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This paper shows that the city where both congestion externalities and externalities from greenhouse gas emissions are corrected by efficient policies is more compact than the laissez-faire equilibrium city. Motivated by recent empirical studies showing a positive relationship between population density and vehicle fuel-efficiency, the consumer is assumed to choose vehicle fuel-efficiency jointly with housing consumption and residential location. By incorporating the consumer's vehicle choice into the standard-type urban model, we can represent the total amount of vehicle emissions released by the city residents. We first establish the well-known result that congestion externality is the source of market failure associated with excessive urban sprawl. We then claim that vehicle emissions are an additional source of market failure, which also leads to excessive urban sprawl. The source of excessive sprawl arising from emission externalities is the uses of larger and less-fuel efficient vehicles by suburban residents, which is different from that of congestion externalities. We also analyze the effect of the Corporate Average Fuel Efficiency (CAFE) regulation on the urban spatial structure.