



City of Richmond

Report to Committee

To: Parks, Recreation and Cultural Services Committee
Date: February 21, 2005

From: Kate Sparrow
 Director, Recreation & Cultural Services
File: 11-7000-01/2005-Vol 01

Re: **Static and Running Locations for Interurban Tram Car #1220**

Staff Recommendation

That the following report be received for information.

Vern Jacques
 Manager, Community Recreation Services
 (4158)

Att. 1

FOR ORIGINATING DIVISION USE ONLY			
ROUTED TO:	CONCURRENCE		CONCURRENCE OF GENERAL MANAGER
Engineering	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>	<i>file with</i>
Parks Design, Construction & Programs..	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>	
Development Applications	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>	
REVIEWED BY TAG	YES	NO	REVIEWED BY CAO
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>CD</i> <input checked="" type="checkbox"/> <input type="checkbox"/>

Staff Report

Origin

At the Closed Parks, Recreation and Cultural Services Committee Meeting of January 25, 2005 the following items were referred to staff for further information.

1. *That staff identify static and running locations for the tram be identified, and*
2. *That staff get an indication whether the Richmond Heritage Railroad Society would continue fundraising in light of recent events.*

These two referrals do not meet the criteria for closed meetings and are placed in the open meeting for debate. This report responds to the referrals.

Analysis

1. Static and Running Options

The following charts provide a basic level of analysis for both static and running possibilities of Interurban Tram #1220. It should be noted that aesthetic restoration is needed for a static display, while complete restoration is required for operating the tram. The tram condition is outlined in Attachment 1.

The Tram is not the property of the City. It is owned by Steveston Interurban Restoration Society (SIRS). There is a legal dispute underway on the ownership issue. Staff have prepared a closed report on the ownership litigation.

SIRS is interested in an operating tram.

In January 2005, City Council resolved to abandon routes for the tram operating through Steveston. However, City Council asked staff to look at other alternatives.

Staff have identified possible operating and static display locations and assessed the pros and cons of each location. In reviewing options for both static and operation, staff considered the following:

- Ability to locate and property ownership
- Condition
- Historical considerations
- Security and safety
- Tourism Community interest and visibility

Static Display Tram Options	Pros	Cons
Steveston Park Corner of No. 1 Road and Moncton	<ul style="list-style-type: none"> • High visibility for residents and tourists • Historically significant, on the Interurban line and near Steveston Station • Some original track still in place • City owned property 	<ul style="list-style-type: none"> • Would require changes to the Steveston Park Plan • Facility would have be funded and built • Static display not the desire of SIRS or the Heritage Railway Society
No. 1 Road and Bayview	<ul style="list-style-type: none"> • High visibility for residents and tourists • Historically significant very near Steveston Station • City owned Property 	<ul style="list-style-type: none"> • Would impact the waterfront walkway • Not near other public amenities for supervision purposes • Facility will have to be funded and built • Static display not the desire of SIRS or the Heritage Railway Society
Garry Point Park	<ul style="list-style-type: none"> • High visibility for residents and tourists • Supervision provided by caretaker • Parking nearby • Sufficient room for track for “roll-out” purposes • City owned property 	<ul style="list-style-type: none"> • Not historically significant location • Would require changes to the Garry Point Park Plan • Facility would have to be funded and built • Static display not the desire of SIRS or the Heritage Railway Society
Olympic Oval Site	<ul style="list-style-type: none"> • Anticipated high traffic area for both tourists and residents • Could have space for “roll-out” purpose • Supervision will be available onsite • City owned property 	<ul style="list-style-type: none"> • No historical significance to location • Would require accommodation on Master Plan • Facility would have to be funded and built • Static display not the desire of SIRS or the Heritage Railway Society
RAV Station	<ul style="list-style-type: none"> • Possibilities as part of a historical transit exhibit • Could be designed right into a station • Supervision will be on site 	<ul style="list-style-type: none"> • Would require additional space in a RAV station • Would increase cost • Static display not the desire of SIRS or the Heritage Railway Society • Non City owned property
London Landing Proposed Tram Barn Location	<ul style="list-style-type: none"> • Facility built at little cost to the City • City owned property 	<ul style="list-style-type: none"> • No supervision nearby • Little “natural” tourist and resident traffic • Operating costs significant as it is linked with development amenity space • Static display not the desire of SIRS or the Heritage Railway Society

Operating Tram Options	Pros	Cons
RiverRock Casino to Olympic Oval Site on existing Rail Line	<ul style="list-style-type: none"> • Both facilities are expected to be high traffic for residents and visitors • Rail line already exists • Partnership with private interests are possible • Could be included in site master plan 	<ul style="list-style-type: none"> • Will require negotiation for use of track • Will require electrification of track • City doesn't control or own the rail corridor • Need facility • Funding and acquisition
Around Olympic Oval Site	<ul style="list-style-type: none"> • High tourist and resident traffic expected • Can be constructed before residential development in the area • Highly visible route <p>On City owned Property</p>	<ul style="list-style-type: none"> • No actual transportation features • Will likely require full track construction and electrification of track • Need Facility • Funding and Acquisition
On a future light rail system in Richmond	<ul style="list-style-type: none"> • Could be accommodated on a light rail system if developed to supplement RAV 	<ul style="list-style-type: none"> • No commitment to do this in the near future • Would likely require some modification to accommodate the tram • Funding and Acquisition
Riverport - Around Sport and Entertainment Site	<ul style="list-style-type: none"> • High resident and tourist traffic area • Partnership with private interest 	<ul style="list-style-type: none"> • Land not owned by the City, would require partnership • Future of the site beyond the end of leases not known • Funding and Acquisition

Richmond Heritage Railroad Society

The Richmond Heritage Railroad Society has indicated their interest and willingness to support and fundraise a moving tram project in the future. The organization will remain intact but inactive until a viable project is initiated.

Financial Impact

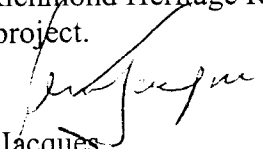
None

Conclusion

There are possible locations for both static display and tram operation. All of the options would require funding to be in place and interim storage location would be required until such facilities are developed.

At this point, the City does not have ownership of the Tram. SIRS, who owns the tram, have been very specific about wanting to have the tram operating along the historical route.

The Richmond Heritage Railroad Society is still interested in fundraising for a viable moving tram project.


 Vern Jacques
 Manager, Community Recreation
 (4158)



Steveston Interurban Restoration Society

BCER Car # 1220 Restoration Estimate

The Steveston Interurban Restoration Society is dedicated to bringing 1911 vintage British Columbia Electric Railway (BCER) Car # 1220 to full operational capacity.

Completely restored, the Car has a market value of \$1.5 million dollars (CA), the present day estimate researched for insurance purposes. The historical value to the people of British Columbia is however, priceless. During the first half of the twentieth century, the BCER, forerunner of B.C. Transit, had a fleet of nearly a hundred St.-Louis cars on daily service throughout the Lower Mainland. Car # 1220 is one of five remaining St.-Louis electric passenger Cars that operated on BCER lines. The rest were destroyed and sold for scrap in the late 1950s.

As of August 2002, car # 1220 is temporarily stored in Steveston Park, Richmond, B.C. and sits on the original rails it served daily, from 1913 to 1958. The Car is currently near completion. The total hybrid body of wood and metal structure is almost 80% finished and restoration is continuing. Provided all funding can be secured, BCER # 1220 could be operational within one year. At that point in time, the Tram will have to be moved to electrified trackage. The restoration project has been in progress for over five years, funded by a variety of government-sponsored programs, grants and private donations.

Significant upgrade to the Car's mechanical status will be required to bring the Car into operation, in addition to meeting Provincial guidelines as specified by the Ministry of Municipal Affairs Inspector. Furthermore, modern safety improvements, including structural and cosmetic repairs (safety glass, for example) are essential to returning # 1220 to active service.

The restoration estimate is based on our experience dealing with the usual repairs associated with this kind of project and advice from key personnel involved with the restoration of St.-Louis car # 1231 and BC built Car # 1207, now servicing the tourist trade in downtown Vancouver. In order to meet SIRS' objective of restoring the heritage Car to full operational capacity, all parts must be in original condition and completely functional. For the preservation of historical authenticity, attention to detail is therefore paramount. The restoration is thus, a time consuming endeavor.

The estimate is subject to unforeseen or hidden damages. In addition, high cost items missing or beyond repair are not included, but an allowance is made to repair or restore most mechanical and cosmetic parts.

Nevertheless, upon closer examination some mechanical parts may be in better condition than anticipated. Some parts included in the restoration estimate may even pass a safety inspection and have no need of immediate attention.

The estimate is a speculative quotation for budgetary purposes only.

The estimate is classed in *two* major categories: the *Mechanical* and the *Body*.

1) The Mechanical: (Trucks, motors, control, and undercarriage)

Car # 1220 is nearly complete, but has some missing parts. The mechanical area of the car will need:

- preventive maintenance
- several consumable parts (bearings and brake shoes)

The costs as presented should cover what is expected; however since some items may not require service, then the costs may certainly be lower. This estimate outlines a "worst case scenario" situation.

1.1.- Trucks:

- A light sand blasting is required and the trucks painted in Rustoleum black
- Bushings, pins and pieces of rigging require replacement or repair
- Each of the bearings require cleaning or replacement and repacking with new material and fresh oil
- All cover gaskets require custom made replacements along with cover hold down hinges and springs
- All wheels need truing
- All tires need upgrade to full interurban service; new tires must be custom forged, mounted and balanced.
- Brake shoes and bushings need replacement (brake lines treated with under carriage equipment)

Truck mechanical upgrade to be provided by Southern Railway of British Columbia

- Pricing for the outlined services: \$5,000 per truck (x2)	\$10,000.00
- Pricing for 8 tires @ \$ 3,125 each (incl. installation):	\$25,000.00
- Wheel truing: \$450 per axle (x4)	\$ 1,800.00
- Suspension Bearings @ 2800 each (x4)	\$11,200.00
- Friction bearings @ \$1,000 each (x4)	\$ 4,000.00
- Covers and gaskets @ 350 each (x8)	\$ 2,800.00

- Blast and paint	\$ 1,700.00
- Brake cylinders (honing, packing and new cups)	\$ 2,000.00
- Brake shoes & break heads (for 34" wheels)	\$ 2,000.00
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Total	\$60,500.00

Plus all applicable taxes.

The price does not include any unseen structural cracks in the frame or missing components and other hidden or damaged high cost items.

1.2.-Traction Motors:

All four motors need an overhaul.

- General clean up with Meggar, remove, dismantle, wash, clean, bake, until an acceptable reading is acquired on the armature and case.
- Inspection of fields and repair where necessary including new leads where required.
- Glyptol paint where required
- Undercut and stone the commutators
- New bearings to be applied where needed
- Spray paint under case
- Reassemble and replace minor parts

A) This work can be done in house at Southern Railway as long as field, interpoles and armature windings are acceptable.

- Pricing for the outlined services: \$ 8,500 per motor (x4)	\$34,000.00
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Total	(A) \$34,000.00

Plus all applicable taxes.

B) If services are beyond Southern Railway capabilities, then the motors would be sent out to a contract shop. Southern Railway recommends: TransWest Mining, General Electric or ElectroMotors. These Companies provide VPI treatment and rewinding if necessary. The pricing would be proportionately higher to approximately \$12,000 per motor, or perhaps more.

If motors need contract shop:

- Pricing for the outlined services: \$12,000 per motor (x4)	\$48,000.00
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Total	(B) \$48,000.00

Plus all applicable taxes.

Both these numbers are subject to major damages or part replacement that cannot be seen at this time. However, some parts included in the repair may pass an inspection.

1.3.-Controls:

Several parts need replacing or repair:

- The switching group needs replacement resistor of the correct value.
- The master controllers need cleaning, some brazing or segment replacement and lead replacement or tidying.
- Control wiring needs checking or replacement as it is in conduit pipes.
- The four banks of Westinghouse grids need to be rebuilt and several plates replaced.
- The four banks of General Electric grids also need rebuilding.
- Have several trolley poles, but one Trolley base is missing.

The controls would be done by contract shop as previously outlined.

Contract shop:

- Pricing for the outlined services: \$10,000 per grid (x2)	\$20,000.00
- Including master controller and resistors:	\$10,000.00
- Wiring replacement/trolley base/misc. parts	\$ 5,000.00
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Total	\$35,000.00

Plus all applicable taxes.

All of these numbers are subject to major damages or part replacement that cannot be seen at this time. However, some parts included in the repair may pass an inspection.

1.4.- Undercarriage:

Some parts are damaged and may need repair or replacement:

- Brake airlines need repair or replacement.
- Governor, compressor and tanks need to be inspected and repaired or replaced.
- Hand brakes need inspection. repair, adjustment or replacement.
- Draft gear needs repair and parts replaced.
- All other undercarriage parts to be inspected repaired or replaced.
- All other missing undercarriage parts to be replaced.

Many of these items and parts can be repaired, manufactured and installed on the restoration site. The air tanks have been pressure tested, but the compressor needs to be sent to a contract shop. One large missing air tank must be manufactured.

-Pricing for the Undercarriage:	\$40,000.00
Total	\$40,000.00

Plus all applicable taxes.

All of these numbers are subject to major damages or part replacement that cannot be seen at this time. However, some parts included in the repair may pass an inspection.

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Total Pricing for The Mechanical:

1.1.- Trucks:	\$ 60,500.00
1.2.- Traction Motors;	(A) \$ 34,000.00
1.3.- Controls:	\$ 35,000.00
1.4.- Undercarriage:	\$ 40,000.00

Total estimated cost without overrun or savings	\$169,500.00
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Plus all applicable taxes.

Transportation of truck materials (1.1. & 1.2.) FOB Southern Railway, New Westminster. All of these numbers are subject to major damages or part replacement that cannot be seen or anticipated at this point in time.

Some parts included in the repair estimate however may be well preserved and pass an inspection. *Experience has shown that many items or parts may be quite serviceable with minor repair or cleaning.* If this is the case and with some degree of luck, the total price for the upgrade on the trucks, motors, controls and undercarriage may come to an expenditure of nearly 50% lower than the stated figure. Swap deals with other Rail Societies may also bring about a reduction in costs.

In any case, all operating mechanical parts must pass a safety inspection and be approved to Provincial standards.

The mechanical restoration estimate is intended to bring the 1220 to functional operation on a main line, thereby preserving its full historical and market value.

2) The Body:

Having been essentially partly restored over the past five years, BCER # 1220 may not need as extensive a restoration as will be outlined. This estimate covers restoration areas of the Roof, Sash and Doors, Sheathing and Woodwork for the Interior and Under-frame.

The Tram Body is approximately 80% completed. The main structure is mostly done (roof and floor beams; roof, floor and wall planking; steel plates; stairwells and bumpers; etc.).

The remaining work however is essentially fine interior and exterior detail, like the window shades that cover each passenger window or exterior fascia and trim. The window shades are particularly difficult: appropriate canvas fabric has to be found, printed with authentic pattern, metal parts sown in, tracks installed, and finally, each completed structure is assembled in place on each individual window. Many small missing parts have to be researched, manufactured or acquired somehow. This can be expensive and quite time consuming.

The Body of BCER # 1220 has *four* major areas of concern:

- 1) The vestibules must be completed with the installation of all electrical and mechanical controls. Some interior painting and finishing detail is required.
- 2) The body interior needs to be varnished and detail refitted: window sashes, window shades, valences, interior pocket doors, interior roof covering, brass handles, luggage racks and many other small brass fittings (several missing), electrical components, like heaters and lights, air gages, controls, etc. All the interior wood must be varnished with exterior grade varnish and signage applied in gold lettering. After this the restored seats are reinstalled.
- 3) The application of the exterior roof membrane covering, re-installation of brass vents, racks, trolley poles, bases and other roof gear. We have most of the parts, except for the availability of only one of two trolley pole bases. Contract professionals must install the waterproof membrane.
- 4) The exterior body must be restored with all the original fittings (fascia, trim, headlights, etc.) and painted with high quality durable paint (Endura) in authentic colors.

For budgetary purposes, the operational expenses for the Body restoration will be calculated over a six-month period.

A) Materials:**2.1.1. Overhead:**

Bookkeeper wages	\$ 1,788.27
Office Supplies	\$ 2,500.00
Total:	\$ 4,288.27

2.1.2. Building Supplies:

800 feet of misc. Hardwood 800 X \$ 7.00	\$ 5,600.00
Bolts and Brass screws	\$ 4,000.00
Fuel for compressor and heaters	\$ 1,000.00
Electrical wire and conduit	\$ 3,000.00
Misc. Electrical supplies	\$10,000.00
Pattern making & bronze casting for parts	\$10,000.00
Misc. Building Materials (glue, sand paper, rivets, washers, nails, paint, etc.)	\$ 5,000.00
Total:	\$38,600.00

2.1.3. Tools:

Welding equipment (supplies & rental)	\$ 2,500.00
Wrenches	\$ 500.00
Clamps	\$ 400.00
Saw blades & sharpening	\$ 600.00
Grinding disks	\$ 1,000.00
Sand for Sand Blaster	\$ 600.00
Misc. electrical power tools (Drills, grinders, sanders, routers, etc.)	\$ 5,000.00
Misc. hand tools (hammers, pliers, chisels, pry-bars, paint brushes, etc.)	\$ 2,500.00
Misc. tool supplies (router bits, drill bits, and other accessories)	\$ 1,000.00
Bench Tools (table saw, planer, band saw, etc.)	\$ 5,000.00
Bench and Table tool repair service	\$ 1,000.00
Total:	\$20,100.00

2.1.4. General Supplies:

Fire Extinguishers/safety equip.	\$ 2,500.00
Total:	\$ 2,500.00
Total Overhead and Materials	\$65,488.27

B) Wages:**2.2.1. Professional Services:**

Raising the Tram on blocks and steel beams or/and lowering it back on to the trucks upon completion of repairs	\$ 6,000.00
Roof Canvas to be installed by contractor	\$12,000.00
Total:	<u>\$18,000.00</u>

2.2.2. Contract Crew Wages:

1 Master Metal Worker	\$800 X 26 weeks	\$20,800.00
1 Master Woodworker	\$800 X 26 weeks	\$20,800.00
1 Master Electrician	\$800 X 26 weeks	\$20,800.00
1 Helper	\$480 X 26 weeks	\$12,480.00
Net Contract Wages: (2.2.2.)		\$74,880.00
Gross Contract Wages / Services: (2.2.1. & 2.2.2.)		<u>\$92,880.00</u>

The Body:

A) Gross Overhead and Materials: (2.1.1. to 2.1.4.)	\$ 65,488.27
B) Gross Wages and Professional Services:(2.2.1. to 2.2.2.)	\$ 92,880.00

The Body Total: **\$158,368.27**

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Total:	1) The Mechanical	\$169,500.00
	2) The Body	\$158,368.27

Grand Total **\$327,868.27**

Plus all applicable taxes.

2.3.- Additional comments:

- Professional services will be required for the installation of the roof membrane. There is a synthetic product on the market that some railways and societies currently use for these types of vintage cars. Lexcan LTD. provides this product type: Standard Vinyl Membrane (2.3).

- The Body has already been set up on blocks. However, it will need to be lowered back on to the trucks, once the trucks are serviced and returned from Southern Railway. This is an operation that should be done only by professionals like Nickel Bros. or Pro-Tech Industrial Movers.

- After completion, professional services will again be required for the removal, transportation and installation of car # 1220 to electrified trackage.

SUMMARY AND CAUTIONARY NOTES:

TIME FRAME:

The trucks may take some months to be restored at Southern Railway, as they have to fit them into their current workload schedule and contract shop time. The tires alone have to be ordered at least a month in advance, then fitted and mounted.

A one year time frame for the restoration is quite realistic for this type of project, for booking trades, finding materials, hunting down rare or hard to find items or parts, or having them manufactured and so on. The project may well be finished under this time frame, but it could conceivably take longer.

The estimate proposes a realistic scenario based on current conditions.

COST REDUCTIONS:

Total estimated costs may be reduced or increased significantly depending on the difficulty in obtaining qualified crew, quality of motors and trucks, materials availability or rare items sought after or manufactured, and the time frame envisaged for full completion and operation.

Nevertheless, the restoration costs may be lowered by these 3 factors:

1- In the normal course of restoration, a great many parts will be salvaged and re-used in the re-construction, from metal to wood parts, to brass screws. If the salvage operation is successful, the materials budget may be cut significantly, depending on the quality of reclaimed parts.

2- The truck and motor work by Southern Railway and contract shops may also prove to be less than anticipated. Southern Railway estimates have ranged from \$50,000.00 to over \$100,000.00, mostly because of the difficulty in assessing the restoration of vintage mechanical and electrical parts. Once in the shop and taken apart, the trucks and motors may prove in better shape than previously estimated.

3- In addition, the estimated working time for trades may be considerably shorter due to a variety of factors, from the extent of restoration desired to a higher quality of structural and cosmetic preservation found. If all goes well, the Body restoration objective could be reached in perhaps less than the anticipated time frame of six months. There may not be an immediate necessity in reconstructing the window shades, for example, thereby saving a substantial amount of labour and expense.

These 3 factors alone could contingently lower the total estimated cost and completion time frame, thereby reducing the total restoration budget.

If the work can be completed in 6 months and barring any unforeseen problems, *it may be possible* to bring the costs down to:

<i>1) The Mechanical</i>	<i>\$ 84,750.00</i>
<i>2) The Body</i>	<i>\$ 79,184.13</i>

<i>Grand Total</i>	<i>\$163,934.13</i>
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Plus all applicable taxes.

Again, the estimate is a speculative quotation for budgetary purposes only.

If you require more information or have more questions, please do not hesitate to contact me at (604) 274-4811 or (604) 313-3589.

Thank you,

Michel Brisebois

Chair, Steveston Interurban Restoration Society (SIRS)