
sustainable communities collaborative

**Semester:** Spring 2021
**Class:** Biological Engineering (BE) 460 W, 466W
**College:** College of Agricultural Sciences
**Faculty:** Dr. Megan Marshall and Dr. Jeffrey Catchmark
**Community Partner:** State College Borough

**Impact:** The Borough of State College now has a design recommendation for improving Walnut Spring Park's footbridge. The final design is lasting, structurally sound, and will allow safe accessibility to the park.

Students in BE 460W and 466W partnered with the Borough of State College to help design a new footbridge over a stream in Walnut Springs Park. Walnut Springs Park is a diverse and rich forested area, in close proximity to urban neighborhoods with trails running through that allow visitors to enjoy easy access to the natural surroundings. However, one of the footbridges in the park became unstable due to erosion from extreme weather events. Students in the class were tasked with developing a design and recommending a new location for the Walnut Springs Park footbridge that would strengthen the bridge for maintenance vehicle traffic and help it withstand future erosion. This design made sure the bridge footings could withstand stormwater event flow rates and were located more appropriately in regard to the natural stream flow. In addition, the design had to meet Americans with Disabilities Act (ADA) guidelines. The students recommended other design aspects to make the project more eco-friendly, including using recyclable concrete for the foundation and recycled lumber. The final design is sturdy, sustainable, and able to withstand further erosion.


*"Our experience working on Walnut Spring Park's new bridge design was both challenging and fulfilling. Coming into the project, the team had diverse backgrounds when it came to strengths and weaknesses on different pieces of the project. The project was very structurally focused, which was new to most members of team, as we have stronger backgrounds in stream analysis. However, because of this, the team learned a lot, both about structures and effective research and communication" – BE Student*