This article documents and analyzes the changes in fuel efficiency of vehicles on U.S. roads between 1923 and 2006. Information about distances driven and fuel consumed was used to calculate the on-the-road fuel efficiency of the overall fleet and of different classes of vehicles. The overall fleet fuel efficiency decreased from 14 mpg in 1923 to 11.9 mpg in 1973. Starting in 1974, efficiency increased rapidly to 16.9 mpg in 1991. Thereafter, improvements have been small, with efficiency reaching 17.2 mpg in 2006. The information for 2006 was used to calculate the fuel-efficiency improvements in different classes of vehicles that would be needed to achieve a given percentage reduction in the total amount of fuel consumed by all vehicles.