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POSSIBILITIES OF REDUCING TRAIN DELAYS BETWEEN COLOMBO FORT AND MARADANA

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Thesis submitted in partial fulfillment of the requirements for the
Degree of Master of Science in Transportation

Department of Civil Engineering

University of Moratuwa

Sri Lanka

May 2017

DECLARATION OF THE CANDIDATE AND SUPERVISOR

“I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not any material previously published or written by another person except where the acknowledgement is made in the text.

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ABSTRACT

Sri Lanka Railways (SLR) is operating around 300 passenger train movements daily across its 1400 Km rail network. About 90% of train movements out of this have Maradana or Colombo as the destination or the starting point. It further leads to a figure that around 50 trains which amount to more than 30% of the inbound train service to Colombo is reaching either Colombo Fort or Maradana daily within the morning peak time. All these train movements are using the Colombo – Maradana block section which comprises of only four rail tracks, hence causing a reasonable delay for the morning peak hour train service.

Delay in this particular section is commonly identified as caused by the lack of infrastructure which includes less number of Platforms, inappropriately arranged service feeders (depots) and low flexibility in the signaling system. In addition to this the overlap operation between Colombo and Maradana, which is resulted by always keeping the furthest station as the destination or starting point. Overlap operation has created additional train movements which leads the situation to an even worse.

Objective of this research is to find out the root cause for the delay in the Colombo Fort – Maradana section and explore the possibilities of reducing train delays. In this view, the delay portion pertaining to this section is quantified through a survey and it confirms the worthiness of the research. It was then continued to check the actual requirement of continuing the overlap operation and in results, sufficient evidence found for a service restriction. Actual line and platform utilization at present were calculated to find out whether any alterations are required to the systems and operational practices. Train feeding arrangements are also studied for suggesting modifications for the practices in order to catch up the delays. Mainly the issues in reducing the number of train movements in the section and reshuffling the feeding arrangements to achieve this target are addressed in this research.

Key words: Trains, Delay, Platforms, Railway

DEDICATION

To

My Loving Parents and Wife

Who always persuade me to go forward and wish for my success

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
CEW	Chief Engineer (Way & Works)
CTC	Centralized Traffic Control
DMU	Diesel Multiple Unit
ELS	Electric Loco Shed
FOT	Colombo Fort
HLS	Hydraulic Loco Shed
HUN	Hunupitiya
KLA	Kelaniya
KV	Kelani Valley
MDA	Maradana
MLV	Mount Lavinia
MRT	Moratuwa
PND	Panadura
RGM	Ragama
SLR	Sri Lanka Railways
WTE	Wellawatta