

# FUEL LOSSES IN CARS DUE TO TRAFFIC VOLUME AND STOPOVERS

**Gaurav Mulchandani<sup>1</sup>**

Student, Delhi Public School, R.K. Puram, New Delhi, Delhi, India,  
Email:- gauravdpsrpk@gmail.com

## ABSTRACT

This study deals with the fuel losses that occur in the cars when they run on roads with traffic and multiple stopovers in contrast to their performance on Highways where they run smoothly.

**Key-Words:** Fuel Loss, Traffic, Energy, Engine.

## INTRODUCTION:

As a result of a large volume of cars in Delhi, there is a consequent traffic on roads which results in poor performance and mileage of cars. This traffic not only results in poor efficiency but a humongous amount of fuel loss when taken on a large scale. Furthermore, multiple stopovers aggravate this problem.

## AIM:

To study and compare the performance of a car on a Highway to that on a city road with a good load of traffic and multiple stopovers.

## EXPERIMENTAL SETUP:

The basic agenda is to calculate and compare the fuel efficiency of a particular car on Highway (Without any stopover and minimal acceleration) to that on a normal city road with Traffic and multiple stopovers at the signals. Thus, the aim is to calculate the Net loss per year in a city.

Resources Used:

- ❖ The car used in this Research was Toyota Etios (Model C).
- ❖ The Fuel used was Normal Unleaded Petrol.
- ❖ The Tracks used for the experiment are:
  - Highway: Yamuna Expressway
  - City Road: Outer Ring Road (Delhi).



Fig. 1: Etios Petrol

## PROCEDURE USED:

1. The Toyota Etios Car was taken to a petrol pump and was accurately charged with 10 liters of Normal Unleaded Petrol bought at Rs. 58.91/liter.
2. The car was made to run constantly at a speed of 40-50 km/hr (speed considered to be appropriate for best efficiency) on Yamuna Expressway till the fuel lasted.
3. The 10 liter fuel lasted for almost 176 km according the odometer. Thus, the mileage on the highway turned out to be 17.6 Km/liter.
4. The car was then recharged with 10 liters of Petrol and made to run on the city roads i.e. Outer Ring Road, Delhi. The route comprised of traffic jams and signals. Though the route had certain Flyovers for smooth traffic but they were not taken during the Journey.
5. The 10 liter fuel now lasted for only 129 Km and mileage turned out to be 12.9 Km/hr.

**THE COMPARISON CHART:**

Route	Highway	City Road
<b>Route Description</b>	Plain Road with minimal traffic and no Traffic Signals.	Typical city with Traffic and Signals.
<b>Total distance</b>	176 Km	129 Km
<b>Mileage Turnout</b>	17.6 Km/ L	12.9 Km/ L
<b>Cost per Km (Cost per Liter/ Mileage)</b>	Rs. 3.34	Rs. 4.56

Table 1. The Comparison

The above table simply shows that there is a loss of  $(Rs. 4.56 - Rs. 3.34) = Rs. 1.22/ Km$  due to Traffic and Multiple Stopovers.

**Result:**

The city of Delhi has following Vehicles:

Vehicle	Number:
Car	2,615,987
Van	74,173
Jeep	67,550

Table 2. Number of Vehicles Registered.

So, there are a total of **2,766,828** Vehicles in Delhi which take a total of **3,000,000** (app.) trips in one whole day with an average of 11.2 Km per Trip. Thus, the total calculation is as follows:

- No. of Trips: 3,000,000
- Average Trip: 11.2 Km
- Loss per Km: Rs. 1.22
- Total Loss per day:  $3,000,000 \times 11.2 \times 1.22 = Rs. 40,992,000$  ( Fifty one Million seven hundred and forty four Thousand.)
- Total Loss Per Year:  $Rs. 40,992,000 \times 365 = Rs. 14,962,080,000$  app.

This kind of a staggering loss especially in case of India turns out to a gigantic drain on the Resources and Economy.

**CONCLUSION:**

Every day, millions of cars travel across Billions of kilometers throughout the India. More than 20% of the energy spent is wasted because of the unnecessary problems of Traffic and Signals. Moreover, this loss is there This problem cannot be fully removed but can be reduced to almost half by the construction of more flyovers which help reducing the number of signals and making the traffic smooth. The construction of Better Roads and Flyovers would cost much less than this huge loss amount.

**REFERENCES:**

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