



Developing A Pavement Maintenance Management System of Multi-Lane Highway in Iraq

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AUTHORIZATION FORM

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This Thesis (Developing A Pavement Maintenance Management System of Multi-Lane Highway in Iraq) was Successfully Defended and Approved on 8- July- 2018.

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DEDICATION

This work is dedicated to my dear parents Eng. Abdulhadi H. Abed and Batool A. Jaber who All I have and will accomplish are only possible due to their love and sacrifices.

Also, this work is dedicated to my dear brother and sisters who always beside me in whole my life.

Finally, this work is dedicated to my beloved husband Dr. Falah H. Abed who has been a constant source of support and encouragement during the challenges of my whole study and my life, and our beloved children Mariam and Amir, I am truly thankful for having you in my life.

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ABSTRACT

Developing A Pavement Maintenance Management System of Multi-Lane Highway in Iraq

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Roads and highways are a major part of the transportation infrastructure in Iraq and play a substantial role in the local economy and community development.

This research aims to develop a pavement maintenance management system (PMMS) for the highway which provides a systematic process of maintaining and upgrading the pavement and tools to facilitate a more flexible approach that can enable to perform better tasks, more economically, effectively and of higher quality.

The research study was conducted on a section of main multi-lane highway in Baghdad, from Al- Dora intersection to Al-Mahmudiya district. The study area was divided into (20) sections. Each section divided into (40) sample units with size (250) m². This highway is considered as a major highway with high traffic volume in Iraq.

The updating Micro PAVER v.7.0.8 software was used for assessment and prediction the condition of highway pavement and maintenance cost for existing conditions (year of the study-2018), short-term conditions (2018-2023) and medium-term conditions (2018-2027). The study shows that the PCI of the existing conditions was rating as (poor) with 9,434.00\$ maintenance cost. The PCI of short-term condition was rating (satisfactory) with 13, 497, 448, 00\$ maintenance cost. The PCI of medium-term condition was rating (good) with 18, 756, 142, 00\$ maintenance cost.

All highways in Iraq needs to be reconsidered for future maintenance plans to improve the quality of service of these facilities.

Keyword: Highway Management System, Pavement Maintenance Management System (PMMS), Maintenance and Rehabilitation (M&R), Micro Paver Software, and Arc GIS software