A PRODUCTIVITY STUDY ON MOTORWAY MAINTENANCE CONSTRUCTION

by

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DEPARTMENT OF CIVIL ENGINEERING

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SUMMARY

Inefficient use of available resources is leading to the need for more money in carrying out road maintenance projects. Most maintenance projects should be attempting to rectify fundamental institutional problems of a maintenance organisation with the objective of increasing the general efficiency, or perhaps the efficiency in some specific area. Better equipment management methods need to be introduced and there is more scope for the use of contractors for maintenance. Where labour costs and equipment availabilities are high, there is considerable room for carrying out maintenance using equipment in this country. There is a growing awareness among both maintenance organisations and maintenance contractors of the need for a productivity assessment and improvement using available techniques of Work Study.

A move towards establishing a road maintenance productivity data bank must soon be initiated. It is hoped that the findings of this productivity study on motorway maintenance reconstruction will in a way help to increase an existing pool of data in which planners and estimators will find them useful.

GUIDE TO PROJECT REPORT

This report consists of nine chapters and seven appendices. The summary of the contents of these chapters and appendices is as follow:

CHAPTER: 1 ---- This chapter introduces the approach to the study including its needs and objectives.

CHAPTER: 2 ---- This chapter reviews Work Study and Productivity Study in general.

CHAPTER: 3 ---- This chapter deals briefly with two important aspects of highway maintenance: management and engineering. Descriptions of the site and working methods of various operations are included towards the end of the chapter.

CHAPTER: 4 ---- This chapter describes the methods and procedures of Activity Sampling and Time Study techniques used in this study.

CHAPTER: 5 ---- This chapter explains how data for this study are collected and analysed.

CHAPTER: 6 ---- This chapter displays all the results and findings of the study. Comments on the results are also included.

CHAPTER: 7 ---- This chapter exemplifies Synthesis technique by making use of the study data. Attempts are also made in this chapter to show the comparison of Standard Minute Values obtained from this study to those published data.

CHAPTER: 8 ---- This chapter looks at the productions of various operations observed. Also included in this chapter is the comparison of existing productions to those of the contractor.

CHAPTER: 9 ---- This chapter gives the conclusions of the study as well as suggestions for improvement on shortcomings. It also gives the recommendations to improve productivity on highway maintenance work.

APPENDIX: 1 ---- This appendix contains all the Activity Sampling study data and their analysis.

APPENDIX: 2 ---- This appendix includes some definitions of Time Study terms used as well as Time Study data and analysis for hauling operation.

APPENDIX: 3 ---- This appendix explains the concept of site factors and included in it is the analysis of site factors of all operations observed.

APPENDIX: 4 ---- This appendix shows how percentage of total time is calculated. It includes the calculations of all percentages times for all operations studied.

APPENDIX: 5 ---- This appendix contains the transportation details of hot plant-mix bituminous material.

APPENDIX: 6 ---- This appendix contains all the relevent tables used throughout the study.

APPENDIX: 7 ---- This appendix displays all the photographs taken during the study.

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1.0. INTRODUCTION

1.1. Need for Production Study in Construction Industries

An accurate and comprehensive study of production enables management to base many decisions on facts and not guesses or hopes, and is of real help in the improvement of financial performance. Good production study data is a basis for accurate estimating, effective work programming, optimal method selection, rational progress control, well designed incentive payment schemes and cost control systems.