LIST OF ABBREVIATIONS AND SYMBOLS

Abbreviations	Name	First use on the page
SCM	Supply Chain Management	14
VRP	Vehicle Routing Problem	10
CDE	Colt Diesel Engkle	8
CDC	Colt Diesel Double	8
DO	Delivery Order	8
LTL	Less Than Truckload	18
LCL	Less Than Container load	19
FTL	Full Than Truckload	19
FCL	Full Than Container load	19
DC	Distribution Center	19

SYMBOLS / NOTATION

V = node set

N = customer set

A = arc set or connections between nodes

K = fleet of vehicle set

C = vehicle type set

i = notation index, $i = 1, 2, 3, ... N$ is customer that start distribution activity.

j = notation index, $i = 1, 2, 3, ... N$ is customer that start distribution activity.

k = notation index, $k = 1, 2, 3, ... K$ is fleet of vehicle that used for distribution activity.

c = notation index, $c = 1, 2, 3, ... C$ is vehicle type that used for distribution activity.

m_{ij} = travel distance between arc (i, j)

t_{ij} = travel time between arc (i, j)

d_i = demand of customer i ($i \in N$)

$[e_i, l_i]$ = time window of customer i (earliest arrival and latest arrival)

s_i = service time of customer i ($i \in N$)

$[e_0, \quad l_0 \;]$ = time window of DC (earliest departure, latest return)

q_c = capacity of vehicle type c ($c \in C$)

n_c = number of available vehicle for vehicle type c ($c \in C$)

x_{ij}^k = 1, if arc (i,j) is passed by vehicle k

= 0, if arc (i,j) is not passed by vehicle k

a_{ik} = arrival time of vehicle k at customer i