This document describes an alternative integer linear programming (ILP) model for the so-called edge-disjoint paths (EDP) problem in undirected graphs. EDP is an NP-hard problem where exact methods are not able to produce high quality solutions. Therefore, we propose two different algorithms for combining exact and heuristic methods. On the one hand, we consider a restricted model that limits the number of paths between two given nodes in the graphs (which reduces the search space exploration). On the other hand, the application of a matheuristic algorithm known as Construct, Merge, Solve and Adapt (CMSA) is considered. In this document we show some preliminary results concerning the restricted model. These results indicate the potential usefulness of the presented ideas.