

# WestLand Resources and Pima County Turn Infrastructure Overhaul into Environmental and Engineering Excellence

## CHALLENGE

Pima County needed to replace and augment nearly 13.5 miles of regional sewer infrastructure through dense urban areas, sensitive environmental corridors, and federally regulated land while maintaining public safety, minimizing disruptions, and coordinating with over a dozen stakeholders.

## SOLUTION

Using an integrated design and construction team approach through the CMAR model, WestLand led a collaborative process emphasizing progressive design, strategic construction phasing, stakeholder alignment, and extensive community engagement.

## RESULT

The project was completed ahead of schedule and under budget by nearly \$2M. The team eliminated an aging lift station, improved environmental outcomes, installed over 73,000 feet of new PVC sewer line and 139 polymer concrete manholes, and achieved over 121,000 labor hours without a single lost-time incident.

Pima County Regional Wastewater Reclamation Department (PCRWRD) had a vision to revamp nearly 13.5 miles of aging and constrained sewer infrastructure across the Tucson metropolitan area to meet growing wastewater demands, enhance environmental protection, and eliminate outdated facilities. However, the scale, complexity, and stakeholder coordination required for such a project posed formidable challenges.

With multiple jurisdictions, environmental sensitivities, and significant public interface across urban and undeveloped landscapes, PCRWRD turned to WestLand Resources, a Trinity Consultants team, and Borderland Construction Company to navigate the regulatory, engineering, and construction hurdles. Together, the teams executed the project under the Construction Manager At-Risk (CMAR) model, transforming an ambitious infrastructure plan into a nationally recognized model of innovation, safety, and sustainability.

## CHALLENGE

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The Old Nogales Interceptor/Aerospace Corridor/Park Avenue Sewer Project was an ambitious \$42M investment into southern Arizona's wastewater backbone. The project traversed urban corridors, railroads, schools, correctional facilities, and commercial zones requiring extraordinary logistical, environmental, and engineering coordination.

The original interceptor, overburdened and outdated, needed significant capacity increases. Moreover, the alignment paralleled or crossed major infrastructure including Interstate 10, Union Pacific Railroad (UPRR), jurisdictional washes, and state and federal facilities such as the Tucson VA Hospital and Wilmot State Prison. Construction would also occur amid COVID-19 disruptions and ongoing supply chain crises, compounding risk.

Finally, the project needed to eliminate a problematic lift station at Wilmot Prison, requiring precise hydraulic modeling, odor control solutions, and risk mitigation strategies during live system tie-ins while operating within a confined, high-security environment.

## SOLUTION

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WestLand led the project's early feasibility and alignment study, identifying critical issues and plotting alignment to reduce conflicts. The team then transitioned into a CMAR delivery model, bringing in Borderland early for constructibility reviews, cost modeling, and stakeholder negotiations.

The project was executed in three interdependent phases:

- Phase 1: Aerospace Corridor – 6.3 miles of new 18"-36" PVC sewer
- Phase 2: Old Nogales Interceptor – 7.0 miles of 36" PVC sewer
- Phase 3: Park Avenue Augmentation – 0.3 miles to relieve urban bottlenecks

This phasing allowed short-term wins to progress while addressing long-term constraints such as UPRR permitting and public engagement. The CMAR team implemented trenchless bore techniques at 17 crossings to reduce disruption and expedite installation.

WestLand conducted extensive environmental surveys and cultural reviews, preserving endangered plants in collaboration with the Pima County Native Plant Nursery and the Tucson Cactus and Succulent Society. To avoid jurisdictional impacts at sensitive washes, sewer lines were installed via jack-and-bore under scour zones which eliminated the need for U.S. Army Corps 404 permits.

Innovative materials such as armorock polymer concrete manholes and diversion structures were selected for their corrosion resistance and 50-year life expectancy. Handling high-strength effluent from the Wilmot Prison needed to be a feature, not a perk.

Communities and businesses were engaged throughout each construction phase with open houses, multilingual flyers, traffic alerts, and stakeholder meetings. Sensitive institutions, including schools and the VA hospital, received tailored plans to protect access, safety, and operations.

## RESULT

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The new interceptor supports up to 14.37 million gallons per day, with surplus capacity for future economic growth in the Aerospace Corridor. The WestLand team's collaborative work successfully eliminated the Wilmot Prison lift station—previously a major maintenance and odor concern—thanks to a gravity-fed design with chemical injection odor control.

Final construction costs came in at \$42.5M—yielding savings of \$1.97M through meticulous cost modeling, strategic procurement, and minimized rework. Even with PVC and aggregate shortages, the team avoided delays by coordinating early material acquisition schedules and supplier commitments.

Across 121,831 work hours, the project achieved zero lost-time incidents; a testament to robust job hazard analyses, trenching safety protocols, daily toolbox talks, and full-time safety oversight. Schedule integrity was maintained despite pandemic and monsoon delays, thanks to phased permitting and real-time coordination of subcontractors and public interfaces.

The project established a model for green infrastructure: using polymer concrete and PVC to withstand corrosion, installing odor and flow controls, and reusing salvaged native plants. The elimination of energy-intensive lift stations and the reuse of organic mulch for landfill erosion control reinforced Pima County's long-term environmental goals.