CAPACITY IMPROVEMENT ANALYTICAL TOOLS AND BENCHMARK DEVELOPMENT FOR TERMINAL OPERATIONS
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Abstract

With U.S. air traffic predicted to triple over the next fifteen years, new technologies and procedures are being considered to cope with this growth. As such, it may be of use to quickly and easily evaluate any new technologies or procedures against a set of benchmarks, including best case and worst case. In this paper, theoretical upper and lower capacity bounds are formulated along with a performance index equation to allow for the quantitative comparison and evaluation of different terminal area capacity-increasing enhancements. These benchmarks are then used with a conventional stochastic queueing model (M/D/1) and a selected capacity improvement in order to demonstrate how an example change impacts the terminal airspace capacity as compared to the theoretical worst case and best case. These mathematical tools may hold value in quantifying proposed technologies and procedures intended to improve efficiency and to absorb the predicted increase in air transportation, prior to any actual implementation.

References


