MR-63 CALL FOR PROPOSALS

Proposals may only be submitted online at: stm.info/mr63

Deadline for receiving proposals:
June 1, 2016 at 5:00 p.m. local time.

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1. ADMISSIBILITY

1.1 WHO CAN SUBMIT A PROPOSAL?

Any individual or organization (company, non-profit group, public or parapublic agency) wishing to develop an innovative project. Collaborative work involving different groups are also welcome. Anyone submitting a proposal must be able to carry out the project.

1.2 WHAT TYPE OF PROJECTS ARE ADMISSIBLE?

To be admissible and reviewed by the selection committee, the project proposal must comply with the evaluation criteria outlined in section 5. Application must include completed online submission form and all related documents.

Important:

The STM must receive project proposals no later than **June 1, 2016** at 5 p.m. local time.

Any interested individual (hereafter 'Bidder' for these purposes) is invited to take part in this Call for Proposals on a purely free and voluntary basis. Such participation falls strictly within the bounds of promoting their organization and Bidder shall bear any and all costs associated with this approach.

2. REQUIRED INFORMATION

- Coordinates of Bidder and past accomplishments;
- A detailed presentation that includes:
  - The name, overall concept and detailed description of project;
  - The location involved, indications about and/or description of selected site(s), if applicable;
  - The time frame involved and duration of project;
  - A description of sustainability measures included in carrying out project;
  - The cost and plans for funding;
  - A description of the anticipated scope, as well as economic spinoffs or benefits to tourism industry.
- Ready to fill out the online form? Please read *Checklist (*addenda A) a useful tool for ensuring that nothing is forgotten.
- Bidders must fill out the online application form available at stm.info/mr63.
- Any incomplete application will be rejected.
- Please note the STM will not accept any proposal (handwritten, printed or in electronic format) delivered in person.

The STM reserves the right to use, for any purpose whatsoever, any information or documentation obtained as part of this Call for Proposals. Any interested Bidder who wishes to keep the elements of their response confidential shall expressly state so. The whole is subject to the provisions of the *Act respecting Access to Documents Held by Public Bodies and the Protection of Personal Information* (R.L.R.Q., ch. A-2.1)

3. TIME FRAME FOR DELIVERY OF MÉTRO CARS

MR-63 cars will become available for special projects from the end of 2016 to Spring 2018.

IMPORTANT:

- For lack of space, the STM cannot, under any circumstance, provide on-site storage of métro cars for project Bidders. The pace of withdrawing MR-63 cars from service is directly related to the delivery of new AZUR cars. As such, they will become available as per STM's operational time frame.
- Submitted proposals are subject to a project schedule established by STM.
- Bidders and their transporter must take possession of MR-63 car(s) at the reception dock located at 8845, boulevard Saint-Laurent, Montréal, QC H2N 1M3 at their expense.

4. COSTS AND FEES RELATED TO ACQUIRING MR-63 CARS

Financing of project must be fully assumed by Bidder. Bidder is responsible for STM's preparation costs (removal of hazardous residual materials) as well as all costs for transporting MR-63 métro cars from STM' installations.

4.1 Sale prices correspond to car preparation costs

Motor car* = $1000

Trailer car* = $750

* In light of the great weight of trucks, all cars will be sold without them. The trucks will be sent directly to a recycling facility. Any bidder wishing to purchase a truck must explain their request in detail and the STM will take it under consideration.

See description of cars in section 7 of this document.

IMPORTANT:

If a Bidder's project proposal is selected, Bidder may not resell or transfer MR-63 trailer cars or motor cars or any of their components for reuse or any other usage by a third party regardless of the condition in which these cars or components are sold, without prior authorization from the STM.

4.2 Estimating all moving costs

In order to estimate the costs associated with their project, Bidders should take the following information into account: transportation costs described hereafter for moving a car on the Island of Montréal are estimated at $4,000 or more (transporter should allow about two (2) hours for loading and another two (2) hours for unloading from flatbed truck). Overtime for transportation is billed an hourly rate of $110 / hour. At the destination location, depending on site layout, two (2) cranes may be required to raise and move the car(s).

The average rate for renting a crane is roughly $185 / hour. Rental agreements normally include a six-hour (6 hr) minimum.

Lastly, depending on the nature of the project, Bidder must assume all other costs related to moving and installing the car(s) in their final placement on site. In light of the weight of cars and the fact they are without their trucks, various means for securing the cars must first be laid out on the ground on which the car(s) can securely rest.

Again, Bidders are fully responsible for ensuring they have all necessary permits to carry out their project and for ensuring the project's safety. The STM offers no guarantee and shall not be held liable in any way regarding the cars' future use.

4.3 Alteration costs

It is important to keep in mind that MR-63 cars were made of black, oxydizable steel, among other materials, and were designed for indoor use only, inside the métro system of tunnels, and therefore protected against the weather conditions.

STM is unable to estimate the costs of altering and adapting these cars for outdoor use. Promoters bear full responsibility for any and all such alterations, as well as all related costs. Also, the individual context and characteristics of each project proposal must be taken into account when evaluating these costs. Depending on the nature of a project, there could be big differences with regards to the costs and requirements of modifying cars, particularly in terms of handling, weather-proofing, insulation, ventilation, electricity, plumbing, infrastructure for project deployment and other required municipal services, if applicable. Bidders are responsible for doing their own research and making any arrangements, as well as for identifying any risks associated with their project, the details of which must also be included in their proposal. In light of the car's design, alterations could be particularly complex and expensive. In addition, Bidders bear full responsibility for all risks related to their project, thereby excluding the STM of any and all liability.

For complete details, please read Characteristics and Limitations for Outdoor Use of MR-63 Cars (addenda B).

5. EVALUATION OF PROPOSED PROJECTS

5.1 Selection process

The selection committee will start by reviewing proposals based on the evaluation criteria described in section 5.3. The results of their analysis will be presented to STM executive officers who, in turn, will submit a recommendation to STM's board of directors. The board will make a final determination and its decisions in this matter are final. The STM reserves the right to not select any project if none adequately meet all evaluation criteria.

5.2 Selection committee

The selection committee consists of:

- One STM representative for each of these divisions: sustainable development, environment, architecture, major projects, métro rolling stock, marketing, arts and heritage;
- One external member representing the design and architecture community;
- One external member representing the arts and heritage assets community;
- One external member representing the business community.

5.3 Evaluation criteria

We remind you that, first and foremost, **Bidder bears full responsibility for all risks related to their project, thereby excluding the STM of any and all liability.**

Below is a list of the criteria used to evaluate project proposals, regardless of whether said projects are temporary or permanent:

- **Image and heritage**: the project must have a positive impact on the STM's corporate image, as well as public scope and reach, and provide a collective experience for all.
- **Environment and sustainability**: the project must keep any negative impact on environment and community to a minimum, show that it complies with any objectives set for the deployment zone, and include a plan for the final disposal of MR-63 cars.
- **Quality of concept**: the project must be achievable (demonstrate its feasibility) and fully detailed, with objectives and target market clearly and precisely identified in project presentation.
- **Quality of proposal and guarantees for delivering on project**: the document must reflect the Bidder's clear understanding of all parameters, solid framework for the project, as well as financial and technical ability to carry out the project.
- **Feasibility and logistics**: the project's time frame and deployment must take into consideration the availability of MR-63 cars.

6. DEADLINE FOR SUBMITTING PROPOSALS AND PROCESSING TIME

- Proposals must be received no later than **June 1, 2016** at 5:00 p.m. local time.
- To submit a proposal, fill out the online form at stm.info/mr63.
- No project proposal can be submitted in person. Any incomplete application will be rejected.

- All Bidders will get an automatic reply confirming reception of their project proposal.
- Regardless of their proposal being selected or not, all Bidders will be notified, within a maximum thirty (30) weeks period of the closing time and date of the call for proposals. At that time, Bidders of selected proposals will receive information about subsequent steps.

7. MR-63 CAR SPECIFICATIONS

7.1 Train components

An MR-63 train consists of 9 cars, meaning 6 motor cars and 3 trailer cars.

7.1.1 Motor car

Definition: a lead car, equipped with two powered trucks that holds the operator's cab and all traction chain components.

List of main components:

- 7 three-pronged upright poles and one single support pole;
- 12 double seats;
- 8 single seats;
- 11 doors (8 for boarding passengers, one at car extremity, one to access front cab from inside and one to access cab from outside).

7.1.2 Trailer car

Definition: a middle car, equipped with two load-bearing trucks, with no operator cab.

List of main components:

- 8 three-pronged upright poles
- 12 double seats
- 8 single seats
- 10 doors (8 for boarding passengers and one door at each extremity of car)

7.1.3 Trucks

Definition: wheelbase made of steel wheels and rubber tires that supports and hold car bodies. Each car body rests on two (2) trucks that are mostly made of steel and extremely heavy. Powered trucks have two powered axles with differentials. Load-bearing trucks only have conventional axles.

Please read section 7.2 to learn more about the dimensions and weight of that component.

7.1.4 Car body

Definition: the body frame of a car without the trucks.

7.2 DIMENSIONS AND WEIGHT OF CARS

7.2.1 Dimensions – body frame

Length, over coupler faces (motor car)	17.196 m
Length, over coupler faces (trailer car)	16.421 m
Length, over end of car (motor car)	16.853 m
Length, over end of car (trailer car)	16.180 m
Width, over side sheets	2.515 m
Width, passenger doorway	1.295 m
Height, rail to roof (including trucks)	3.658 m
Height, interior at center aisle	2.134 m
Height passenger doorway	1.956 m

Basic car layouts are available on request. Illustrations are available in pdf, .tiff and .dwg formats. Make a request at mr63@stm.info.

7.2.2 Weight

The weight of a car and trucks are shown below. One car has two (2) trucks and one body frame.

Powered truck (2 per motor car)	13 600 kg
Load-bearing truck (2 per trailer car)	8 500 kg
Body frame (motor car)	12 482 kg
Body frame (trailer car)	11 685 kg
Total empty weight (motor car + 2 trucks)	26 082 kg
Total empty weight (trailer car + 2 trucks)	20 185 kg

For more details, please read *MR-63 Technical Data Sheet (*addenda C).

8. BASIC TIME FRAME

Steps	Time frame
Period to submit proposals	From March 15 to June 1, 2016 at 5 p.m. local time.
Analysis, selection and approval of chosen proposals	June to September 2016
Announcement of chosen projects	October 2016

9. TO REACH US

Should you have any questions or want a copy of car layouts, please contact us at this address: mr63@stm.info

ADDENDA A :
CHECKLIST – FOR MR- 63 PROJECT PROPOSALS

Are you about to fill out the online form? Keep this checklist close at hand in order to send us all of the required information to submit your project proposal.

It is important to keep in mind the limit on the number of characters for answering some fields (all fields are required).

Coordinates of **BIDDER**

- ☐ Email
- ☐ Name of organization
- ☐ Type of organization
- ☐ First name
- ☐ Last name
- ☐ Telephone number
- ☐ Address
- ☐ City
- ☐ Province
- ☐ Postal code (e.g. H3A 1L6)
- ☐ Presentation of organization's main achievements (1,500 characters max)

Outline of **PROJET**

- ☐ Title of project
- ☐ Concept (200 characters max)
- ☐ Targeted location (name and/or address, if applicable)
- ☐ Targeted time frame
- ☐ Duration of project, if temporary (number of days)
- ☐ Detailed description (1,500 characters max)
- ☐ Sustainability measures included in project (1,500 characters max)
- ☐ Document presenting project (PDF format, 10 Mo max)
- ☐ Action plan and schedule (PDF or Excel format, 2 Mo max)

Outline of **BUDGET**

- ☐ Total cost estimate
- ☐ Funding from partners or sponsors, if applicable (1,500 characters max)
- ☐ Production budget: estimated expenses and anticipated revenues (PDF or Excel format, 2 Mo max)
- ☐ Description of visibility and socioeconomic or tourism spin-offs (1,500 characters max)

IMPORTANT!

- To submit a project proposal, you must fill out all fields in the online form at: stm.info/mr63.
- Proposals must be received no later than **June 1, 2016** at 5 p.m., Montreal time.
- All bidders will get an automatic reply confirming reception of their project proposal.
- No project proposal can be submitted in person.
- Any incomplete proposal will be rejected.

Any questions? Contact us at this address: mr63@stm.info

ADDENDA B :
Characteristics and Limitations for Outdoor Use of MR-63 cars

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1. INTRODUCTION

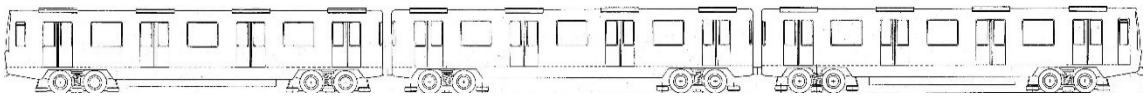
Following the inauguration of the Montréal Métro in 1966, and after most then 50 years of service, these aging cars, commonly known as MR-63, for *Matériel Roulant* or rolling stock, will soon be replaced by new AZUR cars. As such, STM must dispose of its MR-63 cars. This report is part of the MR-63 reclamation project and is aligned with the feasibility study that will allow project bureau staff to discuss and provide adequate direction for potential requests and projects for reusing these cars.

2. OBJECT

This report presents a summary overview of various elements and problems related to using MR-63 cars outside of the métro network. Also, this report is produced for information purposes only and STM shall in no way be liable for either its content or any actions that may be undertaken.

3. GENERAL CHARACTERISTICS OF MR-63 CARS

MR-63 trains consist of a maximum of three units. Each unit is made up of three cars, a trailer car flanked by a motor car at each end (see Figure 1). Each car consists of a body frame mounted on two trucks (see Figure 4). Both bodies and trucks feature different components depending on whether it is a motor car or a trailer car.



Motor car | Trailer car | Motor car

Figure 1 – Train unit

3.1 Dimensions

Figures 2, 3 and 4 show the general dimensions of MR-63 métro cars.

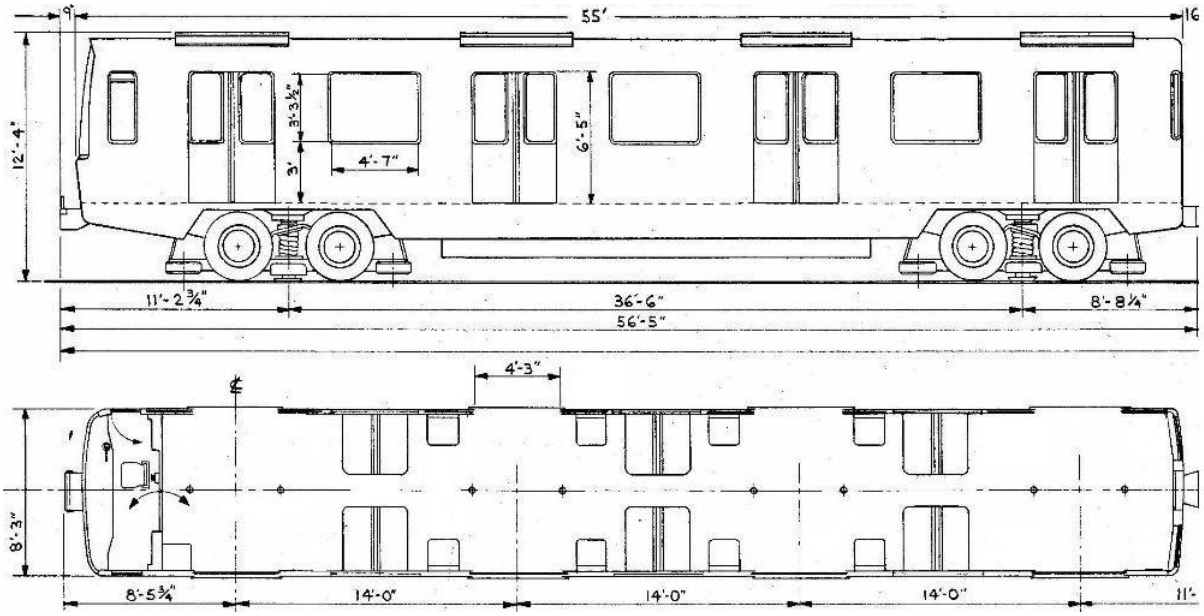


Figure 2 – General dimensions of a motor car

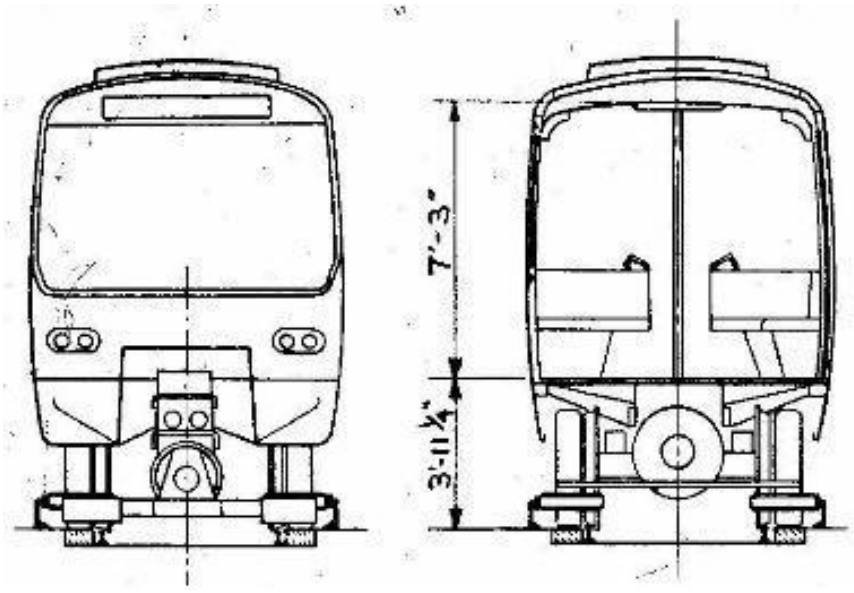


Figure 3 – General dimensions of a motor car

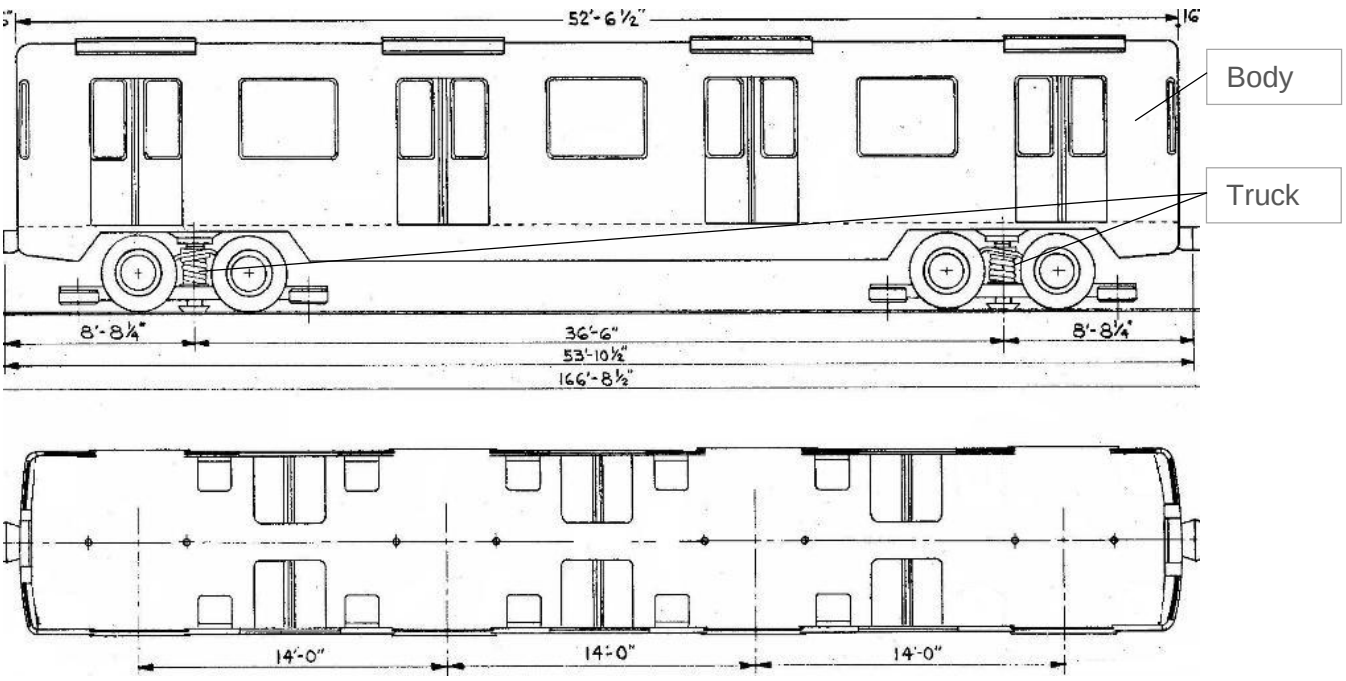


Figure 4 – General dimensions of a trailer car

3.2 Components and materials

For the most part, an MR-63 car is made of structural-quality steel parts, but can also include different metals, rubber, various electronic components, wood and glass. Also, some components may contain fluids, synthetic or composite materials. The train's exterior has a coat of polyurethane paint above another coat of paint that may contain lead or BPCs, among others.

3.3 Weight

A trailer car weighs about 20185 kg:

- Body = 11, 685 kg
  2 trucks = 8, 500 kg

A motor car weighs about 26,082 kg

- Body = 12,422 kg
- 2 trucks = 13,600 kg

3.4 Passenger capacity

MR-63 cars can hold 32 seated passengers and 77 standees. The overall load capacity is 10,866 kg per car, considering that weight is distributed over the entire floor surface.

3.5 Fire resistance

The majority of materials making up MR-63 cars are compliant with NFPA 130 requirements, even though that industry standard was initially introduced in 1983. This

can be explained by all interior and exterior finishes being completely replaced when the cars were refurbished in the 1990s.

3.6 Floor

The floor structure is made of plywood panels covered by a sheet of steel. The wear-resistant covering is made of ***Abrastop*** panels.

3.7 Electrical systems

3.7.1 Lighting

Existing ballast inverters run on 400 Hz and 225 AC voltage.

3.7.2 Ventilation

Ventilation inside cars consists of four air intake vents powered by motors running on 185 VCC. There is neither heating nor air conditioning inside passenger cars, contrary to the driver cab, where the air conditioning unit runs on 120 VAC and heating on 750 VCC.

3.7.3 Doors

There are four doors on each side of each car, activated by motors running on 75-volt DC.

4. LIMITATIONS

4.1 Usage outside of métro system

As there is no data pertaining to any history of outside usage, the limitations listed below are based on the cars' general design and the variable conditions to which they could be exposed. For this reason, and because of the wide range of conditions, this list is not exhaustive. Generally, any equipment not in use should be removed from the cars. Any usable parts will need to comply with any applicable standards governing their future use.

4.2 Rain / Humidity / Snow

Rain, humidity and snow are likely to produce the following effects:

- Under humid conditions, rust and corrosion are to be expected;
- Water infiltrations are possible at several locations (ceiling, equipment compartments, motors, doors);
- Rust at the bottom of car doors is an existing problem, and will possibly happen again if salt is present;
- Pollution from runoff (plated components, paint, etc.) is always possible;
- Condensation and frost in the windows is possible if temperature and humidity are not controlled;
- Humidity and ventilation should be monitored to prevent mould and mildew;
- Door or wheel mechanisms locking up due to ice, snow or rust is to be expected.

4.3 Sun / Light

Sun and light are likely to produce the following effects:

- Greenhouse effect from the sun shining through windows;
- Exposed to the sun, components like rubber, plastic and paint are expected to break down.

4.4 Temperatures

Temperatures are likely to have the following effects:

- Damage caused by freezing and accumulated water is to be expected;
- The lubrication of various door systems can alter according to usage and temperatures;
- Certain composite materials or plastics may become brittle when exposed to extreme cold or heat.

4.5 Other

These other factors are also likely to produce the following effects:

- Separating the trucks and body frame may prove difficult once car has left the workshop;
- Load distribution on the car floor and structure remains to be determined according to its use, in order to not damage the structure or its components;
- Depending on future use, it may be necessary to limit degree of slope or grade for resting/moving car;
- Organic matter may penetrate car body due to wind;
- Replacing components may prove difficult should any be damaged or stolen (metals, seats, windows);
- Double layer walls, ceilings and other areas require upkeep and will likely provide shelter for a variety of living organisms.

4.6 Anticipated alteration work

Work may be needed depending on how the car will be:

- It may be necessary to check the ventilation system;
- Expect to have to perform work on the roof, especially to prevent water infiltrations. A permanent structure could be installed above to protect it;
- Anticipate changes regarding the type of supply current for electrification or electrical work (cables and electrical panels);
- Depending on which parts must be removed from under the body frame, plan for having cranes to lift the body to separate it from the trucks and provide access to tight spaces;
- It may be necessary to modify the doors at each end of trailer cars as some have connecting doors that feature open grillwork instead of windows;
- Insulating walls, doors, floors, ceiling and windows for cold weather and heating;
- It may be necessary to review the evacuation plan, and designate a location for a fire extinguisher.

4.7 Costs

As alteration costs are directly related to their use and how they were altered, we are unable to determine costs at this time.

4.8 Durability

As the durability of cars is directly related to their use and how they were altered, we are unable to determine durability at this time.

5. HAZARDOUS MATERIALS

MR-63 cars are made up of various materials that, in light of several laws and regulations, are considered to be hazardous residual matter. The STM has committed to removing all hazardous material from its cars, as per applicable laws and regulations, prior to transferring ownership to a bidder. In their current use and state, these materials obviously have no incidence on the health and well-being of métro employees and customers.

6. EXTERIOR FINISH OF MR-63 BODY FRAME

6.1 Overall refurbishment of body frames in the 1990s

When métro car body frames were refurbished, the following products, among others, were used:

- Vinyl rust inhibitive primer
- Zinc chromate epoxy primer
- Polyurethane primer
- Epoxy-type mastic filler
- Acrylic-based polyurethane paint
- Primer-sealer
- Catalysts

The interior finish includes, among others, the following products:

- Coat of zinc chromate primer
- Corrosion-resistant sealer (Fel-Pro Maxi-Coat).

Keep in mind that several other products were tried out when the MR-63 cars were refurbished.

6.2 Exterior coating of MR-63 body frames prior to the 1990s

As it happens, we have very little information about fillers and paint applied to MR-63 body frames back in the 1960s, when the cars were originally built. The paint was chemically much less resistant than polyurethane paint, and was maybe even alkyd-based paint.

At the time, paints could contain lead or BPCs, among others. Filler compounds used at the time, primers, as well as their ingredients are also largely unknown. Such products may still be found on some cars that did not undergo structural repairs or have any section of body frame replaced. Any such products would be under the paint applied in the 1990s.

ADDENDA C :
MR-63 SPECIFICATIONS

MR-63

Type of vehicle	Rubber-tired rapid transit car

CAPACITY

Number of seats	32
Number of standees	77
Total number of passengers	109

DIMENSIONS - BODY

Length, over coupler faces (motor car)	17.196 m
Length, over coupler faces (trailer car)	16.421 m
Length, over end of car (motor car)	16.853 m
Length, over end of car (trailer car)	16.180 m
Width, over side sheets	2.515 m
Width, doorway	1.295 m
Height, rail to roof (including trucks)	3.658 m
Height, interior at center aisle	2.134 m
Doorway height	1.956 m

WEIGHT

Empty weight (motor car)	26 082 kg
Empty weight (trailer car)	20 185 kg
Gross weight (motor car)	36 967 kg
Gross weight (trailer car)	31 070 kg

DIMENSIONS – TRUCK

Tire dimensions	Michelin XPMA 345/85R16 Bridgestone E13.50/85R16
Truck wheelbase	1.540 m
Truck centres	11.125 m
Track gauge	1.435 m

ELECTRICAL SYSTEM

Nominal line voltage	750 VDC
Low voltage power supply	Static converter 3 ph. 120/208 VAC & 72 VDC
Traction motor, cont. rating	125 kw (168 hp) at 375 VDC
Traction motor, 1-hr rating	131 kw (176 hp)
Number of motors / truck	Two (2)

MISCELLANEOUS

Gear ratio	9.25:1
Gear box type	Gear and pinion differential
Truck type	H frame, fabricated steel
Primary suspension	Rubber
Secondary suspension	Eligo rubber / steel spring
Brakes	Tread, pneumatic & electrical
Motor control	JH combinator
Power collection	Third rail
Ventilation	Yes
Heating and air conditioning	Operator cab only
Car body	LAHT low-alloy high-tensile steel
Number of trucks	Two (2)
Number of powered trucks	Two (2) per motor car

PERFORMANCE

Maximum service speed	72.5 km/h
Acceleration rate (maximum)	1.43 m/s^2
Braking rate - service with 120 passengers	1.79 m/s^2
Braking rate - emergency with 160 passengers	1.79 m/s^2
Maximum grade	6,50%
Minimum radius horizontal	46 m

Basic car layouts/plans are available on request in pdf, .tiff and .dwg formats.
Would you like to see them? Write to us at mr63@stm.info.