

Developing Performance Model for Road Side Elements Receiving Periodic Maintenance

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Abstract : Inadequate maintenance programs and funds allocated for highway networks in the developed countries have led to fast deterioration of road side elements. Therefore, this research focuses on developing a performance model for road side elements periodic maintenance activities. Road side elements that receive periodic maintenance include; earthen shoulder, road signs and traffic markings. Using the level of service concept, the developed model can determine the optimal periodic maintenance intervals for those elements based on a selected level of service suitable with the available periodic maintenance budget. Data related to time periods for progressive deterioration stages for the chosen elements were collected. Ten maintenance experts in Aswan, Sohag and Assiut cities were interviewed for that purpose. Time in months related to 10%, 25%, 40%, 50%, 75%, 90% and 100% deterioration of each road side element was estimated based on the experts opinion. Least square regression analysis has shown that a power function represents the best fit for earthen shoulders edge drop-off and damage of road signs with time. It was also evident that, the progressive dirtiness of road signs could be represented by a quadratic function an a linear function could represent the paint degradation nature of both traffic markings and road signs. Actual measurements of earthen shoulder edge drop-off agree considerably with the developed model.

Keywords : deterioration, level of service, periodic maintenance, performance model, road side element

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