5.3 Vehicles and Maintenance

"Vehicles and Maintenance" encompasses a category of environmental purchasing that addresses not only the procurement of environmentally friendly products, but also of improving performance of equipment so that it has the least impact on the environment

The effects of a poorly tuned engine have been well publicized for some time. Emissions leading to smog that contributes to the greenhouse effect are not that easy to grasp.

Environmental Purchasing for fleet maintenance really is "the rubber meeting the road"

Environmental purchasing encompasses the search for more fuel efficient, less polluting **vehicles**. Many fleet purchases are based on "proven track records" of a particular manufacturer. Though the track records may be proven, outdated technology might be extending the use of engines with poorer emission standards. Environmental Purchasing opens up the possibility for change.

Similarly, environmental purchasing encompasses use of **high quality components** during vehicle maintenance. This helps to ensure longer and cleaner service, lower maintenance costs, and less polluting waste. Examples include use of platinum tipped spark plugs, longer life coolant, (semi) synthetic transmission fluid, asbestos free brake pads, deep cycle batteries and higher quality gaskets. Use of synthetic engine oils and enhanced oil filters can double oil change intervals while prolonging engine life, decreasing fuel consumption, and providing longer catalytic converter life. Recycling of antifreeze, not common a decade ago is now becoming common practice in fleet maintenance.

Environmental purchasing opens up the possibility for **alternative fuel** systems. These include propane, propane-gasoline, compressed natural gas (CNG), CNG-diesel, pure ethanol, E-85 ethanol and bi-fuel combinations, sulfur free diesel. In the future bio-diesel, cellulose ethanol, oxygenated diesel and synthetic or waste derived diesel fuels may join these. All hold promise for less pollution, longer engine life, and maintenance economy.

Environmental purchasing addresses the use of **tires** appropriate to need. While radial tires remain the proven "on road" choice, careful consideration should be given to their appropriateness for off road duties where the older bias ply has proven better for high impact uses. In all instances longer life tires are preferable, as are tire sizes that meet the manufactures' recommendations for maximum fuel efficiency.

This line of questioning best illustrates the point:
"Have you recycled for a whole year?"
Yes.
"Did you drive your car while it needed a tune-up?"
Yes.
"Well then the effects of the later just cancelled out the effects of the former".

Simply stated, the effects of proper vehicle maintenance with appropriate lubricants and fuel, as well as the effects of residual management of waste tires, has not been so readily publicized as other important environmental actions.

5.3.1 Oils

An Overview

Statistics show that over one billion liters of lubricating and related oils are sold in Canada annually. Fully 50% of these oils are consumed while 500 million liters are available for reclamation. Only about 35% of this 500 million liters is re-refined. Another 10% is burned as fuel in an environmentally satisfactory manner. The remaining 275 million liters represent a significant pollution burden.

Used oil can be collected , cleaned and re-refined into new oil products. Used engine oil and solvents are considered waste and must be transported accordingly under applicable regulations.

Used engine oil is recycled by one of two ways:

- Re-refined for blending with additives
- Re-used as a supplementary heating fuel.

Re-refined oils typically meet or exceed manufacturers' specifications for virgin crude oil, and they are generally less expensive to purchase.

Potential Environmental Impacts

- Improper end-of-use disposal is a potential hazard.

Things to Consider If You Write Your Own Specifications

This is an opportunity to add clauses in automotive oil specifications to address:

- Preference for products bearing the EcoLogo and developed as in ECP-01
- Assurance of product meeting SAE,API, or equipment manufacturers specifications so that vehicle /equipment warranty is not affected
- Service maintenance garages use re-refined and recycle used oil
- Assurance from collection companies of final use for used materials and verification of the same
- Assurance that collection companies are properly licensed.

Specifications from Other Agencies and Seals of Approval

Environmental Choice program guideline ECP-01
(details at.www.environmentalchoice.com/guidelines/pdfs/ecp-01.pdf)

5.3.2 Fuels

An Overview

Canadian annual demand for gasoline reaches about 35 billion liters. Gasoline is by far the most commonly used automotive fuel.

It is reasoned that environmental benefits may accrue from either modification of existing fuels such as gasoline and diesel or through the use of alternative fuels in combination with specialized vehicles.

Only a small proportion of the country's vehicles are designed for dedicated alternative fuel use. The most immediate benefits will be gained using alternative fuels in combination with conventional gasoline. One option is the modification of the "hydrocarbon feedstock" and the use of a variety of additives

Potential Environmental Impacts

- Increased level of air pollution
- Consumption of a non-renewable resource.

Things to Consider If You Write Your Own Specifications

This is an opportunity to add clauses in fuel specifications to address:

- Preference for fuels that carry the EcoLogo
- Preference for blended fuels such as ethanol blended gasoline
- Preference for ethanol derived from biomass (material of plant origin, including agricultural waste wood and animal manure.

Specifications from Other Agencies and Seals of Approval

Environmental Choice program guideline ECP-16
(details at www.environmentalchoice.com/guidelines/pdfs/ecp-16.pdf)

5.3.3 Tires

An Overview

Tires purchased for fleets of vehicles have the potential for affecting the environment from two standpoints. Product performance of the tires affects the environment in terms of use of rubber and petroleum resources and disposal, but the immediate secondary impact on fuel economy may have far greater consequences over the longer time frame. Typically there is less pollution if the correct tire is chosen.

Tires are categorized into two types:

- Radial
- Bias Ply.

In addition tires are broken into two groups:

- Smaller diameter tires used for passenger and service vehicles
- Larger diameter tires used for transport vehicles and "off-road" heavy construction.

Both tire types have a wide range of environmental impacts. They have the potential to adversely affect the environment both through improper use, and end disposal.

- Radial tires are named such by virtue of their construction. The tire carcass is constructed in such a way that the belts, to which the actual rubber and tread are attached, are radial to the cross section of the tire. The belts have typically been made of steel. Because of their design and construction radial tires deform less than bias ply tires when rolling. This in turn causes them to heat less, wear out less quickly, and provide higher gas mileage. Typically radial tires of good quality have a wear life of between 80,000 and 100,000 KM. Radial tires are more appropriate for use on paved surfaces and for wheels less than 19 inches.
- Bias Ply tires are named such by virtue of their construction. The tire carcass is constructed in such a way that the belts are wound on a bias to the cross section of the tire. Belts traditionally have been made of rayon or nylon but can also be made of steel. Because of their design and construction bias ply tires deform more than radial tires when rolling. In turn they heat more, wear out more quickly and provide lower gas mileage. They do however provide a much greater strength sidewall and are most appropriate for off-road use or where travel is frequently "over curb". Bias ply tires are typically better suited for high impact uses.

With regard to tire size:

- Smaller tires are easier to put into a recycling loop. Typically smaller tires (up to 19 inches) are collected. In BC they are primarily used as feedstock for cement kilns
- Larger size transport tires and off road tires can be reconfigured into "blasting mats" used in heavy construction. Transport regulations limit the amount of times that a transport tire can be re-used. Typically a cold vulcanization process is employed. Retreads that involve gluing material onto the carcass may be preformed 3 to 6 times depending on if the tires are used for steering or not.

Potential Environmental Impacts

- Higher use of non-renewable resource if incorrect type of tire is used.
- Unused product disposal, if not performed properly, could lead to environmental problems.

Things to Consider If You Write Your Own Specifications

This is an opportunity to add clauses in tire specifications to address:

- Highest recycled content
- Vehicle manufacturer's recommendations such as size and type
- Longer life and wear performance.

Specifications from Other Agencies and Seals of Approval

Specifications from other agencies and seals of approval are pending. In the interim, individual tire manufacturers' specifications are generally driven by vehicle manufacturers developing standards for "equivalent replacement for optimum performance."