

## A Gathering Place for Tulsa – Taking the Midland Valley Trail Across Riverside Drive

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## 1 Abstract

Opened in September of 2018, the Gathering Place is a spectacular 27-hectare (66 acre) public park located two miles from downtown Tulsa, Oklahoma and nestled along the eastern bank of the Arkansas River. This paper focuses on design and construction of a footbridge spanning across busy Riverside Drive to integrate the river into the park landscape.

As part of the park development the highway itself was transformed into an iconic feature. To meet this challenge, architectural considerations took an important role in the selection of the structure type for the new crossing, leading to the choice of a single-span, post-tensioned concrete box girder bridge with trapezoidal cross section. With a clear span of 43.7 m (143.5 feet) and a depth of only 1.2 meters (4.0 feet) the structure is exceptionally slender. A unique integral foundation system allowed the elimination of bearings, expansion joints, and abutment retaining walls, thus creating the impression of the bridge growing organically out from the landscape.

The paper touches briefly on the transformation of the urban environment with the development of the park and then discusses the challenges encountered during design and construction of the footbridge due to its great slenderness and unusual foundation system.

**Keywords:** Pedestrian bridge; post-tensioning; concrete box girder; integral abutment, pedestrian-induced vibrations.

## 2 Introduction

A US\$ 465-million donation, led by the George Kaiser Family Foundation and including eighty other private contributors, fueled the transformation of a flat stretch of land along the Arkansas River close to downtown Tulsa, Oklahoma, into a richly vegetated, hilly community park known as “Gathering Place” (Fig. 1). On its 27 hectares (66 acres) of land the park features a spectacular playground, a lake with a boat house, nature and bicycle trails, a skate park and basketball courts, a lodge, picnic areas, and a venue for outdoor concerts. The park was opened

in September of 2018 after four years of construction and has attracted more than one million visitors during its first year of operation.

Two land bridges across busy Riverside Drive integrate the Arkansas River into the park landscape. They are formed from precast concrete arch segments overlain by up to 4.88 m (16 ft) of back fill and planted with lush vegetation. Threaded between these land bridges is an overpass to extend the park’s Midland Valley Trail to the riverfront (Fig. 2). This paper focuses on design and construction of the overpass structure.