

A new ballpark adjacent to a railroad track comes together quickly to revive El Paso's baseball scene.



FASTER Than a Speeding Locomotive

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EL PASO HAS a long and storied history of supporting professional baseball.

The El Paso Diablos, a Double-A Texas League team, was a successful franchise often credited with creating elements of the fan-friendly atmosphere for which minor league baseball is now known. However, the team, which had operated in various incarnations since the 1890s, was sold and relocated in 2004, leaving the Sun City as one of the largest cities in the country without an affiliated professional baseball team.

But in 2012, the city partnered with MountainStar Sports Group to bring pro baseball back to town. The latter had just purchased the Tucson Padres, a Triple-A affiliate for the San Diego Padres, and was committed to moving the team to El Paso—with the condition that a new stadium be built. MountainStar and the city identified a site downtown that didn't require existing businesses to be displaced and was perfectly located to spur urban redevelopment.



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- ◀ ▲ Design and construction for the park overlapped significantly. The design team issued multiple early structural packages, one every two weeks through the spring of 2013, and all of these packages were issued prior to the architectural construction documents.
- ▶ Curved sections “frame” the concourse and allow the back-span trusses to meet the deeper depth of cantilever raker trusses at the back-of-bowl column line.

Opening Day

Actually, there was one building that did need to be displaced: city hall. The good news was that it needed to be replaced anyway, as it required exceedingly costly upgrades to the mechanical and enclosure systems.

While this helped to further the economic case for redevelopment of the site and building a ballpark, it also created a complex logistical puzzle for city operations and an extremely compressed construction schedule. To meet opening day (spring of 2014) for the new team—the El Paso Chihuahuas—the design and construction team had just 18 months to design the venue, demolish the 15-story concrete-framed former city hall, clear the site and get the ballpark, called Southwest University Park, built. The former city hall was imploded on the morning of April 15, 2013, which meant the construction team did not have a clean site until one year before opening day in 2014. To accomplish the extremely aggressive schedule, the design and construction phases overlapped significantly. The design team issued multiple early structural packages, one every two weeks through the spring of 2013; all structural packages were issued prior to the architectural construction documents.



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- ▲ The ballpark is immediately adjacent to an active railroad.



◀ The site, prior to construction. The existing railway is visible across the bottom of the photo.

Both aerial images: Courtesy of Jordan/Hunt, JV



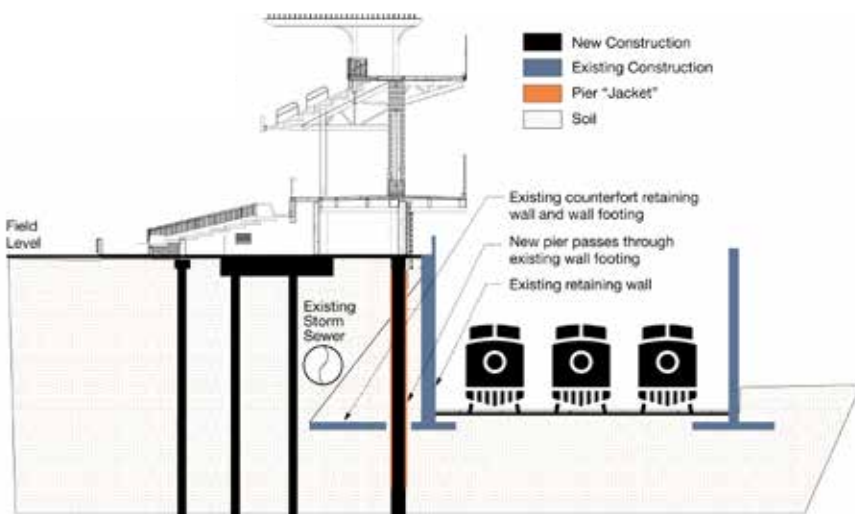
▲ The completed ballpark.

The schedule also influenced the structural system. While a concrete floor system was used for the below-grade service level, structural steel was selected for the lower bowl raker beams as well as all framing above the concourse level. This allowed the concrete construction to commence in parallel with steel detailing while also taking advantage of the relative speed of steel erection.

At just under six acres, the irregular and steeply sloping site was undersized and constrained on each side, including along its southern boundary by the Union Pacific Railroad's main arterial from Los Angeles to Florida. A massive existing concrete retaining wall protects the trainway's three rails, which are located 22 ft below the adjacent grade. Further complicating things, a crucial 84-in.-diameter storm sewer runs through the site 15-ft below grade behind the retaining wall and beneath the stadium structure. The site is so tight that portions of the ballpark's structure cantilever over the tracks. Luckily, the construction team was able to use the baseball field as a laydown area for the steel.

Architect Populous' design features a pedestrian-scaled exposed steel structure that sits cozily on the asymmetric site. However, the tight site required four levels, rather than the two or three levels typical of most Triple-A ballparks, to accommodate the park's 7,500 seats, and adding the fourth level resulted in two levels of suites. To maximize suite space, the upper levels of suites are hung from the roof structure rather than posting down to the level below. This strategy took advantage of the natural depth of the gable roof trusses to support a hanger tube (HSS4×4×½) small enough to be concealed within the suite wall.

The design was inspired by famed architect Daniel Burnham's most significant work in the American Southwest—the El Paso Union Depot, which is located only four blocks from the site—and sought to replicate the classic feel of American ball-



◀ To address the adjacent railway and an existing 84-in.-diameter storm sewer, a custom core bit and salvaged steel pipe (serving as pier jackets) allow the piers to penetrate the existing counterfort wall and only shed load through skin friction below the existing retaining wall foundation.



▲ The tight site required four levels (two levels of suites), rather than the two or three seating levels typical of most Triple-A ballparks. To maximize suite space, the upper suite levels are hung from the roof structure rather than posting down to the level below.

parks built in the early twentieth century. The initial design concept included curved members at the beam column joints to include a reference to the Diocletian windows of the nearby depot. While these members conveyed the design aesthetic, they were not stout enough to act as a knee brace and become part of the structural frame. Instead of allowing steel to serve only an aesthetic function in this case, structural engineer Walter P Moore worked with Populous to design the club level framing and raker trusses to integrate the structure and architecture rather than adding supplemental structural steel, thus maintaining the desired aesthetic. The truss bottom chords became curved sections, which provided the reference to Burnham's curved windows, and also "framed" the concourse. This geometry also allowed the back-span trusses to meet the deeper depth of cantilever raker trusses at the back-of-bowl column line as well as simplified connection detailing.

Member selection and connection geometry were also strongly informed by the project's aesthetic aspirations. The trusses are built from double-angle web members and WT chords, and the back-of-bowl column line, which serves as a moment frame to resist lateral loads, is formed from two W14 sections laced with flat bars rather than a single deeper rolled shape.

The ballpark also features two partially enclosed outfield buildings that house spectator space and the bullpen and serve as the base for the scoreboard and video screen structure, which is also framed with exposed steel; the two buildings use moment frames in both directions since much of the exterior wall space is open or contains large windows.

Since many of the fans enter the ballpark through a space between the outfield buildings, Populous envisioned a welcoming entrance featuring exposed steel elements, similar to the trusses in the main ballpark structure. The outfield entry into the ballpark is in line with Franklin Street and is framed by a pair of two-level, fully exposed steel trusses that span 60 ft between the two outfield buildings and support the pedestrian walkways. The truss chords and truss diagonals duplicate many of the elements of the exposed structure in the main building trusses. The initial design called for a single-level walkway but a second-level walkway was eventually added, which uses slender tension hangers from the upper level truss to preserve the curved bottom chord.

Subterranean Steel

Just 160 ft from home plate (and 22 ft below) freight trains rumble through the train way an average of 48 times each day. As such, moving the tracks to create more room for the ballpark was clearly not a viable option for the project team. In addition, it was discovered during construction that the retaining wall's foundation extended beyond the extent shown in record drawings, meaning that the line of piers and columns nearest the train way were above the footing. With design completed and steel already being fabricated, reframing the superstructure was not an option. Rather than use heavy cantilever foundation beams to transfer the loads horizontally, the design team conceived a unique, steel-enabled solution with piers penetrated the existing footing. The railroad had strict requirements that the new piers could not induce vertical or lateral load into the

soil mass directly behind the retaining wall. To achieve this, the piers were individually encased along their top 30 ft in salvaged steel oilfield drill pipe. The pier size was coordinated with salvaged pipe sizes readily available in the region, and with some material testing the pipe was quickly approved for use. This clever but simple solution allowed the piers to be installed quickly and economically and eliminated the need for costly cantilevered grade beams; it's also the first example of applying salvaged steel pipe in such a manner in the region.

Southwest University Park is an important new venue for El Paso. It not only undergirds the effort to attract and claim the economic and quality-of-life benefits of a minor league baseball team, but also serves as a catalyst for redevelopment in downtown El Paso. Most importantly, fans have responded with enthusiasm. The newly minted El Paso Chihuahuas have played before record crowds, with 48 sellouts in the first 68 home dates, attendance levels that are virtually unprecedented in minor-league baseball. Named the best new ballpark of 2014 by *Ballpark Digest*, the new venue is writing a promising new chapter in the city's long history with America's Pastime. As Chihuahua fans now say in El Paso, "Fear The Ears!" ■

Owner

City of El Paso (Ballpark)
MountainStar Sports Group (Team)

General Contractor

Jordan-Hunt, a Texas Joint Venture

Architect

Populous, Kansas City
(Prime Consultant and Design Architect)
MNK, El Paso (Associate Architect)

Structural Engineer

Walter P Moore, Austin (Main Grandstand)
Robert Navarro and Associates, El Paso (Outfield Buildings)

Steel Team

Fabricator

W&W/AFCO Steel, Oklahoma City 

Erector

Derr and Isbell, Euless, Texas 

Bender-Roller

Max Weiss, Milwaukee 