

## AN ASSESSMENT OF THE MOBILE EMISSIONS ON THE TOLL PLAZA OF THE BOSPHORUS BRIDGE OF ISTANBUL, TURKEY

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Istanbul is one of the mega cities in the world with a population of about 13 million inhabitants. The number of the car in the city is exceeded 1.7 million. The city is connected by the two bridges over the Bosphorus (Bosphorus Bridge and Fatih Sultan Mehmet (FSM) Bridge). The Bosphorus Bridge carries the heaviest vehicular volumes of the bridges due to its location in the city center. Approximately 200,000 car use Bosphorus Bridge every day. Currently, 4 of the 15 toll lanes at the foot of Asian side of the Bosphorus Bridge toll plaza is used for electronic toll collection (locally called ODS system). The goal of the study is to estimate the air pollution potential over the bridge and toll plaza location. We have estimated the emissions of CO, NO<sub>x</sub> and HCs using MOBILE 6 Mobile Source Emission Factor Model of EPA. Mobile 6a, a mobile emissions modeling software was used to analyze and make an assessment the impact of ODS on the air quality for July 2002 and January 2003. The two scenarios were analyzed to quantify air quality associated with ODS deployment. The estimated decrease in peak-hour mobile emissions attributed to ODS deployment were 49.0 % decrease in both January for HC, 1.1 kg and 1.4 kg (48% and 49% decrease for July and January respectively) for NO<sub>x</sub>, 12.0 kg and 16.0 kg (48% decrease for both month) for CO. Proper positioning of ODS designated lanes and providing an adequate merge area are also discussed.