABCWUA's April meeting to provide a presentation on our conservation activities and answer any questions the Board may have. If you have any follow-up questions, please don't hesitate to contact me by phone at 505-247-0234 or by email at jason@mrgcd.us.

Thank you.



Jason M. Casuga, PE
CEO/Chief Engineer

cc: Elizabeth Anderson, ABCWUA (by email)

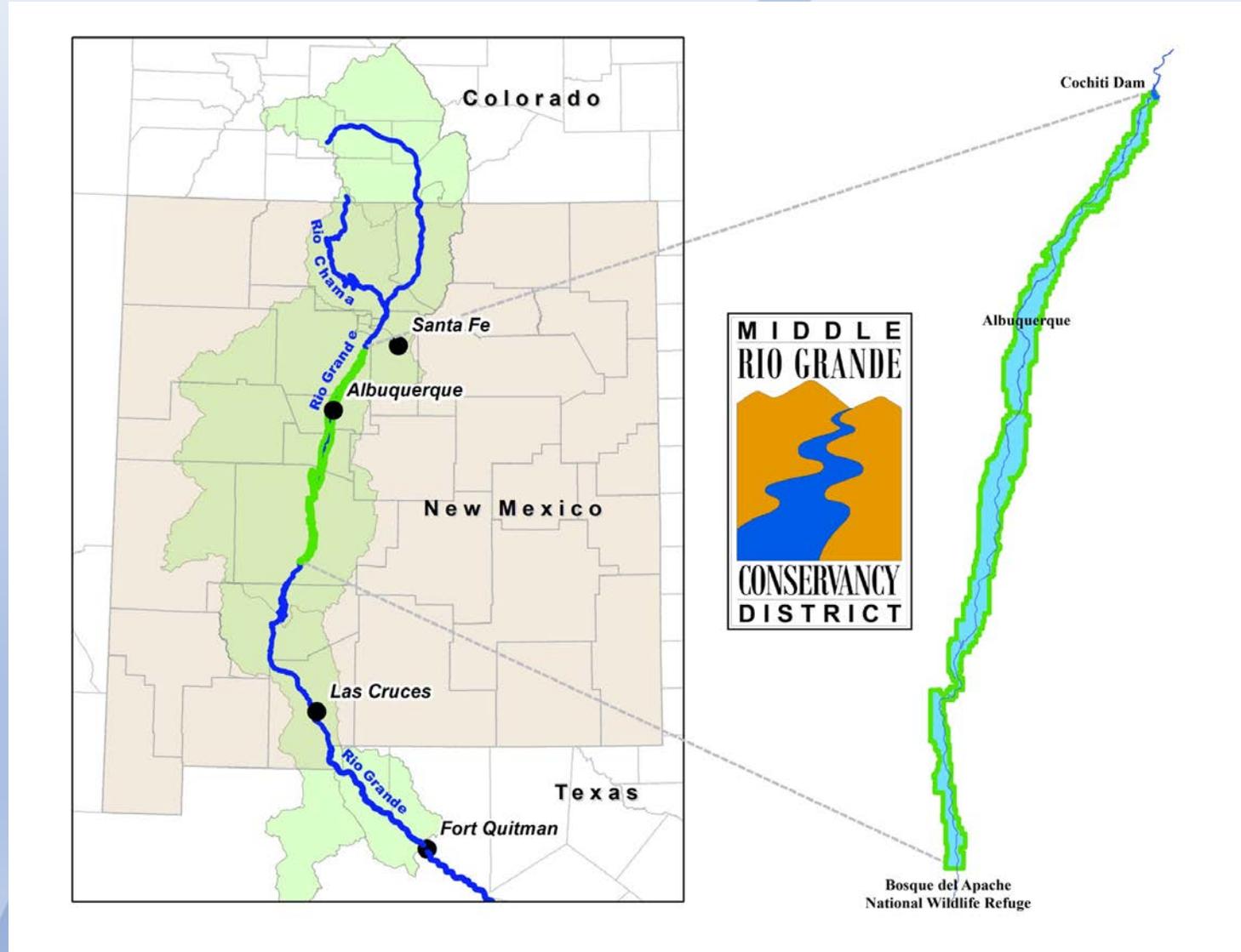


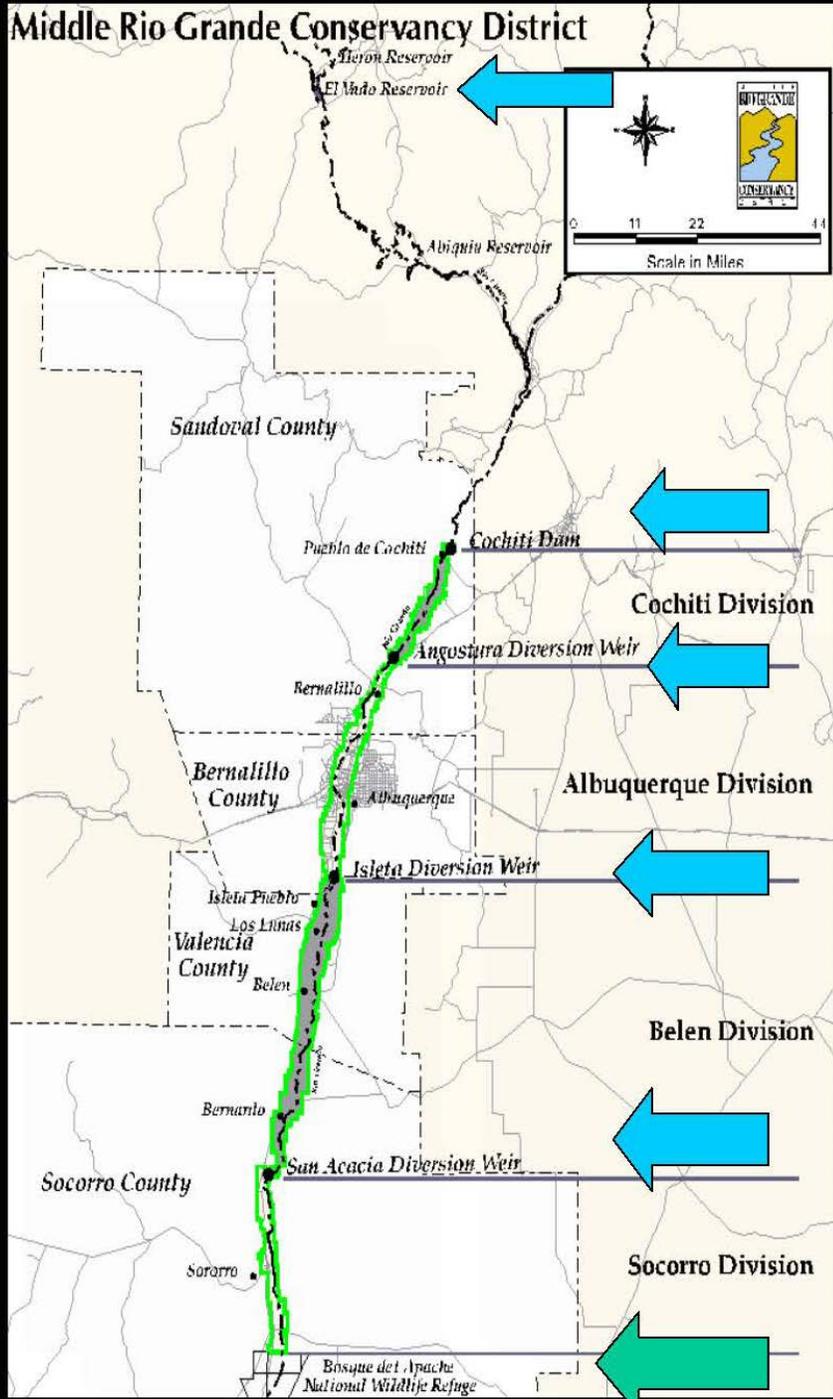
MRGCD Water Operations & Conservation Program Overview

Presented by Jason M. Casuga, PE
CEO/Chief Engineer

MRGCD Benefited Area & Quick Stats

- Official Plan Approve 1928
- 1200 miles of facilities
- 4 counties (mixed rural/urban)
- 6 Pueblos
- ~60,000 ac. of irrigated lands
- ~30,000 ac. of riparian bosque





El Vado Dam

Water storage from San Juan Chama Diversion

Cochiti Dam

Angostura Diversion

Isleta Diversion

San Acacia – Diversion Weir

Bosque del Apache Refuge

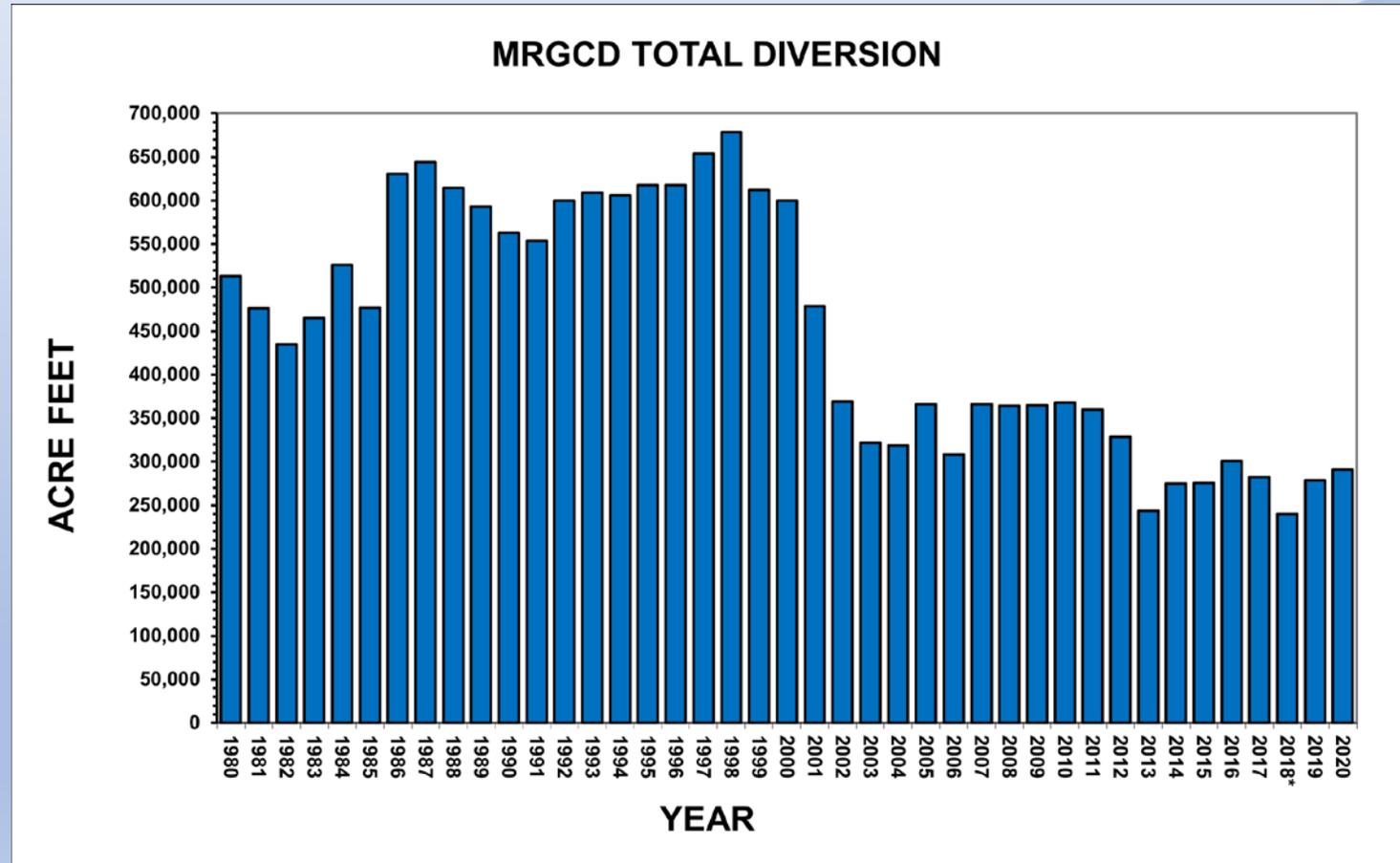
BOR, Elephant Butte, Texas



Water Operations – Run-of-the-River

- The District has reduced its river diversions by more than 50% since 1997 due to ESA requirements and drought.
- Reduction achieved through operational efficiency, including water scheduling, measurement, and rotational delivery.
- This new strategy has provided more consistent deliveries to Elephant Butte and allowed for more efficient use of stored water from El Vado Reservoir.
- District has modified storage strategies at El Vado to address ESA concerns, provide stability for irrigators, and to support NM's efforts to maintain positive RGC accrued credit status.
- Long-term: Continued development of operational efficiency through automation, infrastructure improvement, and measurement; along with a new emphasis of on-farm efficiency.

MRGCD Diversions 1980-2020



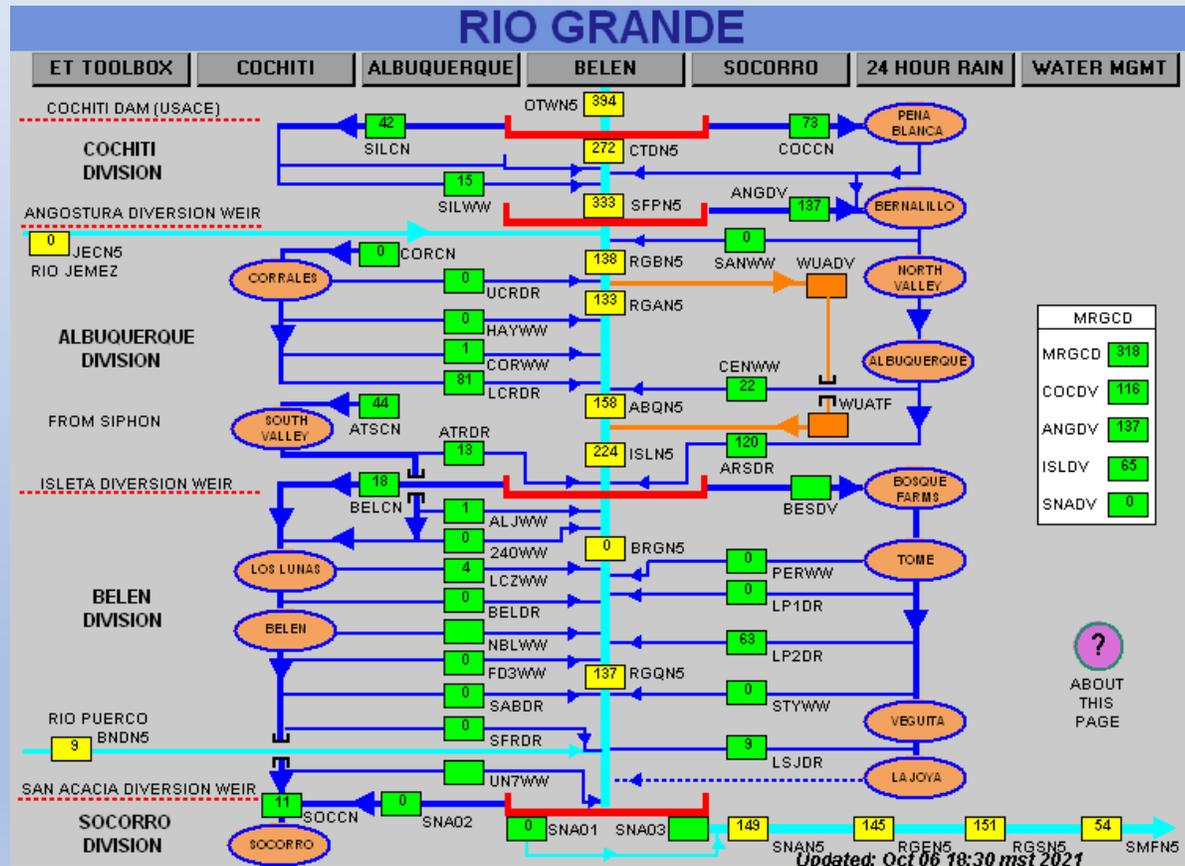
Water Measurement

“If you can’t measure it, you can’t manage it.” –David Gensler

- MRGCD has over 200 measurement structures within its facilities.
- Measurement of irrigation facilities:
 - Helps assess irrigation demand.
 - Informs decisions around reservoir releases and diversion rates.
 - Provides an understanding of where water is in the system.
 - Facilitates equitable distribution of water.



Supervisory Control and Data Acquisition (SCADA)



Benefits of MRGCD SCADA system include:

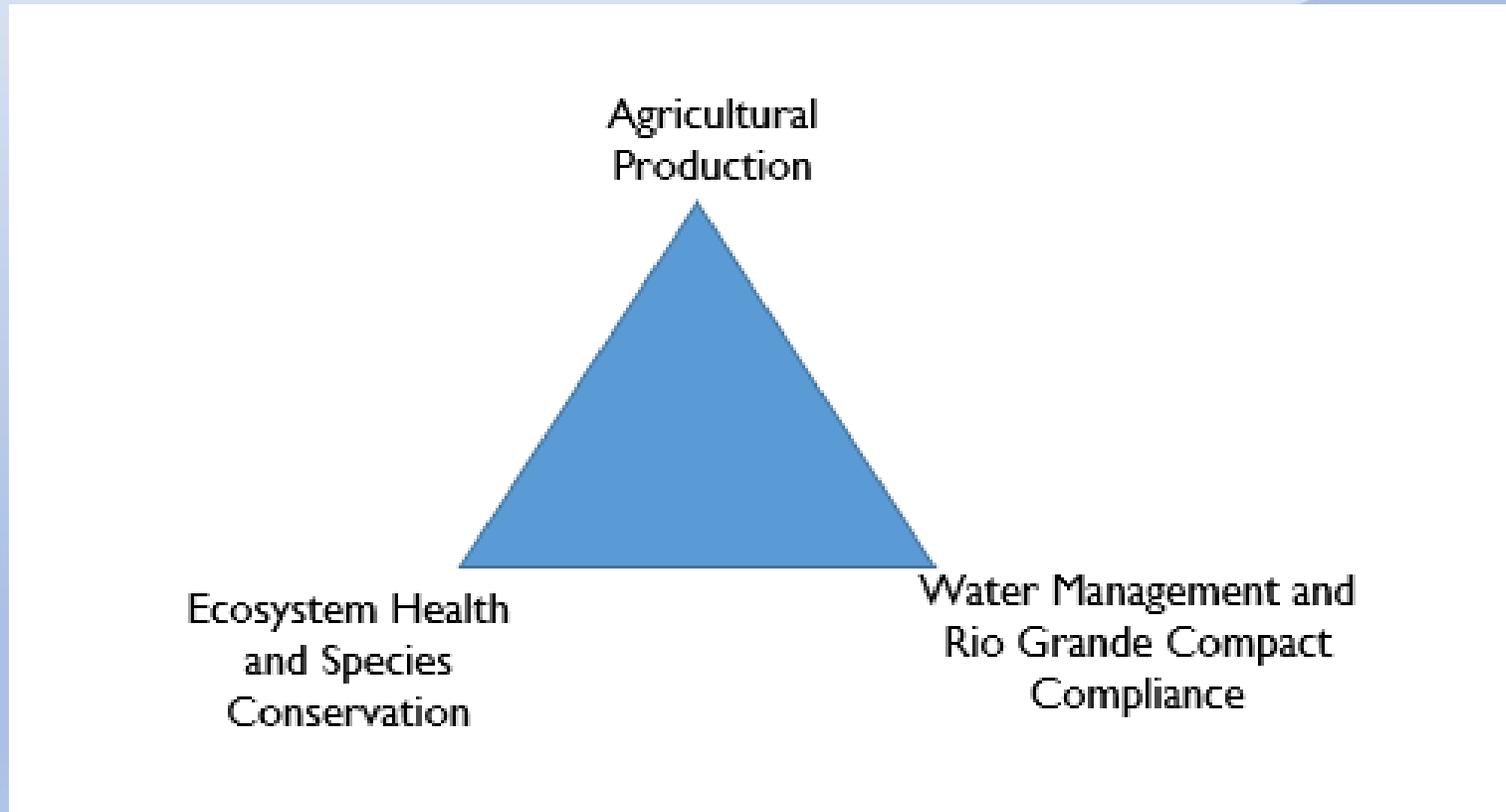
- Remote monitoring and collection of data.
- Informs real-time and long-term management decisions.
- Accessible data to a broad spectrum of users.

Water Control

- Control structures in irrigation canals can provide either:
 - Downstream flow control.
 - Upstream water level control.
- Benefits of control structures include:
 - Increased irrigation delivery efficiencies.
 - More reliable scheduled deliveries.
 - Decreased impacts on irrigation deliveries from fluctuations in canals.
 - More flexibility for systems operators.



MRGCD Conservation Program



Conservation Program

On-Farm Program (OFP)

Program Objectives

- Increase individual field irrigation rates to at least 1 acre/hour (In compliance with MRGCD's Irrigation Policy)
- Develop an understanding of the cost benefit(s) associated with On-Farm infrastructure improvements as a financially viable tool for increasing water conservation in the MRGCD

Program Overview

- 2021-2022 pilot-scale project initially funded with federal grant funds.
- MRGCD has largely capitalized on conservation improvements within our own right of way. This program focuses on "the other side of the fence" and how the District might realize additional, untapped water savings in the system. **This is a dramatic shift in how the MRGCD has historically supports our constituents.**
- Focused on improving individual farm irrigation infrastructure.
 - Installing High Capacity – Farm Delivery Pads & Turnouts
 - Repairing/improving farm ditches
 - Laser leveling
 - Other Delivery Control Structures



This Farm Delivery Pad (FDP) is delivering a large volume of water to an orchard in Albuquerque. The FDP allows for large quantities of water to be spread out over a large surface area before hitting the field. This "sheeting" of water reduces destructive erosion at the delivery site while maintaining the efficient irrigation rate and uniform spread of water across the field. Since installation, time to irrigate this 1.5 acre orchard has been reduced from several hours to ~45 minutes.

Conservation Program

Emergency Fallowing & Environmental Water Leasing Program (EF-EWLP)



Program Objectives

EF – Water conserved goes towards reducing the State of New Mexico’s Rio Grande Compact debit. This is critical to allowing MRGCD to store water for irrigation demand and manage flows in the Rio Grande.

EWLP - The water that is leased from farmers in this program is delivered to strategic outfalls located along the river during summer months to support Endangered Species and the District’s obligations as specified in the 2016 Biological Opinion

- Enrollment is Voluntary
- Farmers receive per acre compensation for eligible land enrolled (\$425/Acre in 2022)
- Offer farmers more operational flexibility to rest or rotate older crops when water is in short supply, and to allow the District more flexibility to meet competing demands for water in the Middle Rio Grande Valley.



Conservation Program

Soil Health/Agronomy



1. Village Engagement

- Why? Because it *really* does take a village to protect and conserve our natural resources, especially soil.

2. Soil Health Training and Awareness

- Soil health training and awareness, with an emphasis on how your soils formed and developed over time, is key to understanding how to create a genuinely sustainable soil health plan for any scenario.

3. Soil Data Collection & Analysis

- Each site visit includes an in-field assessment, which provides insight into current management. During each site assessment, a soil sample is collected and lab analyzed. Together, these assessments and lab analyses report back more than just what nutrients your soil lacks. Like humans, soils need to breathe, stay hydrated, and (biologically) active, which are other elements we consider when evaluating your soil's health.
- **Central NM now has its own Soil, Water, and Compost Testing Lab! Through a partnership between MRGCD and The Village of Los Ranchos Agri-Nature Center, district constituents now have access to testing services to help inform soil health management.**



To learn more about MRGCD's Soil Health Plan and Partner Network, contact Gabriella Coughlin, gabby@mrgcd.us

MRGV Community Soil Health Lab

- NOT a business but a community service
- On March 26th, the Lab started accepting
 - Soil, water, and compost samples
- Offers monthly workshops on:
 - NRCS In-Field Soil Health Assessments
 - Collecting soil and compost samples
 - Cover crops
 - Reduced-till equipment
 - Composting
 - Citizen soil science initiatives
- Conservation equipment rentals
 - Soil health assessment kits
 - Soil and compost testing kits
 - Soil moisture probes
 - Cover crop seeds and seeders
 - And more
- Robust Partner-Driven Conservation Technical Assistance

Report on NM's World Soil Day Events Dec. 3rd and 4th, 2021

Celebrate World Soil Day with Us!
 Celebrate World Soil Day with us! In honor of the launch of a new, unity-driven awareness campaign, we are excited to announce that we will be celebrating World Soil Day on December 5th, 2021. This year we will deliver informative workshops, train local farmers, and engage in citizen soil science activities centered around soil salinization and water conservation. Click here to learn more about this year's World Soil Day theme.

Virtual Soil Health Champion Town Hall: ~40 people across the state participated
In-Person Community Soil Health Lab Event: ~30 people attended. Since the launch of the Community Soil Health Lab program in October, 22 partners and volunteers have joined planning efforts.

Online Event December 3rd, 2021
 12:00 pm - 1:00 pm
 Click here for the All Health Champions Virtual Town Hall

In-person Event December 4th, 2021
 9:00 am - 2:00 pm
 Community Soil Health Lab
 Larry P. Monahan, 464 Warner Center
 8020 Middle Rio Grande, N.M.

Make the 2021 World Soil Day celebration a success by becoming a partner and helping us to reach our goal.

QUESTIONS?

