



**Achen-Gardner Construction
Town of Carefree**

CAREFREE WATER CONSOLIDATION CMAR

**ARIZONA CHAPTER ASSOCIATED GENERAL CONTRACTORS
2024 BUILD ARIZONA AWARD**

Contractor-Project Information Sheet

Company Name: **Achen-Gardner Construction**

Contact Name: **Scott Kirchhofer**

Street Address: **2195 W. Chandler Boulevard, Suite 200** City: **Chandler** State: **AZ** Zip: **85224**

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Please select an award category below:

New Construction ☒ **Public** ☐ **Private**

☐ Under \$10 Million ☒ \$10 Million - \$50 Million ☐ Over \$50 Million

☐ Heavy Industrial ☐ Highway Construction ☐ Municipal ☒ Utilities

☐ Maricopa ☐ Pima ☐ 13 Other Counties _____

Reconstruction ☐ **Public** ☐ **Private**

☐ Under \$5 Million ☐ \$5 Million - \$10 Million ☐ \$10 Million - \$50 Million ☐ Over \$50 Million

☐ Heavy Industrial ☐ Highway Construction ☐ Municipal ☐ Utilities

Pavement Preservation

☐ Under \$2 Million ☐ \$2 Million - \$5 Million ☐ Over \$5 Million

☐ Maricopa ☐ Pima ☐ Pinal ☐ 12 Other Counties _____

PROJECT INFORMATION

Project Name: **Carefree Water Consolidation Project**

Project Location: **Carefree, AZ**

Is this project a JV (joint venture)? **No**

Please enter JV Partners: **N/A**

Project Start Date: **September 2021**

Project End Date: **December 2023** Final Project Amount: **\$20,160,577.23**

Project Owner: **Town of Carefree / Carefree Water Company**

Project Contact: **Greg Crossman**

Project Contact Email: **greg@carefreewaterco.com**

City: **Carefree** State: **AZ**

Owner Contract Type:

☐ Design Bid Build ☐ JOC ☒ Construction Manager At Risk ☐ Design Build ☐ Public Private Partnership

Signed by Principal/Officer  **Dan Spitz, President** Date **12/01/23**

Achen-Gardner Construction



1. WHY THE CAREFREE WATER CONSOLIDATION PROJECT SHOULD RECEIVE A BUILD ARIZONA AWARD

This project allowed the Town of Carefree to expand Carefree Water services to more than 20% of Carefree residents who were previously being furnished potable water by the Town of Cave Creek. It was the largest utility project that Carefree Water has ever constructed and the Town's first use of the Construction Manager at Risk (CMAR) delivery method. The Town of Carefree (Owner), Achen-Gardner Construction (General Contractor/CMAR), and CVL Consultants (Design Engineer) worked together to successfully navigate the project's challenges and deliver a total of six Guaranteed Maximum Price (GMP) phases of work safely, on time, and within budget.



2. MEETING THE TIMEFRAME OF THE PROJECT

This project's schedule was primarily dictated by the requirement that the water service area would be completely turned over from the Town of Cave Creek to the Town of Carefree by 2024. To support this goal, the team created a dynamic schedule for design and construction and devised multiple work areas and GMP combinations to facilitate the various completion deadlines. These six GMPs included:



1

LONG LEAD MATERIALS:

September 2021 to September 2023

2

RESERVOIR EXCAVATION:

November 2021 to December 2022

3

WATER LINE INSTALLATION:

March 2022 to April 2023

4

RESERVOIR CONSTRUCTION:

April 2022 to November 2022

5

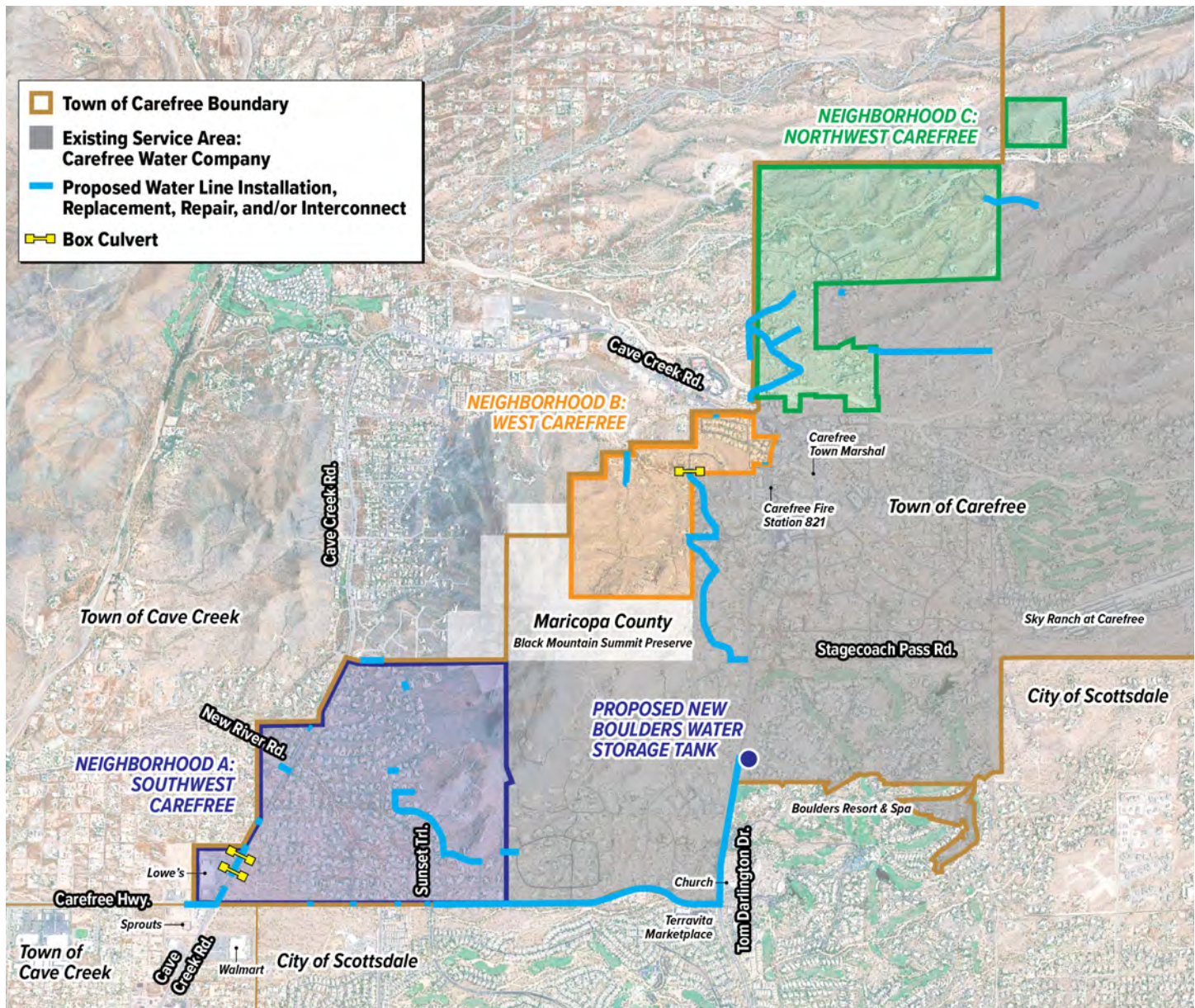
RESERVOIR BACKFILL AND ELECTRICAL:

September 2022 to December 2023

6

ADDITIONAL WATER LINE INSTALLATION:

February 2023 to July 2023



3. SCOPE OF THE PROJECT

The project included all improvements necessary to transfer water service from the Town of Cave Creek to the Town of Carefree in several key areas. This included extensive field investigation during the design phase to determine the location and condition of existing water lines, valves, and booster pump stations. Construction phase work included:

Water Line Installation: Scope included more than 24,000 LF of water line (16", 12", 8", 6", and 4"), 36 valves (16", 12", 8", 6", and 4"), and four pressure reducing valves (12", 10", and 6"). More than 80 LF of 12" water line was installed using jack and bore at two locations: one along Tom Darlington crossing under a utility duct and the other at Terrace Estates/Lazy Burro crossing under an existing culvert.

Reservoir Construction: The reservoir site included the construction of a brand new 300,000-gallon, partially buried pre-stressed concrete reservoir along with associated site work, electrical, controls, and chlorine dosing equipment. The site was designed to limit the visual impact of the reservoir and included decorative fencing and native desert landscaping.

Restoration: This included more than 15,299 SY of asphalt removal and replacement, restoration of natural desert landscaping, and maintenance of an access road.



4. DIFFICULTIES OF THE PROJECT

The primary difficulties or challenges associated with this project were:

Locating Existing Utilities: Many of the as-builts for the project area were incomplete or outdated. Achen-Gardner's field crews frequently discovered utilities that were not Blue-Staked or on existing as-builts. They worked successfully with the Town and CVL Consultants field staff to construct the new waterlines using clear alignment corridors whenever possible to minimize schedule and budget impacts.

Managing Hard-Dig Conditions: Achen-Gardner's crews encountered challenging soil conditions at several locations during water line installation. Areas of hard-dig required the use of rock buckets and drum cutter attachments for excavators. Achen-Gardner utilized additional crews to ensure the project remained on schedule despite these challenging conditions.

Maintaining Stakeholder Safety and Communication: Many of the new water lines were located in neighborhoods where construction directly impacted resident access, and the project required the installation of a water line on the busy and high-speed Carefree Highway. Both scenarios required extensive consideration of safety and communication with the public. The Town and Achen-Gardner developed traffic control and access plans that routed pedestrian, bicycle, and vehicle traffic away from the work zone, combined with a public outreach plan that helped to steer traffic away from the areas under construction. Achen-Gardner also utilized dedicated spotters and plated over open trenches after work hours to maintain safety.

Managing Public Perception: The team contended with some stakeholders' dissatisfaction regarding the location of the new reservoir throughout the design phase and into the construction phase. Due to its location near a private residence, the team ultimately decided on the final, partially-buried design and natural desert landscaping to minimize the visual impact on the surroundings. During construction, Achen-Gardner's team and subcontractors were sensitive to property owners and area stakeholders.

Construction During COVID-19 Pandemic: Design and selection of the CMAR were completed pre-pandemic, but most of the project's construction phase occurred during the pandemic. Achen-Gardner's crews took additional precautions and assigned additional resources as necessary, and there were no work stoppages or schedule slippages as a result of pandemic-related impacts.

5. USE OF INNOVATION AND PROBLEM-SOLVING TECHNIQUES

The team utilized several innovative and problem-solving techniques:

Risk Matrix: Achen-Gardner developed and provided a unique Risk Identification Matrix that was used to identify, mitigate, and control risks on the project. The Town, CVL, and the Independent Cost Estimating firm embraced the usefulness of this tool, and it played an important part in the discussions and workshops used to create cost models and GMPs.

Risk Matrix						
Probability Rating	5 - Very High					
	4 - High					
	3 - Moderate					
	2 - Low					
	1 - Very Low					
		1	2	4	8	16
		Very Low	Low	Moderate	High	Very High
		Impact Rating				

Title	Risk Statement	Current Status/ assumption	Probability	Cost Impact	Cost Score	Time Impact	Time Score
Utility Pothole and Designation	Existing underground utilities must be identified and mapped to avoid construction delays or cost impacts.	Ongoing	4-High	4-Moderate	16	4-Moderate	16
Native Plant and Animal Survey	Native or protected plants and animals must be identified to avoid project impacts and/or citations for noncompliance.	Inventory based on site work; Ongoing	2-Low	2-Low	4	2-Low	4
Public Information and Stakeholder Communication	Lack of timely and accurate public outreach can create concern among stakeholders and may cause public perception and opinions of the project to be negative.	Ongoing process	4-High	2-Low	8	4-Moderate	16

Inter-Agency Collaboration: The project by nature required collaboration among the Town of Carefree, the Town of Cave Creek, and City of Scottsdale, in addition to Achen-Gardner and CVL Consultants. It also required extensive coordination with area residents, businesses, and other local stakeholders. The project team hosted weekly meetings between representatives of the Towns of Carefree and Cave Creek to communicate milestones and progress. Additional on-site meetings were held as needed.

Independent Cost Estimating (ICE) Service: Early during the project pricing discussions, the Town asked Achen-Gardner for input regarding a firm to provide independent cost estimating oversight. The project team ultimately selected Innovative Contracting and Engineering (ICE) to provide this service, and the ICE staff worked very closely with the team to review all labor and equipment rates, production rates, and line-item estimates. This critical addition to the project team ensured that all pricing was consistent with current industry standards and practices.





6. UNIQUE SAFETY CHALLENGES AND METHODS

Working in active traffic areas always presents highly variable safety challenges. On this project, the team contended with several safety challenges, including:

Traffic Flow: Traffic was greatest along Carefree Highway and Tom Darlington. We kept traffic flowing with at least one lane each direction and occasionally utilized flaggers in tight work areas. There were also challenges relating to many blind corners, steep hills, and narrow roadways in residential areas requiring special attention while equipment and trucks moved in and out of the project.

Work in Rural Desert Environments: The neighborhoods in the project area featured narrow streets with natural desert landscaping and a high potential for encountering wildlife. Achen-Gardner's crews had daily Job Hazards Analyses meetings to discuss how to prepare for potential contact with wildlife such as rattlesnakes, coyotes, bobcats, and scorpions, and natural desert flora including many species of cactus.

Confined Spaces: The reservoir construction included work inside the tank, which was a permitted confined space. Achen-Gardner and all subcontractors involved were required to complete confined space safety training certification and follow a strict procedure for entering, working in, and exiting the tank.

Achen-Gardner is proud to say that over the course of the more than 85,000 man-hours worked on this job, we experienced no recordable injuries.

7. PROJECT DESIGN

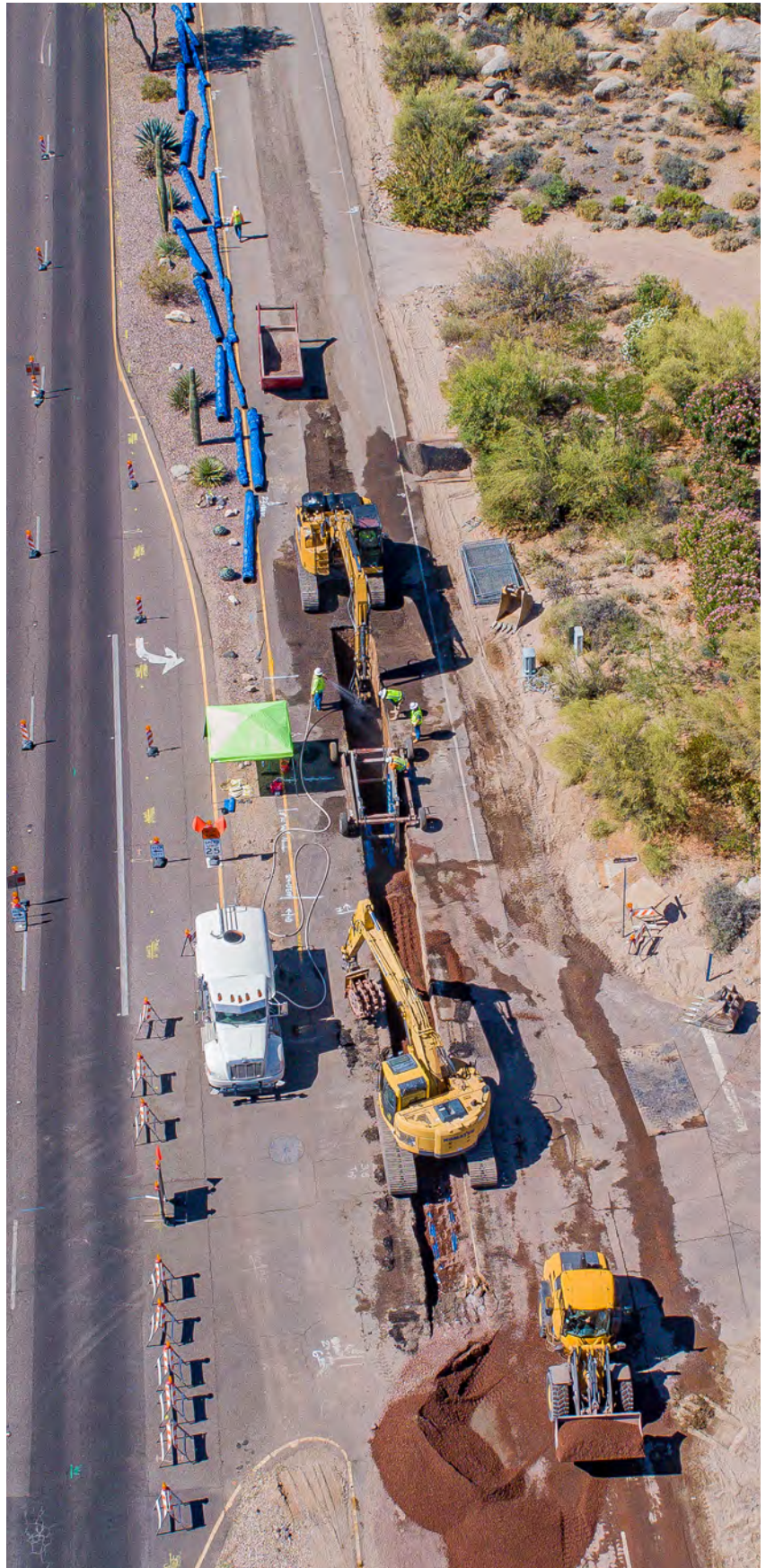
The concept for this project began when the Towns of Carefree and Cave Creek entered into an Intergovernmental Agreement (IGA) in 2005 and established specific water service areas for the residents of each Town. Carefree and the Utilities Community Facilities District (UCFD), as well as the Carefree Water Company retained CVL to prepare an opinion of fair market value for a large portion of the Cave Creek water service infrastructure in 2018. This allowed the Town of Carefree to create financial and construction goals for acquiring a significant portion of the Cave Creek infrastructure and, therefore, the associated water customers.

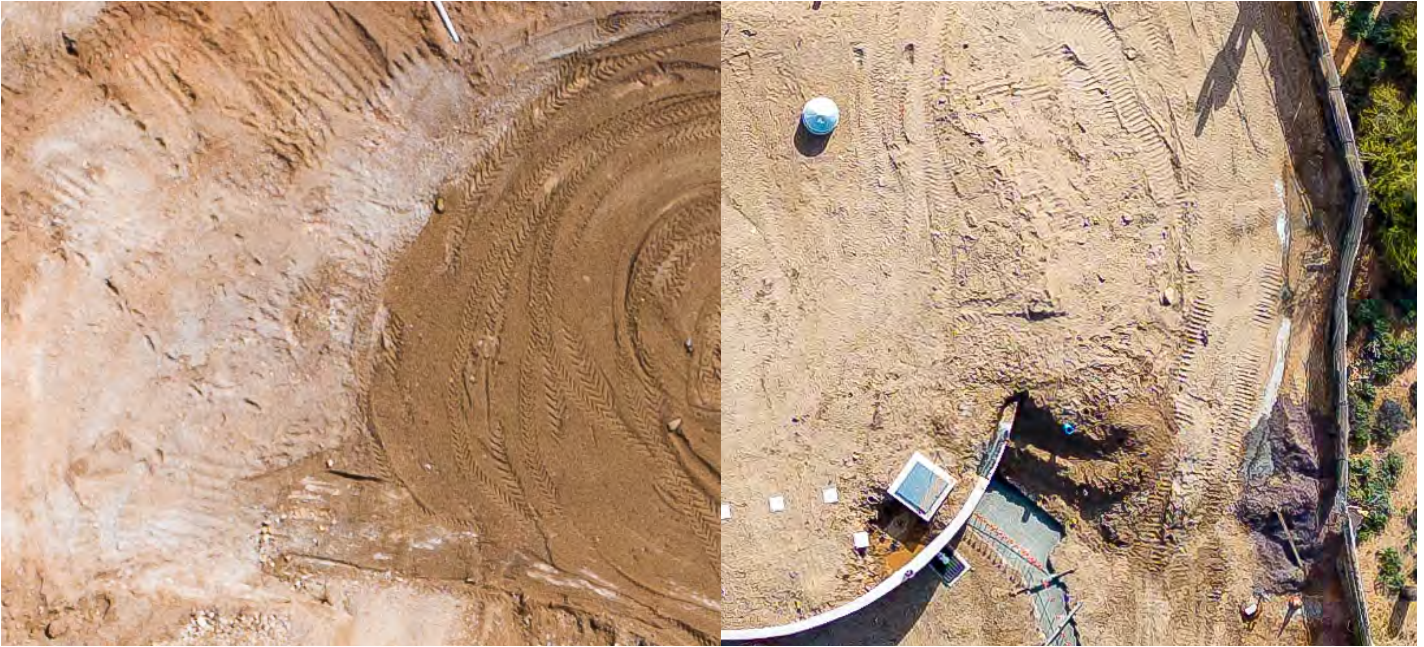
The Town selected CVL Consultants (CVL) as the design engineer and then procured Achen-Gardner as the CMAR contractor. They were engaged as part of the project team early during the initial phases of design to provide pre-construction services regarding constructability, schedule, maintaining the existing water system during construction, and developing guaranteed maximum pricing (GMP) for completion of the work. Together, the team phased the design to accommodate phased construction, as follows:

Water Line Installation: These plans were broken up into neighborhoods A, B, and C, and Tom Darlington/Carefree Highway. This allowed the team to transparently evaluate the quantities of work in each geographic area and the most efficient way to move crews and equipment through these areas.

Reservoir Construction: This aspect of the work was broken into phases for excavation, tank construction, and backfill/electrical. This phasing allowed schedule flexibility and accommodated funding and unknown site conditions.

Construction Phasing: The team evaluated phases that could be constructed concurrently to help meet the overall schedule for the project. At times, multiple water line areas and the reservoir were under construction at the same time.





8. OUTSTANDING FEATURES OF THE PROJECT

The work on this project was completed without undue disruption to any residents or businesses, even during water line tie-ins and connections. All tie-ins were coordinated with both the Town of Carefree and Town of Cave Creek and staff from both agencies were present during these activities. Both agencies coordinated record-keeping during these tie-in operations to ensure water service transitioned seamlessly from one agency to another. By effectively utilizing both pre-construction and construction phase tools under the Arizona Title 34 CMAR process, we created a collaborative environment for all team members and stakeholders to ask, present, be heard, and ensure the project is completed successfully.



9. CONTRACTOR'S CONTRIBUTION TO THE COMMUNITY

The Town of Carefree is committed to sustaining its water supply for its citizens and businesses and this was demonstrated throughout the project. The team went to exhaustive efforts to plan and implement activities that minimized disruption to water service, carefully communicating any outages early in advance.

The team, including MakPro Services, provided stakeholder engagement services before and during construction. They were responsible for early communications with the public to notify and keep all adjacent residents and businesses informed. Their services included door-to-door interactions and notifications, maintaining an ongoing project hotline, informing Town Council members, and carefully planning to meet and maintain access for residents, businesses, and the traveling public.





10. MEDIA COVERAGE AND PROMOTION OF CONSTRUCTION

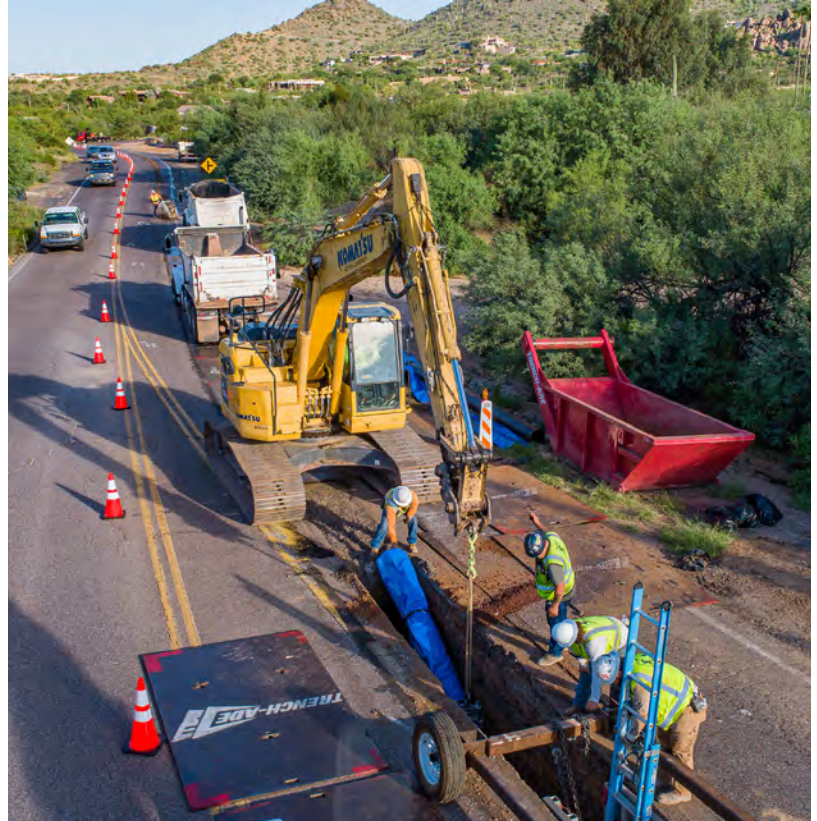
This project was featured in numerous notifications by the Town's public outreach and communication services and on Achen-Gardner's website and social media sites (Facebook, Twitter, LinkedIn, and Instagram). The team presented to the Arizona Society of Professional Engineers (ASPE) about the project and at numerous Town Council meetings.

Achen-Gardner is proud to be a member/supporter of the Arizona Association of General Contractors and we have represented the AZAGC by displaying the AZAGC logo on project banners and other media forms.

11. SENSITIVITY TO ENVIRONMENT AND SURROUNDINGS

The project's environmental sensitivity efforts included:

- **Native plant surveys and preservation efforts** were employed in several areas of the project to mitigate impacts on the native desert landscape.
- **Desert wildlife** was plentiful in the project area, requiring a careful approach by Achen-Gardner's field crews to maintain safety.
- **Stormwater controls** were key to prevent damage to the adjacent natural desert and private properties.
- **We were also sensitive to the many businesses and residents in the area.** We took care to fully restore landscaping and irrigation at the completion of our work and ensure communication for any traffic control changes and access restrictions. Motorcyclists were a key consideration and we communicated effectively when popular routes were affected by our construction.





12. PARTNERING

Throughout the duration of this project, Achen-Gardner worked hand in hand with the Town and CVL to complete this project on time and within budget. Achen-Gardner's vast experience with the partnering and collaborative approach of Construction Manager at Risk projects within Arizona lent itself to on-the-ground problem solving, which was at times necessary to overcome challenges that arose during construction.



“Your workers were efficient and considerate in getting us moving ahead. Your finished work is excellent so that we cannot feel a thing when driving across it. I thank you on behalf of our neighbors for the good work.”

THALE DAMMAN
Resident



13. EXCELLENCE IN CLIENT SERVICE

The Carefree Water Consolidation CMAR Project was completed on schedule and provided for the successful change-over of the water system from the Town of Cave Creek to the Town of Carefree. The Achen-Gardner team was also able to accommodate additional project needs during construction as they were identified. The work was completed and we met all major milestone dates. Both Towns are highly satisfied with the project, and even residents are pleased with the result. See the quotes above and below.

“This project was incredibly challenging. Transitioning 550 existing water customers spread over the western boundaries of Carefree from one water provider to another was not an easy proposition. In addition, this had to be done with minimal disruption to each customer’s water service. The Project Team members from Achen-Gardner, CVL, and Carefree Water, all stepped up to the plate, tirelessly working together to ensure the transitions went off without a hitch. Big kudos to the Project Team for an outstanding delivery of this complex project!”

GREG CROSSMAN
General Manager, Carefree Water Company

“A special thanks to all of those who have made significant contributions to protect Carefree’s water resources... These people worked with Carefree residents and property owners to provide an effective and cost efficient solution to Carefree’s water future.”

LES PETERSON
Former Carefree Mayor, Carefree Unity, June 15th, 2022