Executive Summary: The “Jughandle” Project

For this project, our Senior Design Construction Management Team produced a complete Project Management Plan for the ongoing PennDOT Project 28000. The location of the ten-phase project is the intersection of State Route 51 and State Route 88 in the South Hills of Pittsburgh, PA.

The scope of the project is to convert an unsafe and deteriorating intersection and replace the existing infrastructure with a jughandle intersection that will eliminate all left turns. One new roadway and one new bridge will be constructed, a retaining wall and five bridges will be removed and reconstructed, and the adjoining roadways will be rehabilitated. Existing utilities within the right-of-way must be relocated. Roadway drainage will be updated, as well as the adjacent sidewalks, curbs and medians. New highway lighting, landscaping and pavement markings will be installed, as well as a new Intelligent Transportation System (ITS) will also be installed along Route 51 to the Fort Pitt Tunnels.

Using the bid drawings made available through the PennDOT ECMS online portal system, prevailing wage rates and PennDOT specifications, our team produced a detailed cost estimate to analyze manpower and cost requirements, a work breakdown structure, a risk management plan, a safety management plan, an example subcontract, a quality control/quality assessment plan, and a Primavera schedule.

In addition to the project management plan, our team also performed a feasibility study to identify flood abatement options in the intersection. Possible mitigation techniques were investigated and analyzed, boundary constraints were determined, and a preliminary design for two storm water detention tanks was created. A suggestion regarding additional design parameters to be considered is included.