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Correlation between functional and structural properties of flexible pavement (Conference Paper) (Open Access)

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Abstract

The functional properties and structural properties are very important in order to evaluate and determine the pavements performance. In pavement condition assessment, monitoring and measurement on the functional and structural properties of the pavement are really needed in order to determine the remaining life of the pavement before any rehabilitation work can be done. This study had further looked on the correlations between these functional and structural properties on a flexible pavement. The study had collected 1198 numbers of functional properties data namely International Roughness Index (IRI), rut depth and texture depth. While for structural properties, 120 numbers of elastic modulus and 12 numbers of California Bearing Ratio (CBR) data has been measured. The functional properties were measured by using Multi Laser Profiler (MLP), while the structural properties were collected by using Falling Weight Deflectometer (FWD) and Dynamic Cone Penetrometer (DCP). The data collection was done along 60 km of asphalt pavement road. Regression analysis shows that the coefficient of determination, R^2 obtained for all parameter is near to 0. These results generally conclude that there are no correlations between the functional properties and structural properties on a flexible pavement. © 2019 Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms: (Engineering education) (Regression analysis) (Strength of materials) (Textures)

Engineering uncontrolled terms: (California bearing ratio) (Coefficient of determination) (Dynamic cone penetrometer) (Falling weight deflectometer (FWD)) (Functional properties) (International roughness index) (Monitoring and measurements) (Pavement condition assessment)

Engineering main heading: (Structural properties)

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☐ 1   Solanki, U.J., Gundalia, P.J., Barasara, M.D.
A review on structural evaluation of flexible pavements using falling weight deflectometer
(2015) *Trends Transp. Eng. Appl.*, 2, p. 1.

☐ 2   Meegoda, J.N., Gao, S.

Roughness progression model for asphalt pavements using long-term pavement performance data

(2014) *Journal of Transportation Engineering*, 140 (8), art. no. 04014037. Cited 12 times.
http://ojps.aip.org/teo/
doi: 10.1061/(ASCE)TE.1943-5436.0000682

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☐ 3   Park, K., Thomas, N.E., Lee, K.W.

Applicability of the international roughness index as a predictor of asphalt pavement condition

(2007) *Journal of Transportation Engineering*, 133 (12), pp. 706-709. Cited 34 times.
doi: 10.1061/(ASCE)0733-947X(2007)133:12(706)

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☐ 4   Arhin, S.A., Williams, L.N., Ribbiso, A., Anderson, M.F.
Predicting pavement condition index using international roughness index in a dense urban area
(2015) *J. Civ. Eng. Res.*, 5, p. 10. Cited 14 times.

5   Mazari, M., Rodriguez, D.D.

Prediction of pavement roughness using a hybrid gene expression programming-neural network technique   (Open Access)

(2016) *Journal of Traffic and Transportation Engineering (English Edition)*, 3 (5), pp. 448-455. Cited 8 times.
http://www.journals.elsevier.com/journal-of-traffic-and-transportation-engineering-english-edition
doi: 10.1016/j.jtte.2016.09.007

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---

6   Asi, I.M.

Pavement performance evaluation

(2012) *International Journal of Pavement Research and Technology*, 5 (2), pp. IV-VI.
http://www.ijprt.org.tw/files/sample/V5N2_IV_-corner.pdf

---

7   Feyissa, B.A.
(2009) *Analysis and Modeling of Rutting for Long Life Asphalt Concrete Pavement*. Cited 3 times.
(Technische Universitadie;t) Doctoral dissertation

---

8   Rada, G.R., Perera, R.W., Prabhakar, V.C., Wiser, L.J.

Relating ride quality and structural adequacy for pavement rehabilitation and management decisions

(2012) *Transportation Research Record*, 2304, pp. 28-36. Cited 6 times.
http://trrjournalonline.trb.org/loi/trr
doi: 10.3141/2304-04

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---

9   Trivedi, J.S., Kumar, R.
Impact of subgrade and granular layer material properties on rutting
(2015) *Amer. J. Civ. Eng. Archit.*, 3, p. 64.

---

10   Kim, Y.R., Park, H.G.
(2002) *Use of Falling Weight Deflectometer Multi-load Data for Pavement Strength Estimation (No. FHWA/NC/2002-006)*. Cited 20 times.

---

11   Suleiman, A.Y., Hainin, M.R., Yaacob, H.
The correlation between texture depth, pendulum test value and roughness index of various asphalt surfaces in Malaysia
(2012) *Int. J. Rec. Res. Appl. Stud.*, 13, p. 104. Cited 6 times.

---

12   Lin, J.D., Yau, J.T., Hsiao, L.H.
(2003) *Correlation Analysis between International Roughness Index (IRI) and Pavement Distress by Neural Network*. Cited 18 times.
Paper Publication at the 82th Annual Meeting of the Transportation Research Board

☐ 13   Pavement Condition Assessment along North-South Expressway for Year 2014
(2015) *Executive Summary*
January

☐ 14   (1994) *Jabatan Kerja Raya Interim Guide to Evaluation and Rehabilitation of Flexible Road Pavement JKR 20709-0315-94*
Cawangan Jalan Ikram Series (Pavement) ISP-2; April

☐ 15   (2013) *Jabatan Kerja Raya 2013 Manual for the Structural Design of Flexible Pavement. ATJ 5/85 (Pindaan 2013)*, 2.
Kuala Lumpur: Cawangan Jalan dan Geoteknik.

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