Item 7.3
Public Works Committee
January 16, 2013

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Public Works

Public Works
Transportation Division

Transit Fleet Business Case Analysis for Transit Fuel & 2013 Budget Mitigation (PW12017a)

January 16, 2013

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Transit Fleet Business Case Analysis for Transit Fuel & 2013 Budget Mitigation

- Community
- People
- Processes
- Finance

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Report Background:

- HSR completed Fleet Business Case Analysis of bus fuel options (Marathon Technical Services, July 2012) as directed by Council.
- Business Case Analysis indicates significant life cycle cost savings with compressed natural gas (CNG) fuel over diesel, hybrid and electric options (up to $41 Million savings over 20 years).
- Diesel fuel costs are having increasingly significant impact on Transit budgets.
- Need to determine appropriate approach to CNG fueling infrastructure to pursue CNG fuel option.
- Opportunity to avoid some reserve contributions and capital expenditures in 2013.

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Fleet Business Case Analysis Findings:

CNG & Diesel/Electric Hybrid Bus Comparative Study, Marathon Technical Services, July 2012.

- HSR fleet consists of 186 diesel and 35 CNG fuel buses.
- Diesel fuel costs expected to increase much more than CNG over next 20 years.
- HSR CNG fueling facility needs replacement to support future CNG bus operations.
- New CNG fueling facility will cost about $5.7 million..
- Overall 20 year life cycle cost savings of $41 million with CNG buses compared to diesel buses.
- Study recommended that HSR replace aging CNG fueling station and replace retired buses with new CNG fueled buses.
- Current price of diesel $1.06/LT versus CNG $0.26/DLE.

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CNG (compressed natural gas) Fuel Background:

- In 1985 the first CNG powered buses were developed by converting seven diesel buses to CNG operation.
- 1985 project funded by Federal and Provincial subsidies, as well as the natural gas industry.
- With deregulation, support from natural gas industry evaporated and “all in” costs of CNG buses exceeded costs of diesel buses.
- Initial experience indicated that cost of CNG fuel was less than diesel but the maintenance costs were 2 to 2.5 times higher.
- Through the late 90’s and early 2000’s, both fuels exhibited fairly stable pricing.
- Most Canadian municipalities abandoned CNG as a fuel for bus fleets. However, interest in CNG continued in USA and engine manufacturers developed newer, better CNG engines.

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Diesel Fuel Background:

- In 2004 the higher “all in” costs of CNG buses, the aging CNG station, and the reliability of diesel buses initiated a return to diesel as the fuel for new HSR buses.
- In 2007 and 2010, the EPA emission standards required diesel engines to incorporate sophisticated after treatments.
- Cost of diesel fuel is escalating, while CNG fuel costs remain fairly stable.
- To meet the EPA 2010 emission standard, CNG buses require only a catalytic converter, while diesel buses require multiple after treatment technologies and Diesel Exhaust Fluid(DEF) at an additional cost of approximately $.03/ltr.
- Now estimated that maintenance costs for either technology (CNG or Diesel) will be similar and the cost of fuel will be the determining factor in future bus life cycle costs.

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Recommended Actions:

- Investigate CNG fueling station replacement through Request for Information (RFI) process. This will include option of public-private partnership for construction and maintenance.
- Report back to Council on recommended approach to fueling station replacement and to support future bus fuel strategy.
- Take advantage of 2013 budget mitigation opportunity:
  - Cancel 2013 contribution of $450,000 to Transit Fleet Replacement Reserve
  - Cancel the 2013 bus capital fleet purchase at estimated cost of $9.1 million