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INTRODUCTION

The City of Angola, the Steuben County Highway Department and Steuben County Trails Committee expressed interest in expanding the Poka-Bache Trail along Old US Highway 27. This project connected to the existing shared-use path on the south side of the City of Angola at Commons Park and extended approximately 8 miles in length, along Old US Highway 27, to the DeKalb County line. Our group chose a route along Old US Highway 27 from the City of Angola to the Steuben County line on County Road 800 South in Pleasant Lake. The project consisted of a due diligence review, detailed route alignment, trailhead designs, MSE wall design, stormwater runoff management, a maintenance of traffic plan consisting of 6 phases, and a construction cost estimate.

MECHANICALLY STABILIZED EARTH WALL

An MSE Wall was designed to allow the shared-use path to transition to the west side of Old US Highway 27 in Pleasant Lake. The wall was design for a length of 400 feet and a height of 4 feet. The wall will have components such as structural geogrid LH800, Standard block units, and Cap block units. The MSE Wall will also incorporate a 42" wood fence to increase user safety on this section of the path. The internal and external stability of the wall was computed to evaluate the design.



TRAILHEAD DESIGN

There were 3 locations along the path alignment that were designed: Trine University, Commons Park, and Pleasant Lake. The trailhead locations will require 7 standard parking spaces and one ADA compliant van parking space. The locations will also include exercise stations with equipment and rubber mulch under the equipment. There will be proper lighting in these area using solar powered lights. A topographic survey was performed at the site on Trine University's campus at the site shown in the figure below. The survey was performed using the Topcon Data Collector, Topcon GNSS Hyper Rover, and Magnet Field Software. This was the only survey conducted for this project.

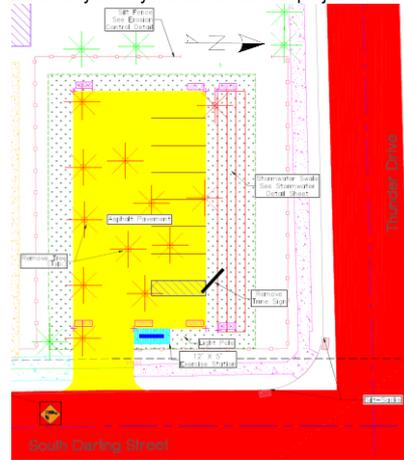


Figure 1: Trine University Trailhead Design

STORMWATER MANAGEMENT

The Steuben County Ordinance for Stormwater Drainage and Erosion Control was referenced, and the Rational Method was used to calculate a typical drainage swale for along the shared-use path. For the trailheads, swales were used for collecting the runoff from the trailheads. The Angola Municipal Code was used for the Trine trailhead and the Steuben County Ordinance was used for the trailhead in Pleasant Lake.

PATH DESIGN

The location of the site was classified as a numerous zones as per Angola Municipal Code as it is 8 miles in length. However, some of the common zones include University (UV), Agricultural (A), Residence (R1 and R2). The path alignment through the City of Angola will consist of 8-foot Portland Cement Concrete Pavement to match the existing sidewalks in the city, while outside of the city down to the Steuben County line vary from 8-foot to 10-foot sections of HMA. There were a five critical areas along the path length. Those locations included the three-way intersection at Old US Highway 27, Kankamp Road, and W 150 S, the crossover of Pigeon Creek, the Marathon gas station entrance and exit locations, the downslope on the west side of the roadway near Pleasant Lake, and the Indiana Northeastern Railroad tracks. The proposed path crosses Old US Highway 27 in 3 locations: in the City of Angola to continue down Old US Highway 27 on the east side, to avoid the Marathon gas station in Pleasant Lake, and a 1/4 mile north of CR 800 S to meet the DeKalb County Path on the east side of the road.



Figure 2: Final Site Layout

COST ESTIMATE

The construction cost for the pavement of the project was calculated based on the cubic yards of concrete and asphalt needed for the project. The total for the pavement for the shared-use path was \$1,292,112. As previously indicated, an MSE wall is recommended next to Pleasant Lake which will cost a total of \$71,618. An erosion control plan with silt fencing placed the entire length of the trail and temporary seeding will cost \$222,967. The trail will be set up in six different phases for the Maintenance of Traffic Plan with a truck mounted attenuator and barrels costing a total of \$687,487. The stormwater management for the trail includes a culvert, swales with seeding, and a pipe placed at the Amerigas business costing \$29,637. The signage and pavement markings will be placed throughout the shared-use path with special signage placed at railroad crossings. In total the signage and pavement markings for the trail and trailheads will cost \$67,370. The exercise stations placed at all the trailheads will cost \$5,126 in total including the benches, parallel bars, and hop logs. The purchase of new right-of-way for the project was along Darling Street, Felicity Street, around the Angola Pet Grooming Business and area for the Pleasant Lake Trailhead for a total of \$44,000. The cuts and fills needed to make the shared-use path ADA compliant came to be a total of 80 cubic yards of fill needed costing \$3,106. The total for this project came out to be \$3,233,000.

CONCLUSION

We created a usable pathway to bring the community together, promote exercise and fitness to the community, and provide an alternative mode of transportation for the Angola and Pleasant Lake residents that was safe and inclusive. The new path will allow the rural citizens of Angola, and Pleasant Lake easier access to the trail, as it extends south of town through Pleasant Lake. The shared-use path will provide the community with different modes of exercise or transportation at no cost. For users looking to run, walk, or bike, but do not want to pay gym membership fees or they would rather exercise outdoors, this path would be a great option for them. The shared-use path would not bring significant economic benefits to the community, but it would help increase the physical health of those who utilize it.