This thesis deals with the problem of finding a minimum length-bounded cut in a graph. We first provide a brief overview of the problem and its applications. We then discuss the known theoretical results and approximation algorithms. We look at the existing linear programming formulations and propose a new one. A concise discussion on potential hard instances, utilized for testing our formulations, is also incorporated. The focus of our analysis is on the performance and behavior of our proposed linear programming family, contrasting it with the established natural formulation. We also compare the performance of various heuristics and approximation algorithms in practice by examining their behaviour on a large set of small instances.