

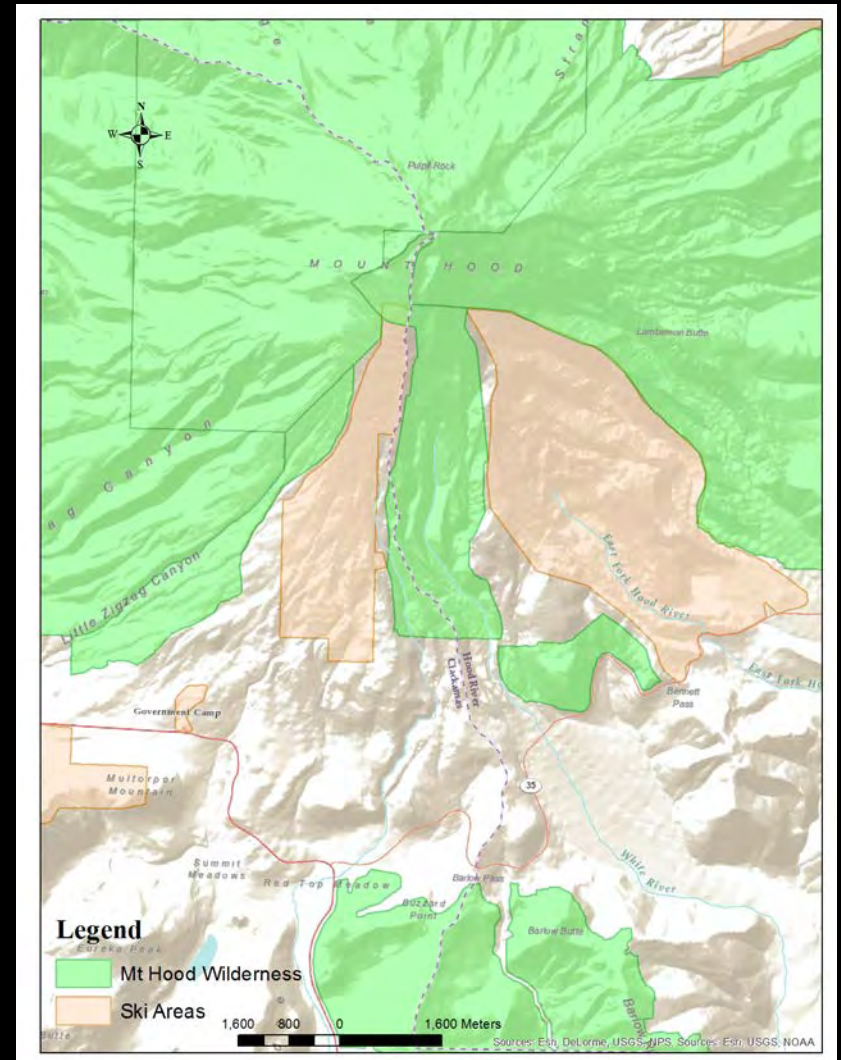


*Gleaming the Glacier:*  
Ski Run Model and Design  
Utilizing Digital Terrain Analysis

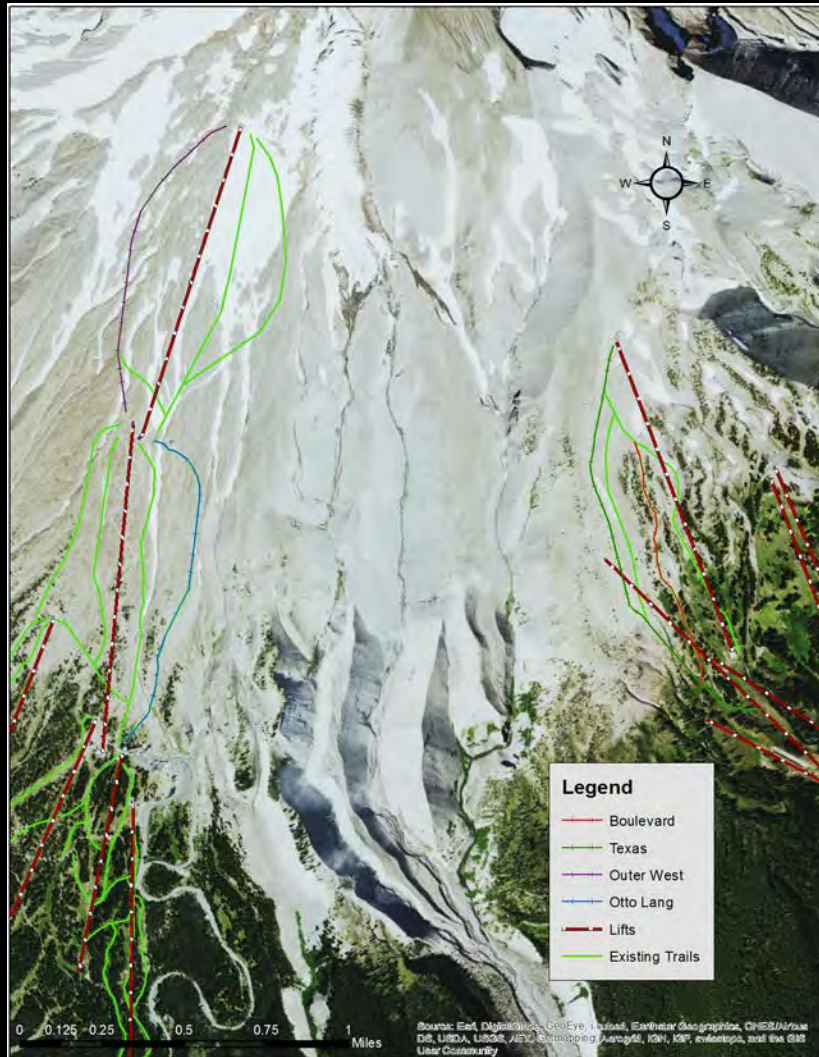
Elissa Haskins & Imran Qureshi  
GEOG 4/593 DTM

# Background

- Recreation & snow sports on Mount Hood (Wy'est)
  - Cloud Cap Inn, 1889
  - Mt. Hood Loop Hwy, 1925
  - Timberline & Mt Hood Meadows
  - Wilderness Act of 1964

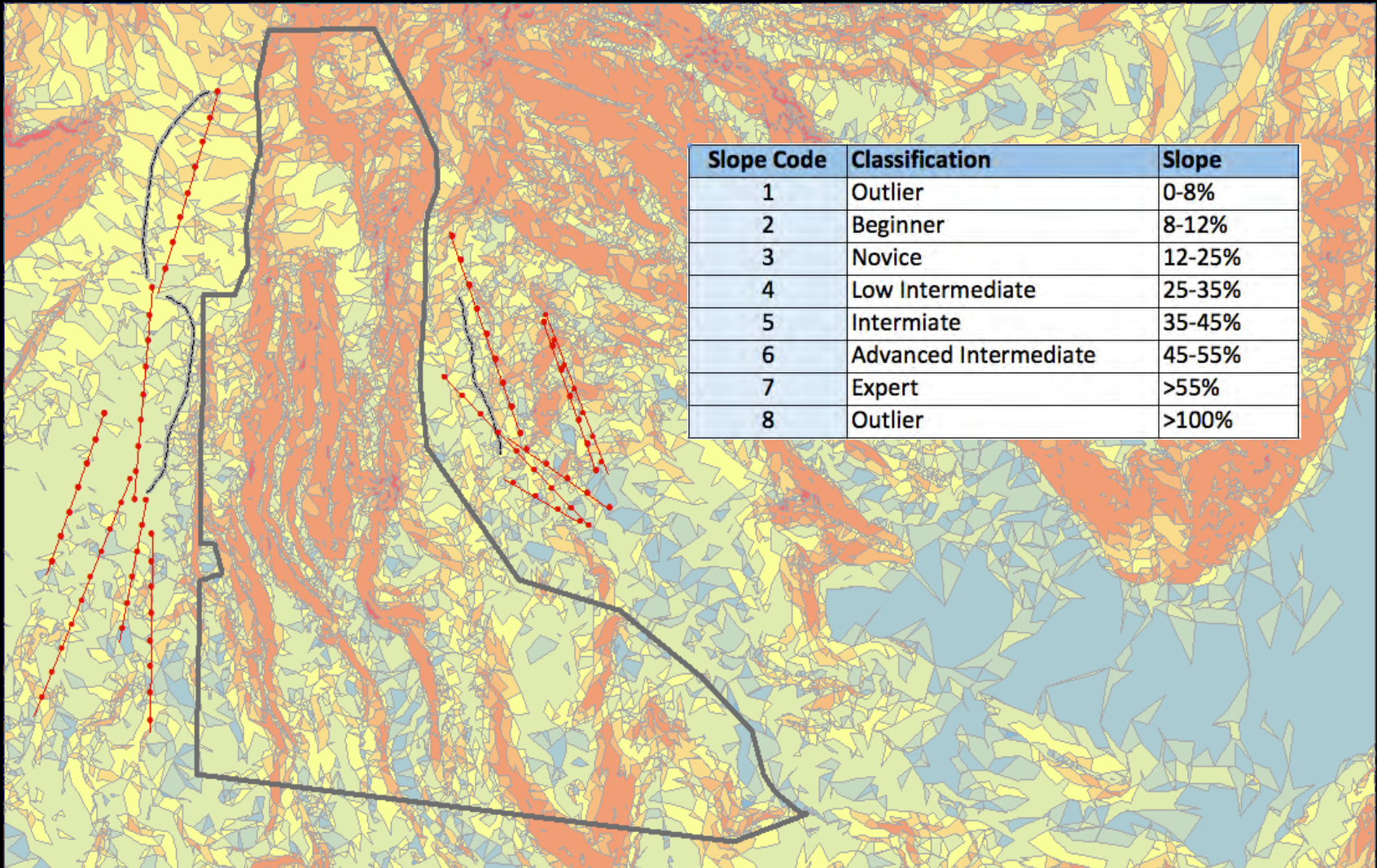


# Methods

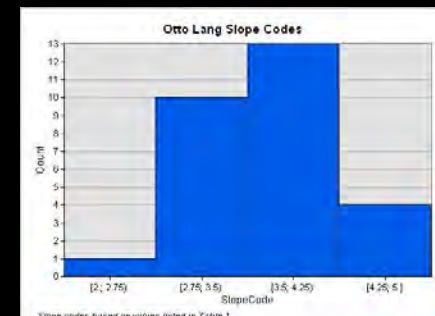
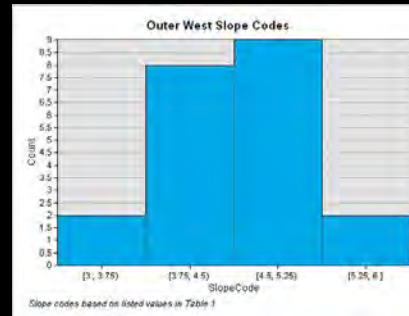
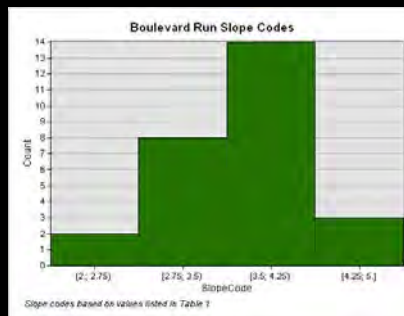
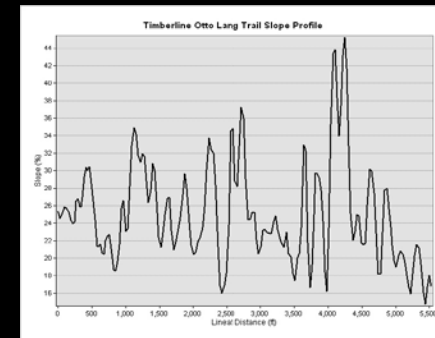
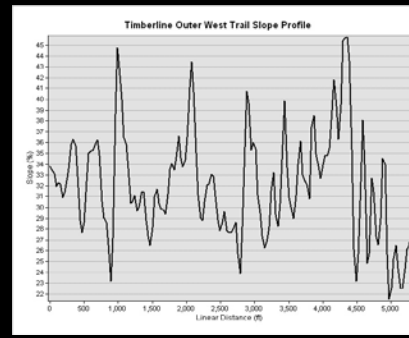
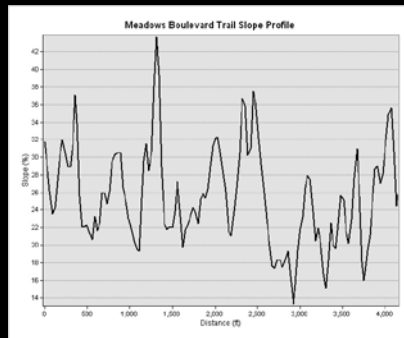
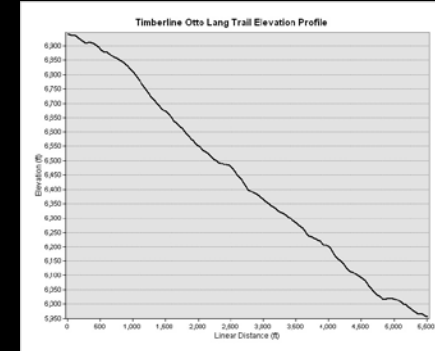
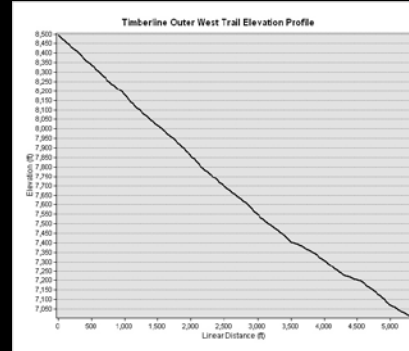
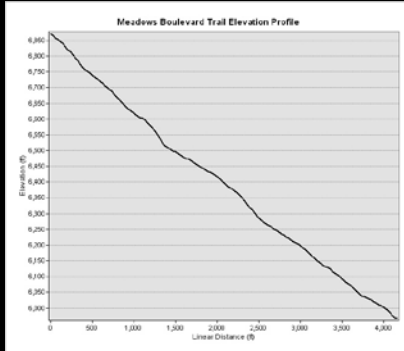


- Study Area Selection
  - Scenario
  - Existing Trails Modeled for Analysis
- Model Criteria Determined
  - USFS & NSAA Resort Planning Guidelines:
    - Slope
    - Elevation
    - Length
    - Aspect

# Methods

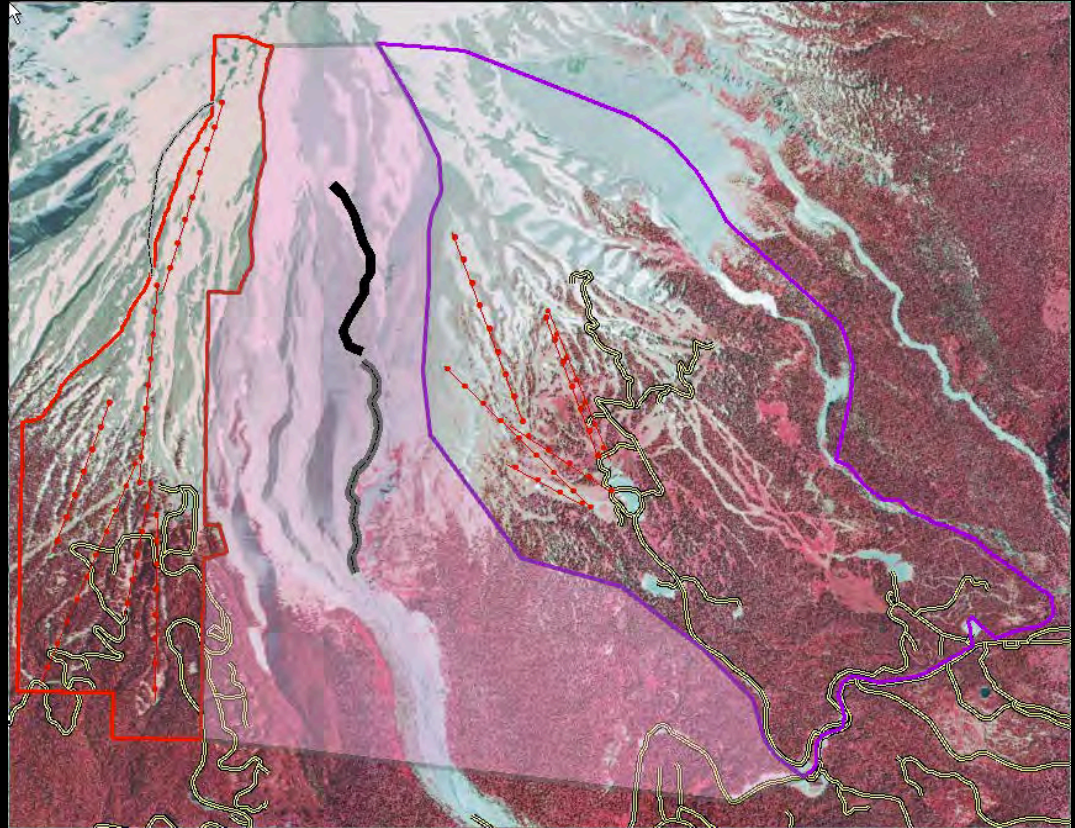


# Analysis for Existing Trails



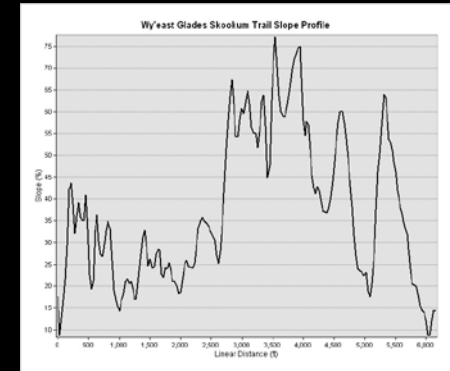
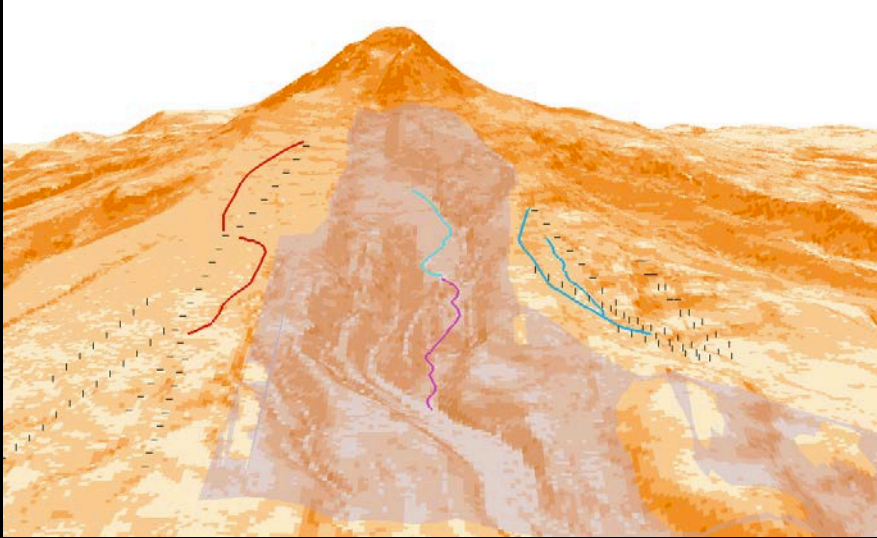
# Decision Model

- After analyzing the four selected existing runs on Mount Hood, a model based on slope, distance, and elevation was formulated to select the optimal area and design a ski run. After meticulous visual inspection of the surrounding areas, the area between Timberline Lodge Resort and Mount Hood Meadows Resort was selected for the proposed ski runs. It is located between two viable lift locations, year-round glaciation, and appropriate slope levels for intermediate and advanced skiing. After visual inspection of the potential areas, several trial runs were conducted, comparing slope, elevation, aspect, and proximity to accessible roads.

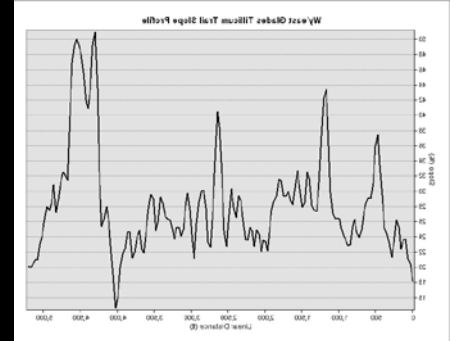


# Results

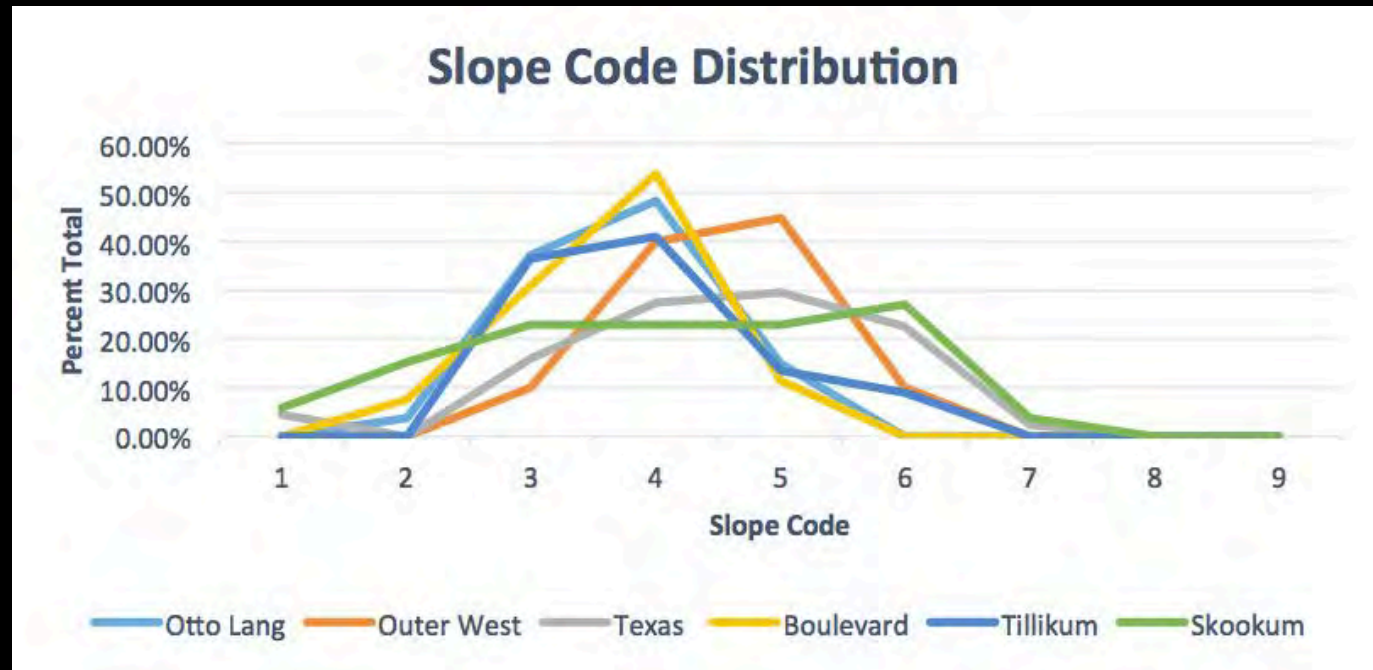
- Digitized & Analyzed Two Proposed Trails



Slope Code	Otto Lang	Outer West	Texas	Boulevard	Tillikum	Skookum
1	0.00%	0.00%	4.55%	0.00%	0.00%	5.77%
2	3.70%	0.00%	0.00%	7.69%	0.00%	15.38%
3	37.04%	10.00%	15.91%	30.77%	36.36%	23.08%
4	48.15%	40.00%	27.27%	53.85%	40.91%	23.08%
5	14.81%	45.00%	29.55%	11.54%	13.64%	23.08%
6	0.00%	10.00%	22.73%	0.00%	9.09%	26.92%
7	0.00%	0.00%	2.27%	0.00%	0.00%	3.85%
8	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
9	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Length (m)	1657.62	1577.16	2977.29	1239.19	1577.16	1882.93



# Conclusion



# Further Study

- Avalanche Susceptibility
- Riparian Protection
- Use “Aspect” Tool to Determine Best Location for Bowl-style Runs