This study considers the problem of enhancing railway timetable robustness without adding slack time, hence increasing the travel time. The approach integrates a transit assignment model to assess how passengers adapt their behaviour whenever operations are changed. First, the approach considers the existing stopping patterns of the railway lines. Then, based on the passenger demand we try to optimize the overall utility by changing the stopping pattern in a way that capacity utilization is reduced without affecting the frequency of the train lines nor increasing the passengers’ travel time.