



# Disc Golf Course: A GIS Design in Locational and Cost Distance Analysis

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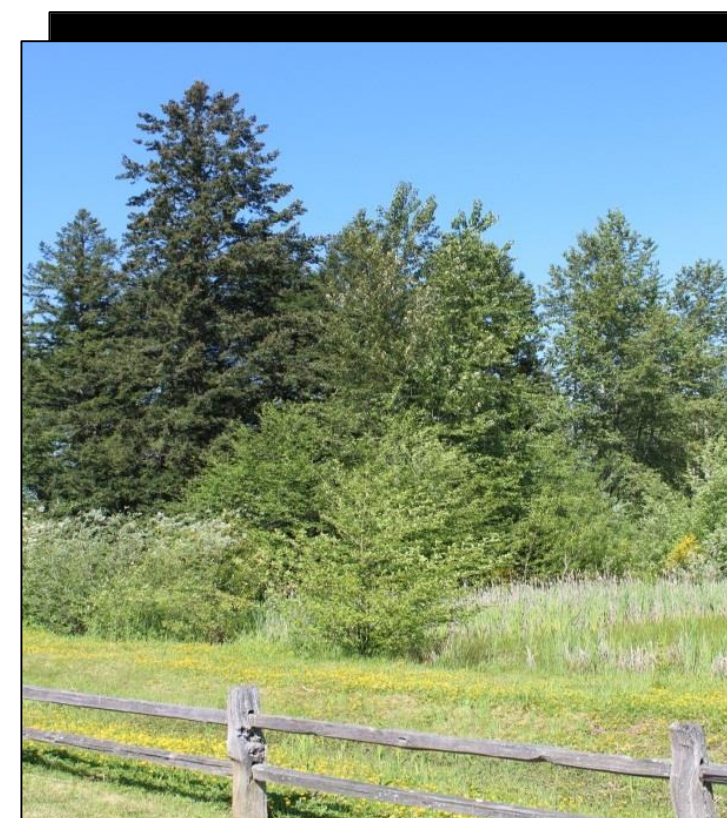
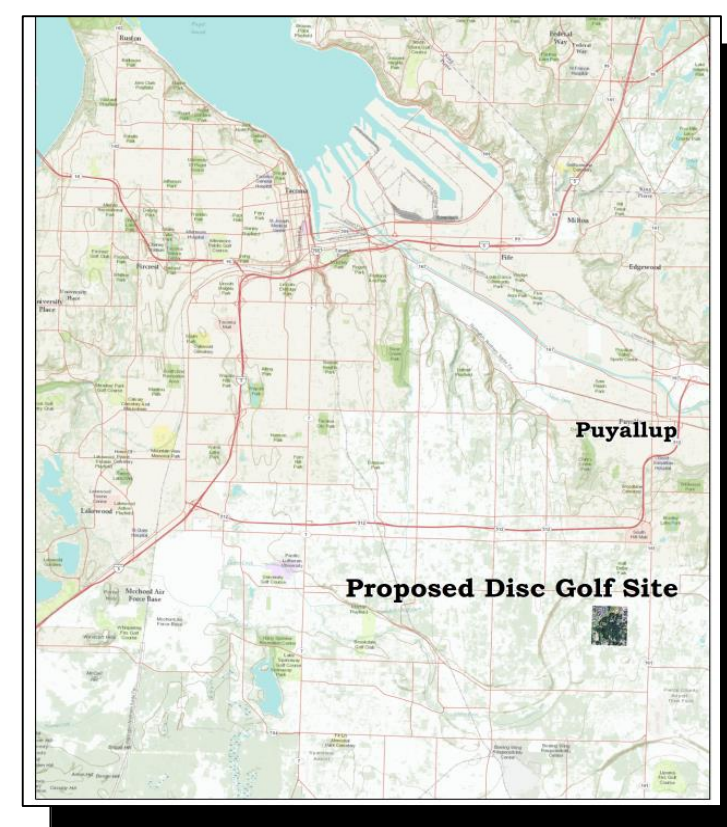


## INTRODUCTION

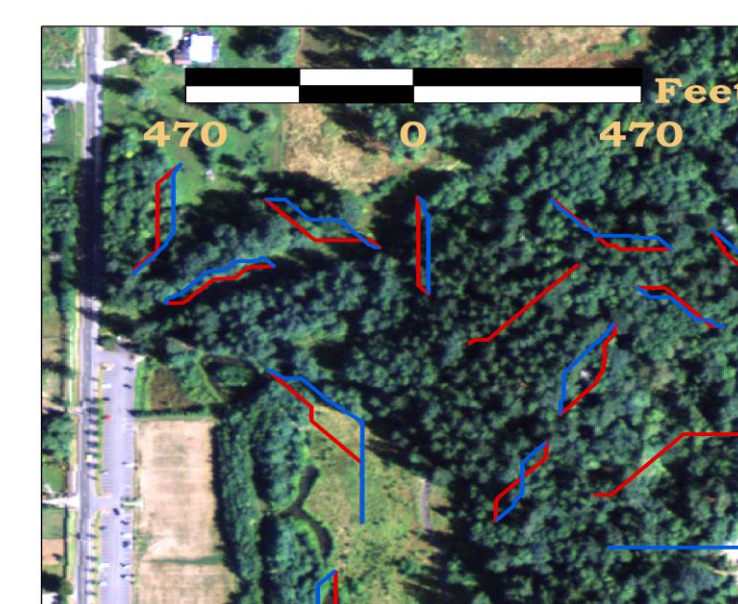
Disc golf as long has been a recreation that gives back to the community. It is completely free; it cleans up local parks and lets people enjoy what might have been an underutilized park. The purpose of this project is to plan the best options for a new disc golf course in western Washington. Disc golf, as a sport, has a great opportunity to expand its reach while maintaining a low environmental impact.

The objective of this research is to identify and map out the best possible location suitable for building a new 18-hole disc golf course in Washington State.

The South Hill Community Park is a 40-acre site with two soccer fields, a parking lot, several acres of man-made wetlands, plus a children's play apparatus, public restrooms and a network of well-paved meandering trails. The fields are used for athletic programs such as youth soccer, baseball, and softball. The ten-foot wide asphalt trails conveniently link the park to neighboring Heritage Recreation Center.



## RESULTS



A raster was created using parameters to weigh certain landscapes higher than the other depending on the difficulty for both disc golf courses. This created a cost surface analysis raster. (Figure 2 and Figure 3)

These raster results allowed this project to accrue a cost distance from the end of a hole. A cost path from the start of a hole was created to use in the previously mentioned design model to facilitate the making of both an amateur and pro 18-hole disc golf course located on the park grounds. (Figure 4)

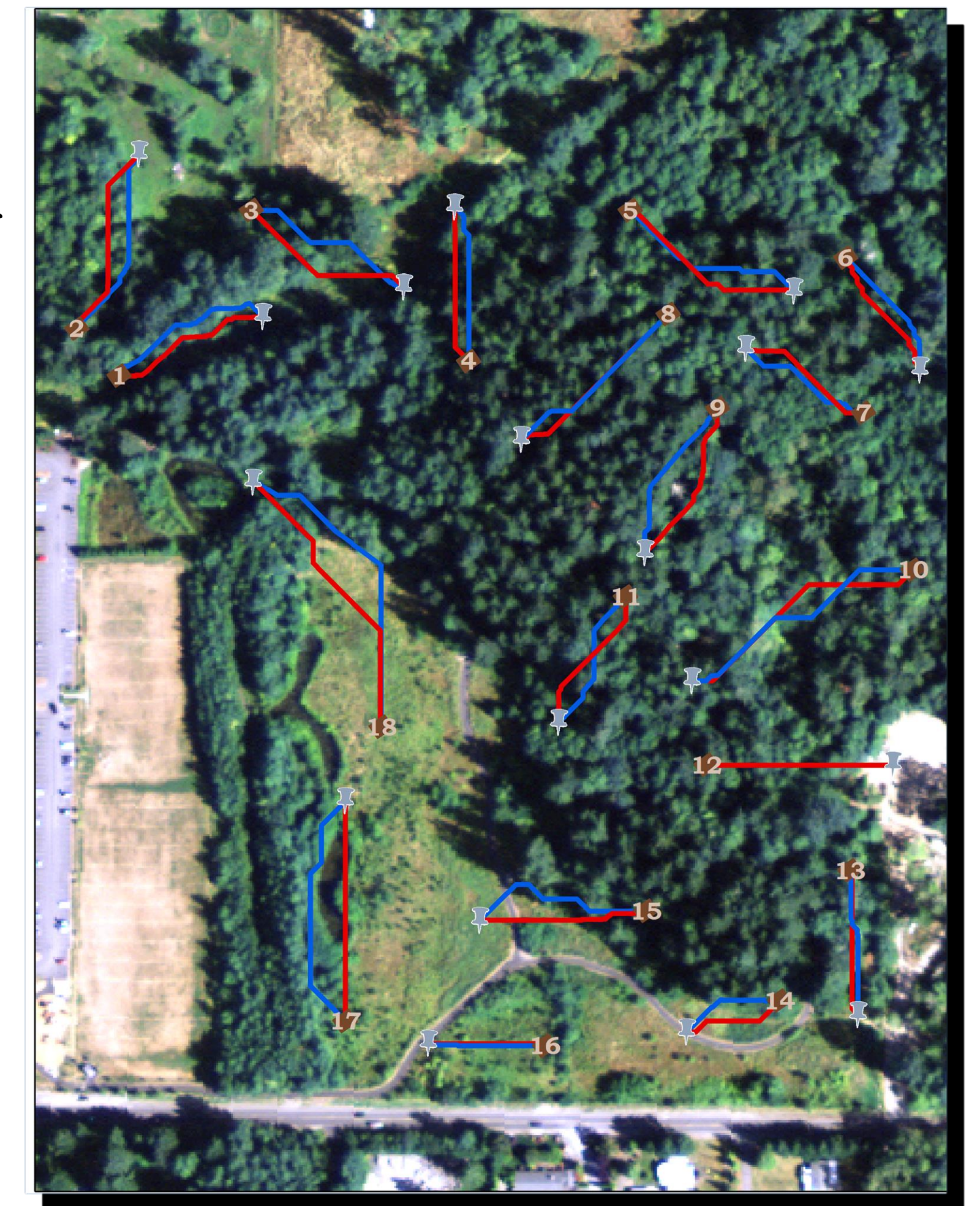
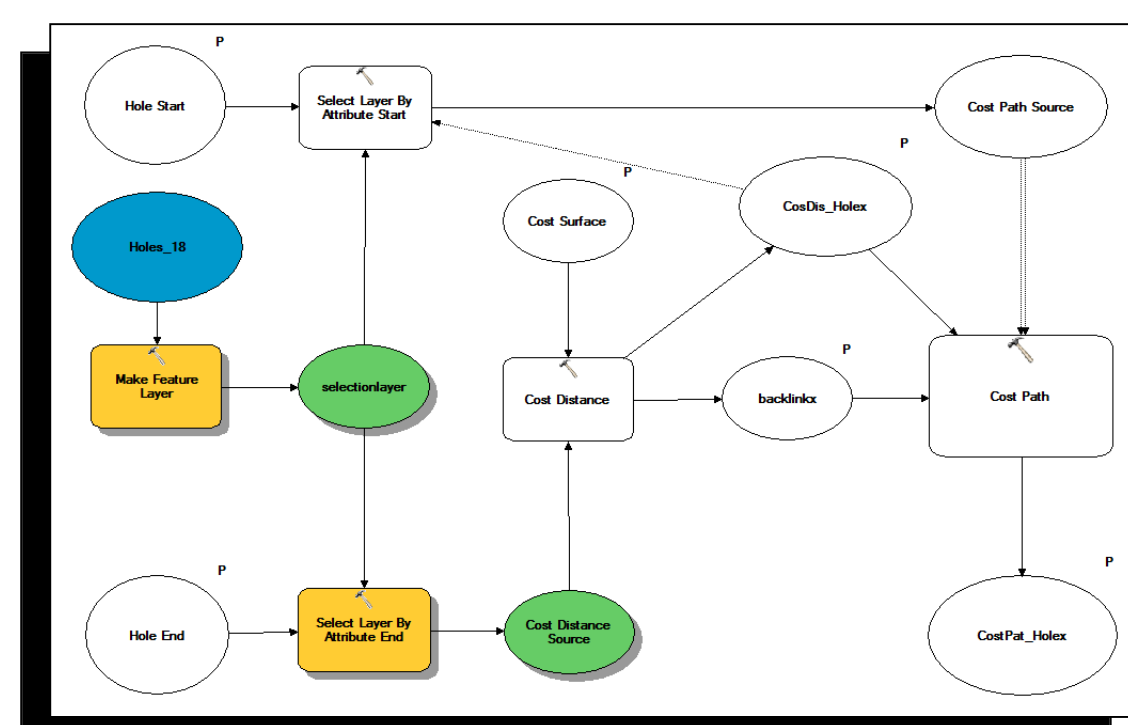


Figure 4

## METHODS

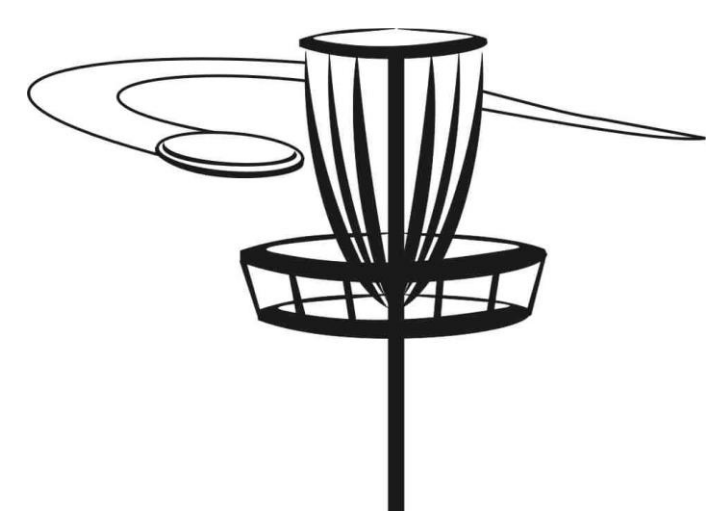
Figure 1



This Park was chosen for a proposed disc golf course by using locational analysis in ArcGIS. Using the USGS NAIP imagery program, 18" resolution 2011 orthos were used to digitize and classify areas of the park.

Based on data taken from the Puget Sound LiDAR Consortium (PSLC), a raster was created and utilized for elevation differences and cross analyzed with the classified vector class data. This created a cost surface analysis raster from which a model was built to facilitate making both an amateur and a professional 18-hole disc golf course located on the park grounds.

A model was made to streamline the 18-hole amateur and pro courses for South Hill Community Park. Arc tools included in the model were Make Feature Class, Select Layer By Attribute, Cost Distance, and Cost Path with five separate required parameters to meet the criteria for the builder. This model reduced the processing time of creating a disc golf hole from 9 minutes to 90 seconds. (Figure 1)



## MANAGEMENT IMPLICATIONS

- Disc golf is very easy on the environment and attracts players to clean up parks
- Contact Pierce County to get more information about area parks with disc golf courses



Pierce County Parks & Recreation  
9112 Lakewood Dr. SW  
Lakewood, WA 98499



## REFERENCES

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