

7 January 2009

Helen Lockhart
City of Colwood
3300 Wishart Rd.
Victoria, BC V9C 1R1

Dear Helen,

Thank you for choosing the E3 program and E3 Fleet Review as tools for improving your fleet's overall performance.


From our review, the City of Colwood fleet is a well-managed asset. Good record-keeping and data are evident. At the same time even a top performing fleet can improve and E3 Fleet Review's goal is to assist you in achieving further improvements.

The attached package includes the following:

- Key Performance Indicator report that summarizes key operating parameters of your fleet
- Key Recommendations for further action to improve your fleet operations
- Guide For Managers
- Detailed E3 Fleet Review reports

After reviewing the following material, you may have questions and comments. Please feel free to contact me anytime to discuss your reports.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Roger Smith', written in a cursive style.

Roger Smith, *on behalf of E3 Fleet*
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A Program of:



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Key Performance Indicators – City of Colwood Fleet

Note: all KPIs are annualized based on input data for review period.

E3 Fleet has analyzed the City of Colwood’s fleet and identified 15 key indicators that provide a snapshot summary of operating parameters. These Key Performance Indicators (KPIs) reflect operating costs, emissions, service levels and in general, client satisfaction with your fleet. Making improvements to each of these will assist in stabilizing operating and capital budgets and reducing cost “spikes” from year to year.

City of Colwood Fleet - Key Performance Indicators

<u>Key Performance Indicator</u>	<u>E3 Fleet Analysis</u>
1. Fleet Median Fuel Efficiency	29.5 (l/100km)
2. Fleet Annual Fuel Usage (estimated)	85,528 (liters/yr)
3. Fleet GHG Intensity (tailpipe)	1.037 (kg/km)
4. Annual GHG Emissions (tailpipe)	215 Tonnes CO2 Equivalent
5. Fleet GHG Intensity (lifecycle)	1.428 (kg/km)
6. Annual GHG Emissions (lifecycle)	297 Tonnes CO2 Equivalent
7. Corporate Average Utilization:	6,696 (kilometers)
8. Corporate Average Utilization:	6,897 (hours)
9. Fleet Average Age:	9.4 (years)
10. Units due for Replacement:	10
11. Projected Capital Budget (based on current retention practices):	\$416,000
12. Projected annual cost of R&M, fuel, capital & downtime	\$80,408
13. Fleet Availability	n/a (%)
14. Fleet Average Downtime	n/a (days)
15. Maintenance Ratio	n/a (Preventative: Reactive)

Key Recommendations for Action – Colwood Fleet

The following recommendations for further action are based on the E3 team’s review and assessment of data supplied, and current Key Performance Indicators. Implementing these recommendations will result in a more cost effective, more fuel efficient and lower emission fleet.

Exception Management

In the detailed E3 Fleet Review reports individual vehicles are compared to similar units within the fleet. E3 refers to this practice as “exception management”. Exception management is an extremely valuable tool to attain peak performance in any fleet.

In all fleets there will be top performers and poor performers...these are the exception units. E3 Fleet Review has identified the exception units in your fleet, which enables fleet’s efficiencies to be improved and emissions and fuel costs reduced.

Parameter Ranking

Included in the E3 Fleet Review package of reports is one called “*Sorted Fleet Detail Sheet*.” Within the *Sorted Fleet Detail Sheet* report, exceptions within your fleet are identified through parameter ranking. E3 automatically defaults to a 0.5 alert level for ranking, meaning that exceptions are below (or above) 50% of the average for your units. Parameter ranking identifies those units performing at a high level, those performing poorly as well as those performing satisfactorily.

Recommended Actions - Fuel Efficiency

1. **Investigate and take corrective actions** for each low fuel efficiency exception vehicle identified in your *Sorted Fleet Detail Sheet*. E3 Fleet Review has identified **6 units** with higher than average fuel consumption for vehicles within your fleet. Some corrective actions include fuel efficient driver awareness training, vehicle repairs or maintenance, idling reduction programs, etc.
2. **Purchase** high efficiency/low emissions vehicles that meet operational needs e.g. hybrids, Smart cars. Use EnerGuide ratings for vehicles and E3 Fleet Review unit fuel consumption data when making purchasing decisions.
3. **Purchase** the best performing vehicle models when replacing vehicles in the same class.
4. **Investigate and take corrective actions** to improve overall Fleet Median Fuel Efficiency via initiatives such as idling reduction programs, vehicle pooling, trip reduction, route planning, etc.
5. Consider expanding the total number of **diesel powered** vehicles in your fleet. While capital cost for the diesel option is higher, fuel efficiency can be 25% higher for some types of vehicles. Reduced fuel costs will offset the higher capital cost and less fuel consumption will mean fewer GHG emissions for your fleet.

Recommended Actions - GHG Emissions

1. **Investigate and take corrective actions** for each high GHG exception vehicle identified in your *Sorted Fleet Detail Sheet*. E3 Fleet Review has identified **6 units** with higher than average GHGs for vehicles within your fleet.

2. To reduce your **GHG intensity and Total GHG Emissions**, use alternative lower carbon fuels that are available and operationally practical. Consider using biodiesel in your fleet and/or other alternative fuels where appropriate e.g. CNG, ethanol or propane.
3. **Consider switching to diesel engines** where operationally practical for future vehicle specifications as diesels are more fuel efficient, delivering overall reduced GHG emissions relative to gasoline powered vehicles and also allowing for the use of renewable biodiesel.
4. **Apply a carbon charge to user departments** placing corporate responsibility for GHG emissions with line departments.

Recommended Actions - Utilization

1. We strongly support your use of engine hour data for some of your fleet vehicles. We suggest as a next step, collecting engine hour data for *all* vehicle types in your fleet. **Vehicle utilization data** by engine hours is available from on board diagnostic (OBD) systems, Automatic Vehicle Location systems (if equipped) or engine hour meters and can be easily entered data into a data base for future analysis.
2. We note from your **engine hours** for T2 Trucks that average speed (kms travelled / hours operated) indicates high idling. There may be a valid business reason for this but high idling consumes excessive fuel and contributes to increased GHG and other harmful emissions. Consider idling reduction strategies such as driver training or operational changes and/or technological solutions.
3. **Report vehicle utilization** to the municipality's management team as this will highlight under-utilized units and help determine if such vehicles are needed. E3 Fleet review has identified **8 units** within your fleet that have utilization at least 50% less than similar vehicles in the fleet. Optimizing utilization will free up capital for other worthwhile purposes such as fleet renewal with newer, more fuel efficient vehicles.
4. **Review the current vehicle charge-back system** to ensure that user departments pay the *true* cost of vehicle use encouraging fleet right-sizing and ensuring maximum utilization of all vehicles.
5. **Implement duty cycles for the fleet based on age** as high utilization applications are most cost effectively served by newer units

Recommended Actions - Capital budget and Vehicle Replacement

1. **Review current vehicle replacement and retention strategy.** Your current strategy will require capital funding of approximately \$416,000 for 10 new vehicles, reducing the age of the fleet from 9.4 years to 5.9 years with the following impacts:
 - a. Decreased GHG output (29.5 tonnes)
 - b. Fuel consumption reduction of 11,569 litres
 - c. Fuel cost reduction of \$10,870 (based on historical fuel per-liter costs)
 - d. Increased cost of capital for the 10 new vehicles of \$16,640
 - e. A **net cost increase** (when all factors are considered *including* cost of capital, repairs and all other op. costs) of \$17,530/year
2. **Make vehicle right-sizing a priority.** Select the right sized vehicles for the job at hand. One strategy which has been particularly successful in other municipalities has been to begin with supervisors vehicles – often full-size pickup trucks – which can be downsized to compact pickups or cars in order to reduce fuel

consumption. It also shows leadership to the rest of staff. In some cases, this may be a preferred strategy to specifying hybrids, where significant emissions and fuel economy gains can be made while reducing capital costs.

3. **Request that E3 carry out a detailed Life Cycle Cost Analysis** to further fine-tune current retention strategies and to further evaluate the options for replacement vehicles. Making sure these high value assets are replaced at the optimal time will assist you in meeting your environmental and economic goals.

Recommended Actions - Fleet Availability and Downtime

1. **Track availability/downtime on a go-forward basis** as this information would provide an accurate picture of the business implications of future vehicle replacement. Downtime is defined as any period of time that a vehicle is out of service during normal business hours for unplanned reactive maintenance. Then, once data is available, regularly **drill down and closely evaluate** all vehicles with low availability.
2. Low availability may be a sign of an aging vehicle, insufficient preventative maintenance, a vehicle that is not correctly matched to the job at hand, an abusive driver or one who is prone to accidents, or a vehicle type with a low reliability history because of inherent mechanical problems. Excessive vehicle downtime will drive up overall operating costs, possibly to an unacceptable level and result in reduced service levels and a degree of frustration for your internal clients.

Recommended Actions - Preventative Maintenance

1. **Track preventative and reactive maintenance separately** to assess effectiveness of PM programs and levels of intensity required to maintain the highest practical levels of service
2. **Include cost of maintenance as part of overall bid assessment for new vehicles** being considered for purchase. E.g. Extending oil drains and maintenance cycles can reduce overall operating expenses and environmental impacts. (For information on how Metro Vancouver is doing this see the E3 Newsletter for January 2009 "Making the Right Purchasing Decisions Using Lifecycle Costing")
3. **Review the effectiveness and frequency of your scheduled preventive maintenance programs** as a potential cause of reduced vehicle availability. As a general rule of thumb, a ratio of 1:5 is desirable, indicating that for every \$1 spent on PM, \$.50 is spent on reactive repairs.