

OAKWOOD HILLS PEDESTRIAN ACCESS

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The Problem

The team was tasked by Rider Musser to develop pedestrian bridge alternatives to be used in the new Oakwood Hills trail network. Specifically, a bridge is needed to cross a small stream located to the west of the pond seen below.

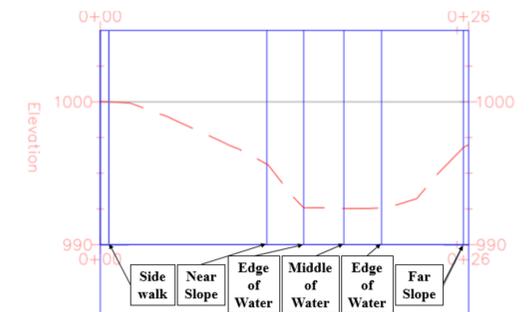


Goals

Our goal is to examine multiple pedestrian bridge alternatives and determine the best option or options based on the criteria specified by our partner, Rider Musser. We will develop conceptual designs for each bridge that we will be able to deliver to Rider Musser in the form of a Type, Size, and Location Report.

Survey

A survey was conducted at the bridge location in order to get a better sense of the dimensions of the stream and surrounding areas. This provided important information such as elevation and span length.



Bridge Criteria

Each bridge option was evaluated in all of the following eight categories in order to be directly compared. An emphasis was placed on cost, lifespan, aesthetics, and maintenance. Designs also took into account the ability to withstand maximum live loads. This influenced superstructure dimensions.

- > Architectural
- > Constructability
- > Cost
- > Lifespan
- > Maintenance
- > Site work
- > Style
- > Aesthetics

Future Bridge Location

The picture below shows the location for the future bridge. This is at the Northwest section of the pond and will connect the commercial and residential parts of the Oakwood Hills Development.



Bridge Alternative Examples



Timber Beam¹



Steel Beam²



Timber Truss³



Precast Arch⁴



Conclusion

After analyzing the results of the decision matrix, stream survey, and advice from professionals, we have narrowed down the options that will best meet the desired bridge requirements. The team currently has developed structural designs and preliminary cost estimations for the superstructure of each bridge alternative. We will include these alternatives in a type, size, and location report that will serve as a base for Rider Musser in future pedestrian bridge considerations in the Oakwood Hills Development.

Team Members

- Adam Barley
- Matt Burlew
- Christian Cornelius
- Treavor Moore
- Justin Witters

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- Bryan Hoover - Professional Project Manager
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- Brian Swartz - Faculty Project Consultant
- Eric Gogola - Professional Consultant
- Steve Marquiss - Professional Consultant



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