AirCare Data descriptions

Study Design template

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Prerequisites

- Familiarize yourself with the AirCare program:

J. Wong S.J. Stewart, D.I. Gourley. Aircare results and observations relating to the first eight years of operations

Introduction

The AirCare program was established in September 1992 as an initiative to reduce harmful emissions in the Lower Fraser Valley, mainly from light-duty vehicles. The program aimed to systematically test vehicles as to reduce emis-sion levels produced by requiring vehicles with higher emission levels to be properly repaired before drivers were allowed to renew the insurance of their vehicle. AirCare was a community-based program represented by Translink, the Insurance Corporation of British Columbia (ICBC), the Greater Vancouver Regional District, the Fraser Val-ley Regional District, and the province of British Columbia as a part of a regional Air Quality Management Plan (AQMP) [5].

The program ran in three separate phases throughout its lifespan. Phase one ran from September 1992 to 2000, phase two from 2001 to 2006, and finally phase three from 2007 to the end of the program in 2014. This data set focuses on the data from 2000. For a more comprehensive introduction to the AirCare program, please see Stewart, Gourley, and Wong's report listed in the references.

Description of Data

The population of the vehicles included in this report consisted of all the vehicles that were tested through the AirCare program in the Greater Vancouver Regional District in September 2000. Before preliminary analysis and statistical methods were conducted on the dataset, the following "cleaning" of data was conducted, with accompanied reasons:

EMISRES: The vehicles were awarded "Passes" or "Failures"

TTYPE: Test type; a test could be an Inital inspection (I) or Reinspection (R). MYEAR: Model year; the range for model year was 1900 to 2000.

MANU: Manufacturer of the vehicle. Before any analysis occured, levels that had less than 100 observations were grouped into the "OTHR" category as low-count categories are not very useful [4].

VTYPE: Vehicle type; a given vehicle was either passenger (P), light truck (T), or heavy truck (H). WEIGHT: Empty weight of the vehicle; this would be the weight excluding gasoline weight. ODOM: Odometer reading of the vehicle.

DISPLACE: Engine displacement of the vehicle.

TRAN: Transmission type; a given vehicle was either Automatic (A) or Manual (M).

GEARS: The number of gears of the vehicle.

CYLS: The number of cylinders present in the vehicle.

CATT: The type of catalytic converter.

CENTRE: The centre at which the vehicle was tests. There were twelve centres in total, and the numbers correspond to the following testing centres: 1 (North Vancouver), 2 (Vancouver East), 3 (Richmond), 4 (Burnaby; closed in 2006), 5 (Coquitlam), 6 (Surrey North), 7 (Surrey South; closed in 2006), 8 (Maple Ridge), 9 (Langley), 10 (Abbotsford), 11 (Chilliwack), 12 (Vancouver South).

FWD: Front wheel drive:

- N (Normal):

This could refer to a standard or basic configuration of front-wheel drive, without additional enhancements or special features.

- S (Sport):

Likely indicates a sport-tuned version of the front-wheel drive system, designed for improved handling, performance, or speed.

- H (High-Performance):

Could denote a high-performance front-wheel drive setup, possibly with more powerful engines or advanced drivetrain technologies.

- L (Luxury):

May refer to a luxury version, potentially with added features for comfort, smoothness, and premium handling.

- T (Touring):

Likely represents a touring setup, optimized for long-distance comfort and efficiency, potentially with features like adaptive suspension or enhanced stability.

- U (Urban/Utility):

Could indicate an urban or utility-oriented version, designed for practicality, efficiency in city driving, and possibly increased cargo space or durability.

- Y (Hybrid):

Might refer to a hybrid configuration, where the vehicle combines a traditional internal combustion engine with an electric motor, enhancing fuel efficiency and reducing emissions.