

Trolley System Costs (K. Krushell)

Recommendation:

That the May 5, 2006, Transportation Department report 2006TD4364 be received for information.

Report Summary

This report responds to questions related to the costs of operating the trolley bus system in Edmonton.

Previous Council/Committee Action

At the March 14, 2006, Transportation and Public Works Committee meeting, Councillor K. Krushell made the following inquiry:

“I would like the following information to be provided to the May 16, 2006, Transportation and Public Works Committee meeting.

1. What will the trolley system cost to operate and maintain between now and 2008?
2. Will there be a need for any capital dollars for the trolley system between now and 2008?
3. Please provide information on what City Council can expect costs to be in 2008, if we replace our existing trolley system with new trolley buses and upgraded infrastructure. Also, what sorts of costs would there be to expand the trolley system?”

Report

What will the trolley system cost to operate and maintain between now and 2008?

Edmonton Transit operates a trolley bus system composed of 127 kilometres of overhead electric wire powered by seven

substations and supported by 4,852 poles. A maximum of 37 trolley buses operate on seven routes, that is, the 3, 5, 7, 9, 120, 133 and 135.

To operate the trolley system, Edmonton Transit requires resources to fund specialized staff, materials and services unique to this fleet and overhead electrical system. The additional cost of operating and maintaining the trolley bus system for the three fiscal years, 2006, 2007 and 2008, is \$7.2 million or about \$2.4 million per year. This amount is comprised of the following items:

- \$5.22 million in overhead electric wire network and substation maintenance arising from EPCOR services;
- \$390,000 as an operating hours premium of extra travel time required for trolleys to travel between the garages and their routes;
- \$540,000 in training costs for three days of trolley training for all new operators; and
- \$1.05 million maintenance costs from Mobile Equipment Services (MES) to cover extra staffing, and material and parts required for the trolley fleet.

Will there be a need for any capital dollars for the trolley system between now and 2008?

The trolley bus system requires just over \$7.09 million in additional capital expenditures over the three years of 2006, 2007 and 2008. This sum is comprised of the following items:

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- \$1.6 million in roadway projects to replace trolley poles during street rehab;
 - \$2.2 million in trolley overhead projects to replace poles and upgrade intersections and substations. \$1.5 million is funded in the Capital Priorities Plan (CPP) while \$670,000 remains unfunded;
 - \$1.5 million to refurbish several trolley buses over the period to keep them roadworthy until retirement; and
 - \$1.79 million to fund the changes to accommodate South LRT crossing the trolley overhead, such as at 76 Avenue and at 111 Street at Southgate.
- \$3,180,000 is required in roadway projects to replace trolley poles during street rehab;
 - \$20,330,000 is required to upgrade the overhead wire and substation network of which \$890,000 is contained in the funded category of the capital plan. The remaining \$19,450,000 is unfunded.

To address question about the costs that would be required to expand the trolley system, it is estimated that each kilometre of trolley system expansion would cost about \$1.2 million. This estimate assumes intersections, substation construction, overhead wire and poles but does not include the cost of vehicles which as noted are estimated at \$1.12 million each. In addition, operating costs will be incurred each year to maintain the trolley system.

Please provide information on what City Council can expect costs to be in 2008, if we replace our existing trolley system with new trolley buses and upgraded infrastructure. Also, what sorts of costs would there be to expand the trolley system?

Between 2009 and 2015, \$58.8 million in capital expenditures (2006 dollars) are forecasted to be required to continue the trolley system at its current level. In addition, annual operating costs of about \$2.4 million will be incurred each year. The capital expenditures are comprised of the following items:

- \$35,280,000 to purchase 49 new trolley buses in 2010. This is an unfunded capital item which is the difference in price between buying 49 diesel buses at \$400,000 each and 49 trolley buses at \$1,120,000 each;

Background Information Attached

1. [Tables 1, 2 and 3 – Trolley System Costs](#)

Others Approving this Report

J. Tustian, General Manager, Corporate Services Department

Tables 1, 2 and 3 – Trolley System Costs

Table 1: Question 1 – Trolley System Operating Costs for 2006, 2007 and 2008

	2006	2007	2008	Total
Overhead electrical wire and sub station maintenance	\$1,740,000	\$1,740,000	\$1,740,000	\$5,220,000
Operating hours premium (Extra deadhead time for trolley buses to travel between their routes and the garage due to the need to follow overhead wire)	\$130,000	\$130,000	\$130,000	\$390,000
Operator training (three days of trolley training required for new operators (estimated number of recruits per year – 175 in 2006; 200 in 2007; and 225 in 2008)	\$158,000	\$180,000	\$203,000	\$541,000
Mobile Equipment Services (MES) maintenance support	\$350,000	\$350,000	\$350,000	\$1,050,000
Total operating costs	\$2,378,000	\$2,400,000	\$2,423,000	\$7,201,000

Table 2: Question 2 – Trolley System Capital Costs for 2006, 2007 and 2008

	2006	2007	2008	Total
Roadway projects funded (incremental cost to continue trolley operation) (xx-66-1020)	\$135,000	\$637,200	\$830,400	\$1,602,600
Trolley overhead wire rehab funded (includes intersection, 33 Poles, 360 SS transformer in 2006; 24 Poles in 2007; 33 Poles in 2008 (xx-66-1411)	\$837,000	\$289,000	\$406,000	\$1,532,000
Overhead capital unfunded (xx-66-1511)			\$670,000	\$670,000
Trolley bus rehabilitation (corrosion repairs, etc.)	\$500,000	\$500,000	\$500,000	\$1,500,000
SLRT impact – 76 Ave crossover (includes intersection and reconnect power and pantograph upgrade (funded in 05-66-1671 and xx-66-1280)		\$287,800		\$287,800
SLRT impact – 111 Street to Southgate			\$1,500,000	\$1,500,000
Total capital costs	\$1,472,000	\$1,714,000	\$3,906,400	\$7,092,400

Table 3: Question 3 Trolley System Capital Costs for 2009 to 2015

	2009	2010	2011	2012	2013	2014	2015	Total
49 trolley buses (\$1.120 M/trolley vs \$400K/diesel) (xx-66-1780)	\$35,280,000							\$35,280,000
Roadway projects funded (xx-66-1020)	\$386,000	\$1,240,000	\$1,027,600	\$348,000	\$117,000	\$62,000		\$3,180,600
Overhead capital funded (xx-66-1411)	\$427,000	\$458,000						\$885,000
Overhead capital unfunded 2009 + (xx-66-1511)	\$670,000	\$8,705,000	\$7,973,000	\$600,000	\$500,000	\$500,000	\$500,000	\$19,448,000
Total capital costs	\$36,763,000	\$10,403,000	\$9,000,600	\$948,000	\$617,000	\$562,000	\$500,000	\$58,793,600

Note: Costs are presented in 2006 dollars