

PRECAST CONCRETE & SUSTAINABILITY

FIFTH STREET PEDESTRIAN PLAZA BRIDGE

Project Type:	Bridge
Location:	Atlanta, GA
Owner/Developer:	Georgia Department of Transportation
Architect:	Smallwood, Reynolds, Stewart, Stewart & Associates of Atlanta
Engineer:	ARCADIS U.S. Inc., Atlanta
Contractor:	Sunbelt Structures, Inc., Tucker, GA
Precaster:	Standard Concrete Products of Atlanta (beams)



OVERVIEW

Georgia Institute of Technology is located in the heart of Atlanta, Georgia. Greenspace is at a premium on many urban campuses like Georgia Tech. So when the University expanded its campus and built a new Technology Square on the other side of a major interstate, it took the opportunity to connect its campuses with more than just a bridge. Today, the Fifth Street Pedestrian Plaza Bridge provides an inviting lawn and park like setting that students gravitate toward and enjoy. The bridge has become a gathering place for many campus approved activities such as movies and tailgating prior to sporting events.

The Fifth Street Pedestrian Plaza Bridge is a two span bridge with a 48-foot wide roadway. The total width of the bridge is 223.25 feet. More than half of this expanse is greenspace. Pedestrian walkways, planters and benches are provided on each side of the bridge. The south side has a white, tubular trellis built over a campus trolley stop. The north side has sloped walkways with dark red concrete pavers that provide pedestrian access to the lawn and landscaped areas. Landscaping is arranged in multi-tiered plantings. Nine-foot-high planter walls at the outer perimeter minimize road noise from the high-speed traffic moving under the bridge and screen activity on the bridge that may cause a distraction to motorists.

50 PERCENT
of the bridge deck is green space

9 FOOT HIGH
planter walls minimize road noise and screen activity on the bridge

10 MONTHS
from concept to contract

PRECAST CONCRETE & SUSTAINABILITY



Georgia Institute of Technology is responsible for maintaining the landscaping on the Fifth Street Pedestrian Plaza Bridge in Atlanta, Ga. Courtesy of ARCADIS: John Bullock Photos.



This photo of the Fifth Street Pedestrian Plaza Bridge by Georgia Institute of Technology's media photographer depicts daily campus hustle and bustle. Courtesy of Georgia Institute of Technology.



Connecting the main and technology campuses of Georgia Tech, the Fifth Street Pedestrian Plaza Bridge resembles a small park and provides valuable greenspace for the campus. Courtesy of ARCADIS: John Bullock Photos.

A typical bridge project for the Georgia Department of Transportation (GDOT) takes from five to six years from concept to contract. This process was reduced to just 10-months by awarding the bridge as a design/build project. ARCADIS U.S. Inc. served as the project designer for the roadway, drainage and structural designs. Hayward Baker Inc. designed the east abutment. The contractor, Sunbelt Structures was responsible for construction of the entire project.

The design/build team that included architect Smallwood, Reynolds, Stewart and Stewart looked for the most economical structure for the project. The final design used 74-inch deep, prestressed, precast bulb tee beams, precast deck slabs, walls and planter boxes. Standard Concrete Products in Atlanta supplied the bulb tees; a modified version of a standard AASHTO 72-inch bulb-tee beam.

Filled with trees, plants and soil, the planters and walls were considered as composite dead load. To reduce density GDOT specified a special lightweight organic soil. ARCADIS was concerned that the deep planter sections would distribute a greater percentage of the composite dead load to the beams under the landscaping, instead of being evenly distributed on the beams. To counter this, beams beneath the landscaping were spaced at closer intervals than those of the other bridge girders.

The bridge spans over 15 lanes of traffic and has become a signature feature of the campus. Jim Aitken of ARCADIS remarked, "At bridge level, it is difficult to tell that the Fifth Street Pedestrian Bridge is a bridge at all. It closely resembles a small park with wide sidewalks, grassy lawns, shrubbery, benches, trees and a trellis that provides shade from the intense sun that beats down on Atlanta." Consistent with its original goals, it provides an attractive and welcoming passage between Georgia Tech's two campuses and is used for campus sponsored events and gatherings.

PRECAST CONCRETE'S CONTRIBUTION TO SUSTAINABLE CONSTRUCTION PRACTICES

Materials & Resources:

Products were sourced and produced locally by Standard Concrete Products of Atlanta. A high percentage of local and recycled materials were used to construct the bulb-tee beams and walls.

Sustainable Sites:

By adding valuable green space, the heat island was reduced, minimizing the impact on the microclimate and human and wildlife habitat. 



Precast/Prestressed
Concrete Institute

209 West Jackson Boulevard
Suite 500 Chicago, IL 60606
Phone: 312-786-0300
Fax: 312-786-0353
www.pci.org