

An Integrated Model of Cross docking

Gaohao Luo

Dr. James Noble, Thesis Supervisor

ABSTRACT

Cross docking is a relatively new logistics technique used in the retail and trucking industries with operations seeking to move materials from inbound locations to outbound locations as quickly as possible. As the high-speed warehouse, short-term staging can still be used to consolidate shipments from disparate sources and realize economies of scale in outbound transportation. In this research, the layout design, short term staging strategy and shipping trailer assignment issues are integrated with the objective of increasing shipping trailer utilization while still satisfying the time-efficiency requirement of the cross docking facility. The problem is modeled as a non-linear mixed integer programming model. Small-scale problems are solved using Lingo 8.0. The tabu search meta-heuristic is also applied in order to solve large-scale problems.