

عنوان مقاله:

Measuring the Influences and Impacts of Signalized Intersection Delay Reduction on the Fuel Consumption, Operation Cost and Exhaust Emissions

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خلاصه مقاله:

With the rapid urban expansion and economic development, vehicle fuel dissipation and exhaust emissions have been identified as major energy wastage and urban air pollutions in Kalar City and Iraqi Kurdistan Region in general. Traffic congestion is a growing problem in Kalar City and other urban areas. As it increases, the delay at the transportation network will increase. Any increase of the delay in the transportation network will reflect negatively by increasing the delay at the signalized intersections. Therefore, a study on delay and its relation to fuel consumption, operation cost and emissions at signalized intersection are necessary. This paper, studies the influences and impacts of signalized intersection delay reduction on the fuel consumption, operation cost, and exhaust emissions. A simulation is carried out to evaluate the existing conditions of selected intersections by estimating the intersection delay, operation cost, and emissions. The simulation results show that fuel consumption, operation cost, and emissions are high and directly proportional to the intersection delay. To reduce intersection delay, a signal timing optimization is carried out to the selected intersections. The optimization results show that the delay reduction has a significant influence and impacts in reducing; fuel wastage, operation cost, and exhaust emissions.

کلمات کلیدی:

Signalized Intersection; Delay; Fuel Consumption; Operation Cost; Exhaust Emissions

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