Project Overview:
McMahon Associates, Inc. (McMahon) was engaged by Vérité & Mactavish Architects, LLP. (VMA), Philadelphia, PA, to complete the engineering and design of a Pedestrian Bridge and associated roadway improvements as part of Villanova University’s campus improvement project. The purpose of this project was to provide a safe and direct pedestrian connection between Villanova’s Main Campus and south Campus on the north and south sides of Lancaster Avenue. McMahon worked closely with VMA to complete the design of multiple structural segments adorned with architectural features, providing an iconic gateway to the campus with aesthetics matching the Villanova’s architectural style.

Challenges:
• Design multiple structure segments with unique challenges and functions while providing unifying elements to accomplish the overall goal of the Pedestrian Bridge.
• Prepare an ECMS bid package containing dozens of materials and construction methods unique to a typical PennDOT contract.
• Complete construction of Pedestrian Bridge project in stages under multiple contractors, in coordination with other adjacent campus improvement while maintaining campus pedestrian access and limiting disruption to Lancaster Avenue.

Structure Segments
• Segment 1 – A two span connector structure totaling 23’-10 ½” that consists of prestressed crecast plank beams that connect the existing SEPTA bridge platform to a nearby pavilion.

• Segment 3 – A three span structure with span lengths of 39’-4”, 39’-2” & 39’-4” consisting of prestressed precast plank beams that provide an elevated connection between pavilions.

• Segment 5 – The South Approach walkway structure with a length of 76’-1 ½” that consists of precast concrete panels and precast concrete slabs that ties the middle pavilion to the main span.

• Segment 6 – The main span over Lancaster Avenue (S.R. 0030) totaling 61’-11” consists of prestressed precast adjacent box beams with precast concrete panels attached to the exterior of the structure.

• Segment 7 – The North Approach walkway retaining wall structure measuring 100’-10 5/8” from the main span to the front of the St. Thomas of Villanova Church consisting of prefabricated T-Wall sections.

Construction