

CITY OF BURNABY

ENVIRONMENT AND WASTE MANAGEMENT COMMITTEE

HIS WORSHIP, THE MAYOR  
AND COUNCILLORS

**RE: ALTERNATE FUEL VEHICLES**

**RECOMMENDATION:**

1. **THAT** Council authorize the City to continue the practice of purchasing natural gas powered vans and to give further consideration to the purchase of other natural gas vehicle types where practical and where economical and environmental benefits can be realized.

REPORT

The Environment and Waste Management Committee, at its Open meeting held on 2002 June 11, received and adopted the *attached* report providing information on the use of alternate fuel (natural gas) vehicles by the City. The Committee noted that since 1998, Burnaby has taken opportunities to purchase natural gas powered vans through the vehicle replacement program. These factory built natural gas powered vehicles are working well and offer better carbon monoxide emission readings than conventional gasoline vehicles.

Arising from discussion, the Committee stressed the importance of continuing the practice of purchasing natural gas powered vans and urged that further consideration be given to the purchase of other natural gas vehicle types where practical and where economical and environmental benefits can be realized.

Respectfully submitted,

Councillor D. Johnston  
Chair

Councillor C. Redman  
Vice Chair

Councillor B. Der  
Member

COPY: - CITY MANAGER  
- DIR. ENGINEERING  
- DIR. FINANCE

**TO:** CHAIRPERSON & MEMBERS  
ENVIRONMENT & WASTE  
MANAGEMENT COMMITTEE

**DATE:** 2002 06 04

**FROM:** DIRECTOR ENGINEERING

**FILE:** 80-16-01

**SUBJECT:** ALTERNATE FUEL VEHICLES

**PURPOSE:** To provide information to the Committee on alternate fuel (natural gas) technology for City vehicles.

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**RECOMMENDATION:**

1. **THAT** the Committee receive this report for information.

**REPORT**

**1.0 INTRODUCTION**

This report is to provide information on alternate fuel for City vehicles as requested by the Committee and on related initiatives that have been undertaken by the City in recent years.

The growing concern of climate change and automobile emission issues combined with the rising cost of gasoline have led many fleet operations in North America to examine alternate fuels for improved fuel economy and cleaner emissions.

Although there are many types of alternate fuel such as electric, ethanol, methanol, natural gas and propane, only natural gas and propane technology is more readily available in the Lower Mainland.

**2.0 DISCUSSION**

In the past 10 years, Burnaby has examined the feasibility of using alternate fuels other than diesel and initiated pilot natural gas vehicle projects in both factory built and post factory conversion programs. The pilot projects focussed on medium size vehicles (3/4 ton to 1 ton vans) in view of the fact they are the most suitable candidates for alternate fuel conversion from a fuel consumption and emission perspective. Current City small sub-compact fleet vehicles are operating with good fuel economy and latest emission controls and therefore are not included in the pilot projects.

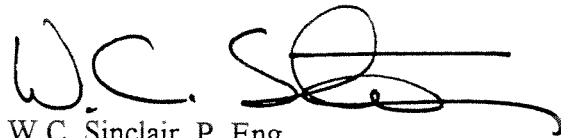
Based on Burnaby's experience in the natural gas programs, a general conclusion may be reached that post factory natural gas and propane conversion technology reduces vehicle engine power by as much as 30%, rendering that the post factory conversion program not a desirable option. Between 1998 and 2002, the City purchased four 1 ton vans with factory built dedicated natural gas engines. The cost for a factory built natural gas engine is approximately \$2,500 (after rebate) per vehicle more than the standard regular gasoline engine. The purchase of the natural gas powered vehicles allowed the City to compare fuel economy and emissions between natural gas and gasoline engines.

Results of the pilot projects indicated that the natural gas engine technology has improved in recent years. From an operational perspective, the factory built natural gas engine performs just as well as the gasoline engine and there is no noticeable difference in performance between the two engine types. Fuel economy for the natural gas engine is about the same as the gasoline engine. However, it should be noted that fuel economy comparison was calculated on the basis of similar vehicle type and usage without the benefit of precise road tests and controlled operating conditions. Through the emission testing program, the natural gas engine is found to emit significantly lower carbon monoxide than the gasoline engine, notwithstanding the fact that current model gasoline engines have high emission standards and are operating at a level that surpasses earlier model gasoline engines.

### 3.0 CONCLUSION

The natural gas engine technology has undergone many years of development and refinement to improve its performance and operations. While natural gas technology has improved in recent years, conventional gasoline engine technology has also improved emission controls and reduced emissions of hydrocarbons and oxides of nitrogen. Since 1998, Burnaby has taken opportunities to purchase natural gas powered vans through the vehicle replacement program. These factory built natural gas powered vehicles are working well and offering better emission readings in carbon monoxides. The fuel economy between the natural gas and gasoline engines is found to be approximately the same.

Staff will continue to monitor the long term performance of the natural gas powered fleet vehicles in the City. Unless future emission or maintenance data indicate otherwise, the purchase of natural gas powered vans will continue and be expanded to other vehicle types where practical and where economical and environmental benefits can be realized.



W.C. Sinclair, P. Eng.

DIRECTOR ENGINEERING

LSC:dh

cc: City Manager

