

THIS PRINT COVERS CALENDAR ITEM NO. : 10.4

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY**

DIVISION: Transit Services

BRIEF DESCRIPTION:

Authorizing the Director of Transportation to execute Contract No. CPT 660 with Brookville Equipment Corporation to rehabilitate 16 PCC Historic Streetcars and to furnish related tools, training and spare parts, in an amount not to exceed \$34,482,428 and for a term not to exceed six years.

SUMMARY:

- As part of its regular daily service, the SFMTA operates 32 President’s Conference Committee streetcars (PCCs) 21 hours per day, 365 days a year, on Muni's F-Line.
- Of these, 16 have reached the end of their useful life, as they have been in revenue service since 1993, after they were acquired from the Southeastern Pennsylvania Transportation Authority (SEPTA) and rehabilitated by the SFMTA.
- This program is to perform an end-of-life rebuild of the 16 PCCs to extend their useful life for at least 10 years.
- The end-of-life rebuild will completely rehabilitate these PCCs to bring them into a state of good repair and thereby increase their reliability and availability.
- This project will be funded by a combination of federal formula funds and local matching funds.

ENCLOSURES:

1. SFMTA Board Resolution
2. Contract with Brookville Equipment Corporation

APPROVALS:

DATE

DIRECTOR _____ 5/12/14 _____

SECRETARY _____ 5/12/14 _____

ASSIGNED SFMTAB CALENDAR DATE: May 20, 2014

PURPOSE:

The purpose of this calendar item is to request authorization for the Director of Transportation to execute Contract No. CPT 660 - Complete Rehabilitation of 16 Ex-SEPTA PCC Historic Streetcars, with Brookville Equipment Corporation.

GOAL:

Rehabilitating these PCCs will improve availability and reliability of the historic streetcar fleet and meet the following goals and objectives of the SFMTA's Strategic Plan:

Goal 2: Make transit, walking, bicycling taxi, ridesharing and carsharing the preferred means of travel.

Objective No. 2.1: Improve transit performance

Goal 3: Improve the environment and quality of life in San Francisco

Objective No. 3.1: Reduce the Agency's and the transportation system's resource consumption, emissions, waste and noise

DESCRIPTION:

SFMTA's fleet of active historic streetcars includes 32 PCCs, 10 Peter Witt (Milan) cars and eight vintage streetcars.

Under this project, 16 of the PCCs that are currently in revenue service will be completely rehabilitated. This end-of-life rebuild will completely rehabilitate the PCCs to improve their availability and reliability and reduce unscheduled maintenance and repair costs. The rebuild will allow the vehicles to extend their useful life a minimum of 10 years, in accordance with FTA Circular 5010.D. The Circular defines "rebuild" as "a recondition at the end of useful life that creates additional useful life. Rebuild is a capital expense incurred at or near the end of the rolling stock's useful life that results in a new useful life of the rolling stock that is consistent with the extent of the rebuilding."

The SFMTA recently completed a similar project with Brookville Equipment Corporation wherein the other set of 16 PCCs were rehabilitated and are now in revenue service.

SCOPE OF WORK:

The rehabilitation work will include a complete disassembly of the vehicle; rebuilding of the carbody, underfloor, trucks, doors systems and passenger area; installation of a new Westinghouse-type propulsion system; all new wiring, power supply, lighting and a video surveillance system; and all necessary work that may be uncovered when the car is disassembled. The contractor will provide all subcontracted repairs, warranties, labor, inspections, engineering, tools, materials, parts, facilities and equipment required to complete this work, including pick-up and delivery of the PCCs and all testing prior to delivery and acceptance of the vehicles. The Contractor will perform most rehabilitation work at its facility in Brookville, Pennsylvania; however, work on some systems may be performed at locations of suppliers.

PROCUREMENT:

On April 2, 2013, the SFMTA Board approved Resolution No. 13-040, authorizing the Director of Transportation to issue a Request for Proposals (RFP) for Contract No. CPT 660 – Complete Rehabilitation of 16 Ex-SEPTA PCC Historic Streetcars. The RFP was advertised on April 5, 2013, with a due date for proposals of July 3, 2013. After several inquiries and request for extensions of the proposal due date from prospective vendors, the SFMTA extended the date to October 30, 2013. Four vendors submitted proposals in response to the RFP, namely, Alstom, Brookville Equipment Corporation, Complete Coach Works and Siemens.

The proposals were evaluated and scored by a technical evaluation committee consisting of three maintenance staff and one fleet engineering staff. All vendors received scores that allowed them to be within the competitive range and were invited to make oral presentations to the evaluation committee in January 2014. The vendors also submitted their price proposals during their oral presentation. The price proposals were evaluated by a separate price committee.

When the SFMTA opened the price proposal of Siemens, the SFMTA discovered that there were significant exceptions to the terms and conditions, which rendered the proposal non-responsive. Of the remaining proposers, Brookville Equipment Corporation received the highest score and its proposal was determined to be responsive. There were no protests from the vendors.

The Contract Compliance Office determined that Brookville Equipment Corporation has demonstrated a commitment to meet the 5% SBE participation goal for this Contract.

The City Attorney's Office has reviewed this calendar item.

ALTERNATIVES CONSIDERED:

The alternative considered was to repair or replace these systems as they fail during service. However, since these vehicles have already reached the end of their useful life, we anticipate that failures of the various systems in the vehicles will be frequent and significant and will negatively impact vehicle availability and reliability. In addition, the unscheduled maintenance and labor costs would also negatively impact Muni's operating budget.

FUNDING IMPACT:

This project will be funded from grants from the Federal Transit Administration, RM2 bridge toll funds, AB664 bridge toll funds and Proposition K local sales tax funds programmed for this project. The project is included in the agency's adopted FY13-FY17 Capital Improvement Program, approved by the SFMTA Board in 2012.

OTHER APPROVALS RECEIVED OR STILL REQUIRED:

The Contract will require approval from the Board of Supervisors.

The Civil Service Commission approved this project on March 18, 2013.

RECOMMENDATION:

Staff recommends that the SFMTA Board authorize the Director of Transportation to execute Contract No. CPT 660 - Complete Rehabilitation of 16 Ex-SEPTA PCC Historic Streetcars.

SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS

RESOLUTION No. _____

WHEREAS, As part of its regular daily service, the San Francisco Municipal Transportation Agency (SFMTA) operates 32 President's Conference Committee (PCC) streetcars, 21 hours per day, 365 days a year, on Muni's F-Line; and,

WHEREAS, 16 of the 32 PCCs have reached the end of their useful life since they have been in revenue service from 1993, after they were acquired from the Southeastern Pennsylvania Transportation Authority (SEPTA) and rehabilitated by the SFMTA; and,

WHEREAS, This program is to perform an end-of life rebuild of the 16 PCCs to extend their useful life for at least 10 years and increase their reliability and availability; and,

WHEREAS, The SFMTA Board approved Resolution No. 13-040 on April 2, 2013, authorizing the Director of Transportation to issue a Request for Proposals (RFP) for the end-of-life rebuild of these 16 PCCs; and,

WHEREAS, SFMTA issued the RFP on April 5, 2013; four vendors submitted proposals in response to the RFP on October 30, 2013, and one vendor was determined to be non-responsive; and,

WHEREAS, After conducting an evaluation of the proposals, oral presentations and price proposals, Brookville Equipment Corporation received the highest score and its proposal was determined to be responsive; and,

WHEREAS, The scope of work includes a complete disassembly of the vehicle; rebuilding of the carbody, underfloor, trucks, doors systems and passenger area; installation of a new Westinghouse-type propulsion system; all new wiring, power supply, lighting and a video surveillance system; and all necessary work that may be uncovered when the car is disassembled; and,

WHEREAS, This project will be funded by a combination of federal formula funds and local matching funds; therefore be it

RESOLVED, That the San Francisco Municipal Transportation Agency Board of Directors authorizes the Director of Transportation execute Contract No. CPT 660: Complete Rehabilitation of 16 Ex-SEPTA PCC Historic Streetcars with Brookville Equipment Corporation, to rehabilitate 16 PCC Historic Streetcars and to furnish related tools, training and spare parts, in an amount not to exceed \$34,482,428 and for a term not to exceed six years; and be it further

RESOLVED, That the SFMTA Board of Directors recommends that the Board of Supervisors approve the Contract.

I certify that the foregoing resolution was adopted by the Municipal Transportation Agency Board of Directors at its meeting of May 20, 2014.

Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

**CITY AND COUNTY OF SAN FRANCISCO
San Francisco Municipal Transportation Agency**

Complete Rehabilitation of 16 PCC Historic Streetcars

**CONTRACT No. 660
(CCO No. 13-1241)**

VOLUME 1

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**City and County of San Francisco
San Francisco Municipal Transportation Agency
One South Van Ness 7th Floor
San Francisco, California 94103**

**Agreement between the City and County of San Francisco and
Brookville Equipment Corporation**

This Agreement is made this _____ day of _____, 2014, in the City and County of San Francisco, State of California, by and between: Brookville Equipment Corporation, a Pennsylvania corporation (“Contractor”), and the City and County of San Francisco, a municipal corporation (“City”), acting by and through its San Francisco Municipal Transportation Agency ("SFMTA”).

Recitals

A. SFMTA wishes to obtain the services of a qualified firm to perform system replacement and rehabilitation for up to 16 Presidential Conference Commission (PCC) Vehicles in its fleet.

B. A. Request for Proposals (RFP) was issued on April 1, 2013, and City selected Contractor as the highest-qualified proposer pursuant to the RFP.

C. Contractor represents and warrants that it is qualified to perform the services required by City as set forth under this Contract.

D. Approval for said Agreement was obtained from a Civil Service Commission Notice of Action for Contract Number 4093/12-13 on March 18, 2013.

Now, THEREFORE, the parties agree as follows:

Definitions

Where any word or phrase defined below, or a pronoun used in place thereof, is used in any part of the Conformed Contract Documents, it shall have the meaning set forth herein.

Acceptance: The formal written acceptance by the City and County of San Francisco that all work, or a specific portion thereof, under the contract has been satisfactorily completed.

Award: Notification from the City to Contractor of acceptance of Contractor’s proposal, subject to the execution and approval of a satisfactory Contract therefore and bond to secure the performance thereof, and to such other conditions as may be specified or otherwise required by law.

Cars: SFMTA Presidential Conference Commission Streetcars, also referred to as "PCCs" and "Vehicles."

Certification: Certification by the Controller that funds necessary to make payments as required under the contract are available in accordance with the City's Charter.

City: City and County of San Francisco, a municipal corporation.

Conformed Contract Documents: The Contract documents revised to incorporate information included in the Contractor's Proposal and accepted by the City.

Contract (Agreement): The written Contract executed by the City and Contractor, covering the performance of the work and furnishing of labor, materials, equipment, tools, and services, including work incidental to the procurement, to include the Technical Specifications, all Conformed Contract Documents, Contractor's Proposal, the Contract bonds or other security, and all supplemental agreements.

Contract Modification: A written order, issued by the City to Contractor, covering changes in the Contract documents within the general scope of the Contract and establishing the basis of payment and time adjustments for the work affected by the changes.

Contractor: The proposer to whom award is made.

Controller: Controller of the City.

Days: Unless otherwise designated, the word "days" refers to working days of the City.

Engineer: The SFMTA Engineer assigned to the Contract or designated agent.

Final Acceptance: The formal written acceptance by the Director of Transportation that all contract deliverables for the Contract have been satisfactorily completed and accepted. This will authorize the Project Manager to release the final payment, including all retention, to the Contractor.

Muni: The San Francisco Municipal Railway, the public transit system of the City under the supervision and control of the San Francisco Municipal Transportation Agency.

Notice To Proceed: A written notice to the Contractor of the date on which it shall begin prosecution of the work to be done under the contract.

Project Manager: The Project Manager assigned to the Contract for the SFMTA, or designated agent.

Proposal: The technical and management information and prices submitted by Contractor in response to the Request for Proposals.

Request for Proposals; RFP: The Request for Proposals issued by the SFMTA on (Date), for component life cycle rehabilitation for 16 PCC Vehicles.

SFMTA: The San Francisco Municipal Transportation Agency, an agency of the City with responsibility for the Municipal Railway and the Division of Sustainable Streets (Parking and Traffic).

Subcontractor: Any individual, partnership, firm, or corporation, which undertakes integrally on the Project the partial or total design, manufacture, or performance of one or more items of work under the terms of the contract. As used herein, the terms subcontractor and supplier are synonymous.

Technical Specifications: The portion of the Conformed Contract Documents that contain the specifications, provisions, and requirements that detail the work and the materials, products (including the methods of manufacture, construction, assembly, and testing), and other requirements relative thereto.

Work: The furnishing of all labor, supervision, services, products, materials, machinery, equipment, tools, supplies, and facilities and the performance of all requirements called for by the Contract and necessary to the completion thereof.

1 Certification of Funds; Budget and Fiscal Provisions; Termination in the Event of Non-Appropriation

- 1.1** This Agreement is subject to the budget and fiscal provisions of the City's Charter. Charges will accrue only after prior written authorization certified by the Controller, and the amount of City's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization.
- 1.2** This Agreement will terminate without penalty, liability or expense of any kind to City at the end of any fiscal year if funds are not appropriated for the next succeeding fiscal year. If funds are appropriated for a portion of the fiscal year, this Agreement will terminate, without penalty, liability or expense of any kind at the end of the term for which funds are appropriated.
- 1.3** City has no obligation to make appropriations for this Agreement in lieu of appropriations for new or other agreements. City budget decisions are subject to the discretion of the Mayor and the Board of Supervisors. Contractor's assumption of risk of possible non-appropriation is part of the consideration for this Agreement.

THIS SECTION CONTROLS AGAINST ANY AND ALL OTHER PROVISIONS OF THIS AGREEMENT.

2 Term of the Agreement

Subject to Section 1, the term of this Agreement shall not exceed six years from the Effective Date.

3 Effective Date of Agreement

This Agreement shall become effective when the Controller has certified to the availability of funds and Contractor has been notified in writing.

4 Services Contractor Agrees to Perform

The Contractor agrees to perform the services provided for in the Technical Specifications, and in the Contractor's Proposal (as incorporated into the Conformed Contract Documents), according to the Project Delivery Schedule set forth in Exhibit B.

5 Compensation

- 5.1** In no event shall the amount of this Agreement exceed Thirty-Four Million, Four Hundred Eighty-Two Thousand, Four Hundred Twenty-Eight Dollars (\$34,482,428). The breakdown of costs associated with this Agreement appears in the Price Schedule (Exhibit C) and Payment Schedule (Exhibit D), incorporated by reference as though fully set forth herein.
- 5.2** No charges shall be incurred under this Agreement nor shall any payments become due to Contractor until reports, services, or both, required under this Agreement are received from Contractor and approved by SFMTA as being in accordance with this Agreement. City may withhold payment to Contractor in any instance in which Contractor has failed or refused to satisfy any material obligation provided for under this Agreement.
- 5.3** In no event shall City be liable for interest or late charges for any late payments. City will not make price adjustments to this Contract to protect Contractor from economic inflation.

6 Guaranteed Maximum Costs

- 6.1** The City's obligation hereunder shall not at any time exceed the amount certified by the Controller for the purpose and period stated in such certification.
- 6.2** Except as may be provided by laws governing emergency procedures, officers and employees of the City are not authorized to request, and the City is not required to reimburse the Contractor for, Commodities or Services beyond the agreed upon contract scope unless the changed scope is authorized by amendment and approved as required by law.
- 6.3** Officers and employees of the City are not authorized to offer or promise, nor is the City required to honor, any offered or promised additional funding in excess of the maximum amount of funding for which the contract is certified without certification of the additional amount by the Controller.
- 6.4** The Controller is not authorized to make payments on any contract for which funds have not been certified as available in the budget or by supplemental appropriation.

7 Payment; Invoice Format

Invoices furnished by Contractor under this Agreement must be in a form acceptable to the Controller, and must include the Contract Progress Payment Authorization number. All amounts paid by City to Contractor shall be subject to audit by City. Progress payments shall be made by the City to Contractor at the address specified in the section entitled "Notices to the Parties." Progress payments shall be made as set forth in the Payment Schedule (Exhibit D).

8 Submitting False Claims; Monetary Penalties

Pursuant to San Francisco Administrative Code §21.35, any contractor, subcontractor or consultant who submits a false claim shall be liable to the City for three times the amount of damages which the City sustains because of the false claim. A contractor, subcontractor or consultant who submits a false claim shall also be liable to the City for the costs, including attorneys' fees, of a civil action brought to recover any of those penalties or damages, and may be liable to the City for a civil penalty of up to \$10,000 for each false claim. A contractor, subcontractor or consultant will be deemed to have submitted a false claim to the City if the contractor, subcontractor or consultant: (a) knowingly presents or causes to be presented to an officer or employee of the City a false claim or request for payment or approval; (b) knowingly makes, uses, or causes to be made or used a false record or statement to get a false claim paid or approved by the City; (c) conspires to defraud the City by getting a false claim allowed or paid by the City; (d) knowingly makes, uses, or causes to be made or used a false record or statement to conceal, avoid, or decrease an obligation to pay or transmit money or property to the City; or (e) is a beneficiary of an inadvertent submission of a false claim to the City, subsequently discovers the falsity of the claim, and fails to disclose the false claim to the City within a reasonable time after discovery of the false claim.

9 Disallowance

If Contractor claims or receives payment from City for a service, reimbursement for which is later disallowed by the State of California or United States Government, Contractor shall promptly refund the disallowed amount to City upon City's request. At its option, City may offset the amount disallowed from any payment due or to become due to Contractor under this Agreement or any other Agreement.

10 Taxes

10.1 Payment of Taxes. Payment of any taxes, including possessory interest taxes and California sales and use taxes, levied upon or as a result of this Agreement, or the services delivered pursuant hereto, shall be the obligation of Contractor.

10.2 Possessory Interest. Contractor recognizes and understands that this Agreement may create a "possessory interest" for property tax purposes. Generally, such a possessory interest is not created unless the Agreement entitles the Contractor to possession, occupancy, or use of City property for private gain. If such a possessory interest is created, then the following shall apply:

10.1.1 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that Contractor, and any permitted successors and assigns, may be subject to real property tax assessments on the possessory interest;

10.1.2 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that the creation, extension, renewal, or assignment of this Agreement may result in a "change in ownership" for purposes of real property taxes, and therefore may result in a revaluation of any possessory

interest created by this Agreement. Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report on behalf of the City to the County Assessor the information required by Revenue and Taxation Code section 480.5, as amended from time to time, and any successor provision.

10.1.3 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that other events also may cause a change of ownership of the possessory interest and result in the revaluation of the possessory interest. (see, e.g., Rev. & Tax. Code section 64, as amended from time to time). Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report any change in ownership to the County Assessor, the State Board of Equalization or other public agency as required by law.

10.1.4 Contractor further agrees to provide such other information as may be requested by the City to enable the City to comply with any reporting requirements for possessory interests that are imposed by applicable law.

11 Payment Does Not Imply Acceptance of Work

The granting of any payment by City, or the receipt thereof by Contractor, shall in no way lessen the liability of Contractor to replace unsatisfactory work, equipment, or materials, although the unsatisfactory character of such work, equipment or materials may not have been apparent or detected at the time such payment was made. Materials, equipment, components, or workmanship that does not conform to the requirements of this Agreement may be rejected by City and in such case must be replaced by Contractor without delay.

12 Qualified Personnel

Work under this Agreement shall be performed only by competent personnel under the supervision of and in the employment of Contractor. Contractor will comply with City's reasonable requests regarding assignment of personnel, but all personnel, including those assigned at City's request, must be supervised by Contractor. Contractor shall commit adequate resources to complete the project within the project schedule specified in this Agreement.

13 Responsibility for Equipment

City shall not be responsible for any damage to persons or property as a result of the use, misuse or failure of any equipment used by Contractor, or by any of its employees, even though such equipment be furnished, rented or loaned to Contractor by City.

14 Independent Contractor; Payment of Taxes and Other Expenses

14.1 Independent Contractor. Contractor or any agent or employee of Contractor shall be deemed at all times to be an independent contractor and is wholly responsible for the manner in which it performs the services and work requested by City under this Agreement. Contractor or any agent or employee of Contractor shall not have employee status with City, nor be entitled to participate in any plans, arrangements, or distributions

by City pertaining to or in connection with any retirement, health or other benefits that City may offer its employees. Contractor or any agent or employee of Contractor is liable for the acts and omissions of itself, its employees and its agents. Contractor shall be responsible for all obligations and payments, whether imposed by federal, state or local law, including, but not limited to, FICA, income tax withholdings, unemployment compensation, insurance, and other similar responsibilities related to Contractor's performing services and work, or any agent or employee of Contractor providing same. Nothing in this Agreement shall be construed as creating an employment or agency relationship between City and Contractor or any agent or employee of Contractor.

Any terms in this Agreement referring to direction from City shall be construed as providing for direction as to policy and the result of Contractor's work only, and not as to the means by which such a result is obtained. City does not retain the right to control the means or the method by which Contractor performs work under this Agreement.

14.2 Payment of Taxes and Other Expenses. Should City, in its discretion, or a relevant taxing authority such as the Internal Revenue Service or the State Employment Development Division, or both, determine that Contractor is an employee for purposes of collection of any employment taxes, the amounts payable under this Agreement shall be reduced by amounts equal to both the employee and employer portions of the tax due (and offsetting any credits for amounts already paid by Contractor which can be applied against this liability). City shall then forward those amounts to the relevant taxing authority.

Should a relevant taxing authority determine a liability for past services performed by Contractor for City, upon notification of such fact by City, Contractor shall promptly remit such amount due or arrange with City to have the amount due withheld from future payments to Contractor under this Agreement (again, offsetting any amounts already paid by Contractor which can be applied as a credit against such liability).

A determination of employment status pursuant to the preceding two paragraphs shall be solely for the purposes of the particular tax in question, and for all other purposes of this Agreement, Contractor shall not be considered an employee of City. Notwithstanding the foregoing, should any court, arbitrator, or administrative authority determine that Contractor is an employee for any other purpose, then Contractor agrees to a reduction in City's financial liability so that City's total expenses under this Agreement are not greater than they would have been had the court, arbitrator, or administrative authority determined that Contractor was not an employee.

15 Insurance; Bonds

15.1 Insurance

15.1.1 Without in any way limiting Contractor's liability pursuant to the "Indemnification" section of his Agreement, Contractor shall maintain in force, during the full term of the Agreement, insurance in the following amounts and coverage's:

- (a) Workers' Compensation, in statutory amounts, with Employers' Liability Limits not less than \$1,000,000 each accident, illness or injury. The Worker's Compensation policy shall be endorsed with a waiver of subrogation in favor of the City for all work performed by the Consultant, its employees, agents and subcontractors; and
- (b) Commercial General Liability Insurance with limits not less than \$2,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Contractual Liability, Personal Injury, Products and Completed Operations; and
- (c) Commercial Automobile Liability Insurance with limits not less than \$1,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Owned, Non-Owned and Hired auto coverage, as applicable.
- (d) Garage Liability insurance, including coverage for garage operations arising from premises/operations, product/completed operations, contracts, owned vehicles, non-owned vehicles and damage to vehicles owned by others (bailment): Minimum limit of liability of \$2,000,000 each occurrence combined single limit bodily injury and property damage; and
- (e) Garage keepers' legal liability insurance, comprehensive form, with limits not less than \$2,000,000 each occurrence.
- (f) The shipping contractor shall carry, at a minimum, physical damage insurance (including destruction, damage, fire and theft) in the amount of not less than \$1,000,000 and commercial liability insurance in the amount of not less than \$1,000,000.

15.1.2 Commercial General Liability, Business Automobile Liability Insurance, Garagekeepers' Legal Liability and Shippers Coverage policies must provide the following:

- (a) Name as Additional Insured the City and County of San Francisco, its Officers, Agents, and Employees.
- (b) That such policies are primary insurance to any other insurance available to the Additional Insured, with respect to any claims arising out of this Agreement, and that insurance applies separately to each insured against whom claim is made or suit is brought.

15.1.3 Waiver of Subrogation – Contractor agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation.

15.1.4 All policies (and bonds, as described in Section 15.2 below) shall provide 30 days' advance written notice to City of cancellation or reduction in coverage for any reason, mailed to the following address:

San Francisco Municipal Transportation Agency
 425 Geneva Avenue, Room 210
 San Francisco, 94112
 Attn: Mr. Louis Maffei
 Contract No. CPT 660

- 15.1.5** Should any of the required insurance be provided under a claims-made form, Contractor shall maintain such coverage continuously throughout the term of this Agreement and, without lapse, for a period of three years beyond the expiration of this Agreement, to the effect that, should occurrences during the contract term give rise to claims made after expiration of the Agreement, such claims shall be covered by such claims-made policies
- 15.1.6** Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit or provides that claims investigation or legal defense costs be included in such general annual aggregate limit, such general annual aggregate limit shall be double the occurrence or claims limits specified above.
- 15.1.7** Should any required insurance lapse during the term of this Agreement, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this Agreement, effective as of the lapse date. If insurance is not reinstated, the City may, at its sole option, terminate this Agreement effective on the date of such lapse of insurance.
- 15.1.8** Before commencing any operations under this Agreement, Contractor shall do the following: (a) furnish to City certificates of insurance, and additional insured policy endorsements with insurers with ratings comparable to AM Best A-, VIII or higher, that are authorized to do business in the State of California, and that are satisfactory to City, in form evidencing all coverage's set forth above, and (b) furnish complete copies of policies promptly upon City request.
- 15.1.9** Approval of the insurance by City shall not relieve or decrease the liability of Contractor hereunder.
- 15.1.10** If a subcontractor will be used to complete any portion of this agreement, the Contractor shall ensure that the subcontractor shall provide all necessary insurance and shall name the City and County of San Francisco, its officers, agents and employees and the Contractor listed as additional insureds.

15.2 Bonds

- 15.2.1** Within 20 days following the receipt of a notice of recommended award of contract and until completion of all Contract obligations and acceptance by City of the final Vehicle, the Contractor shall furnish to City a performance and a labor and materials bond each in an amount not less than 50 percent of the Contract amount to guarantee Contractor's faithful performance of all obligations of the Contract, including warranty obligations in existence until the last Vehicle is accepted, and to guarantee Contractor's payment to all suppliers of labor and materials under this Contract, excluding the period covered by the warranty bond described in Subsection (b) below.
- 15.2.2** From acceptance by City of the last Vehicle, and throughout the warranty period of the last Vehicle accepted, Contractor shall supply a maintenance or warranty bond or irrevocable letter of credit in the amount of \$500,000 to guarantee Contractor's warranty of performance of all the Vehicles with unexpired warranties at the time of issuance of the warranty bond.
- 15.2.3** Bonding entities on the performance bond must be legally authorized to engage in the business of furnishing performance bonds in the State of California. All

bonding entities or letter of credit must be satisfactory to SFMTA and to the Controller and Risk Manager of the City and County of San Francisco.

15.2.4 During the period covered by the Agreement, if any of the sureties upon the bond shall have an AM Best rating that falls below A-, VIII or become insolvent and unable to pay promptly the amount of such bond to the extent to which the surety might be liable, Contractor, within 30 days after notice given by SFMTA to Contractor, shall by supplemental bond or otherwise, substitute another and sufficient surety approved by SFMTA in place of the surety becoming insolvent or unable to pay. If Contractor fails within such 30-day period to substitute another and sufficient surety, Contractor, if SFMTA so elects, shall be deemed to be in default in the performance of its obligations hereunder and upon the said bond. The City, in addition to any and all other remedies, may terminate the Agreement or bring any proper suit or proceeding against moneys then due or which thereafter may become due Contractor under the Agreement. The amount for which the surety shall have justified on the bond and the moneys so deducted shall be held by City as collateral for the performance of the conditions of the bond.

16 Indemnification

- 16.1 General.** Contractor shall indemnify and save harmless City and its officers, agents and employees from, and, if requested, shall defend them against any and all loss, cost, damage, injury, liability, and claims thereof for injury to or death of a person, including employees of Contractor or loss of or damage to property, arising directly or indirectly from Contractor's performance of this Agreement, including, but not limited to, Contractor's use of facilities or equipment provided by City or others, regardless of the negligence of, and regardless of whether liability without fault is imposed or sought to be imposed on City, except to the extent that such indemnity is void or otherwise unenforceable under applicable law in effect on or validly retroactive to the date of this Agreement, and except where such loss, damage, injury, liability or claim is the result of the active negligence or willful misconduct of City and is not contributed to by any act of, or by any omission to perform some duty imposed by law or agreement on Contractor, its subcontractors or either's agent or employee. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, consultants and experts and related costs and City's costs of investigating any claims against the City.
- 16.2 Duty to Defend.** In addition to Contractor's obligation to indemnify City, Contractor specifically acknowledges and agrees that it has an immediate and independent obligation to defend City from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to Contractor by City and continues at all times thereafter.
- 16.3 Intellectual Property.** Contractor shall indemnify and hold City harmless from all loss and liability, including attorneys' fees, court costs and all other litigation expenses for any infringement of the patent rights, copyright, trade secret or any other proprietary right or trademark, and all other intellectual property claims of any person or persons in consequence of the use by City, or any of its officers or agents, of articles or services to be supplied in the performance of this Agreement.
- 16.4 Limitation of Liability.** Except as provided herein, Contractor's aggregate liability to the City under this Agreement shall be limited to the Contract amount stated in Section

5.1, as that amount may be modified by a properly approved and executed Contract Modification. Said limitation on liability shall not apply to:

- 16.4.1** damages and other liability caused by Contractor's willful misconduct or gross negligence;
- 16.4.2** liability arising under or for violation of any applicable statute, City ordinance, regulation, or other laws;
- 16.4.3** damages that fall within the insurance coverages required under the Agreement;
- 16.4.4** Contractor's warranty obligations under the Agreement;
- 16.4.5** damages and other liability arising under claims by third parties, including indemnity or contribution for claims brought by a third party (see Paragraph 16.1);
- 16.4.6** damages and other liability for infringement of any intellectual property right as provided in Section 16.3.

16.5 Notice of Claim; Tender of Defense. The City shall use its best efforts to give prompt written notice to Contractor of any claim for which it requires indemnification from Contractor and will not admit liability or fault as to the allegations of the claim. Provided Contractor accepts the City's tender of defense without reservations, City agrees to grant Contractor sole control over the defense and settlement of the claim and provide timely assistance to Contractor in the defense of the claim.

17 Incidental and Consequential Damages.

Except for liquidated damages, Contractor shall not be responsible for incidental and consequential damages resulting from Contractor's acts or omissions. Nothing in this Agreement shall constitute a waiver or limitation of any rights that City may have under applicable law.

18 Liability of City

CITY'S PAYMENT OBLIGATIONS UNDER THIS AGREEMENT SHALL BE LIMITED TO THE PAYMENT OF THE COMPENSATION PROVIDED FOR IN SECTION 5 OF THIS AGREEMENT. NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT, IN NO EVENT SHALL CITY BE LIABLE, REGARDLESS OF WHETHER ANY CLAIM IS BASED ON CONTRACT OR TORT, FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE SERVICES PERFORMED IN CONNECTION WITH THIS AGREEMENT.

19 Liquidated Damages

By entering into this Agreement, Contractor agrees that in the event the Services, as provided under Section 4 herein, are delayed beyond the scheduled milestones and timelines as provided in the Project Delivery Schedule (Exhibit B), City will suffer actual damages that will be impractical or extremely difficult to determine; further, Contractor agrees that the amounts listed below for each day of delay beyond scheduled milestones and timelines are not a penalty, but is a reasonable estimate of the

loss that City will incur based on the delay, established in light of the circumstances existing at the time this contract was awarded. City may deduct a sum representing the liquidated damages from any money due to Contractor. Such deductions shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Contractor's failure to deliver to City within the time fixed or such extensions of time permitted in writing by SFMTA.

Failure to deliver the Vehicles by the times stated in Exhibit B	\$650 per car/day
Failure to deliver all other Project deliverables (spare parts, training, drawings, reports, documents)	\$300 /day/deliverable
Failure to provide a plan for correction of fleet defects	\$500/day
Failure to fully correct fleet defects according to approved plan	\$650 per car/day

20 Default; Remedies

20.1 Event of Default. Each of the following shall constitute an event of default ("Event of Default") under this Agreement:

- 20.1.1** Contractor fails or refuses to perform or observe any term, covenant or condition contained in any of the following Sections of this Agreement: 8, 10, 15, 24, 30, 36, 52, or 56.
- 20.1.2** Contractor fails or refuses to perform or observe any other term, covenant or condition contained in this Agreement, and such default continues for a period of 10 days after written notice thereof from City to Contractor.
- 20.1.3** Contractor (i) is generally not paying its debts as they become due, (ii) files, or consents by answer or otherwise to the filing against it of, a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction, (iii) makes an assignment for the benefit of its creditors, (iv) consents to the appointment of a custodian, receiver, trustee or other officer with similar powers of Contractor or of any substantial part of Contractor's property or (v) takes action for the purpose of any of the foregoing.
- 20.1.4** A court or government authority enters an order (i) appointing a custodian, receiver, trustee or other officer with similar powers with respect to Contractor or with respect to any substantial part of Contractor's property, (ii) constituting an order for relief or approving a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction or (iii) ordering the dissolution, winding-up or liquidation of Contractor.

20.2 Remedies. On and after any Event of Default, City shall have the right to exercise its legal and equitable remedies, including, without limitation, the right to terminate this Agreement or to seek specific performance of all or any part of this Agreement. In addition, City shall have the right (but no obligation) to cure (or cause to be cured) on behalf of Contractor any Event of Default; Contractor shall pay to City on demand all costs and expenses incurred by City in effecting such cure, with interest thereon from the date of incurrence at the maximum rate then permitted by law. City shall have the right

to offset from any amounts due to Contractor under this Agreement or any other agreement between City and Contractor all damages, losses, costs or expenses incurred by City as a result of such Event of Default and any liquidated damages due from Contractor pursuant to the terms of this Agreement or any other agreement. All remedies provided for in this Agreement may be exercised individually or in combination with any other remedy available hereunder or under applicable laws, rules and regulations. The exercise of any remedy shall not preclude or in any way be deemed to waive any other remedy.

21 Termination for Convenience

- 21.1 Exercise of Option.** City shall have the option, in its sole discretion, to terminate this Agreement, at any time during the term hereof, for convenience and without cause. City shall exercise this option by giving Contractor written notice of termination. The notice shall specify the date on which termination shall become effective.
- 21.2 Contractor Actions.** Upon receipt of the notice, Contractor shall commence and perform, with diligence, all actions necessary on the part of Contractor to effect the termination of this Agreement on the date specified by City and to minimize the liability of Contractor and City to third parties as a result of termination. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation:
- 21.2.1** Halting the performance of all services and other work under this Agreement on the date(s) and in the manner specified by City.
 - 21.2.2** Not placing any further orders or subcontracts for materials, services, equipment or other items.
 - 21.2.3** Terminating all existing orders and subcontracts.
 - 21.2.4** At City's direction, assigning to City any or all of Contractor's right, title, and interest under the orders and subcontracts terminated. Upon such assignment, City shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.
 - 21.2.5** Subject to City's approval, settling all outstanding liabilities and all claims arising out of the termination of orders and subcontracts.
 - 21.2.6** Completing performance of any services or work that City designates to be completed prior to the date of termination specified by City.
 - 21.2.7** Taking such action as may be necessary, or as the City may direct, for the protection and preservation of any property related to this Agreement which is in the possession of Contractor and in which City has or may acquire an interest.
- 21.3 Contractor Invoice.** Within 30 days after the specified termination date, Contractor shall submit to City an invoice, which shall set forth each of the following as a separate line item:
- 21.3.1** The reasonable cost to Contractor, without profit, for all services and other work City directed Contractor to perform prior to the specified termination date, for which services or work City has not already tendered payment. Reasonable costs may include a reasonable allowance for actual overhead, not to exceed a total of

10 percent of Contractor's direct costs for services or other work. Any overhead allowance shall be separately itemized. Contractor may also recover the reasonable cost of preparing the invoice.

21.3.2 A reasonable allowance for profit on the cost of the services and other work described in the immediately preceding subsection 21.3.1, provided that Contractor can establish, to the satisfaction of City, that Contractor would have made a profit had all services and other work under this Agreement been completed, and provided further, that the profit allowed shall in no event exceed five percent of such cost.

21.3.3 The reasonable cost to Contractor of handling material or equipment returned to the vendor, delivered to the City or otherwise disposed of as directed by the City.

21.3.4 A deduction for the cost of materials to be retained by Contractor, amounts realized from the sale of materials and not otherwise recovered by or credited to City, and any other appropriate credits to City against the cost of the services or other work.

21.4 Non-Recoverable Costs. In no event shall City be liable for costs incurred by Contractor or any of its subcontractors after the termination date specified by City, except for those costs specifically enumerated and described in the immediately preceding subsection 21.3. Such non-recoverable costs include, but are not limited to, anticipated profits on this Agreement, post-termination employee salaries, post-termination administrative expenses, post-termination overhead or unabsorbed overhead, attorneys' fees or other costs relating to the prosecution of a claim or lawsuit, prejudgment interest, or any other expense which is not reasonable or authorized under such subsection 21.3.

21.5 Deductions. In arriving at the amount due to Contractor under this Section, City may deduct: (a) all payments previously made by City for work or other services covered by Contractor's final invoice; (b) any claim which City may have against Contractor in connection with this Agreement; (c) any invoiced costs or expenses excluded pursuant to the immediately preceding subsection (21.4); and (d) in instances in which, in the opinion of the City, the cost of any service or other work performed under this Agreement is excessively high due to costs incurred to remedy or replace defective or rejected services or other work, the difference between the invoiced amount and City's estimate of the reasonable cost of performing the invoiced services or other work in compliance with the requirements of this Agreement.

21.6 Survival. City's payment obligation under this Section shall survive termination of this Agreement.

22 Rights and Duties Upon Termination or Expiration

22.1 Survival of Sections. This Section and the following Sections of this Agreement shall survive termination or expiration of this Agreement: 8 through 11, 13 through 18, 24, 26 through 28, 49 through 52, 56, 56, 61 and 62.

22.2 Contractor Duties. Subject to the immediately preceding subsection 22.1, upon termination of this Agreement prior to expiration of the term specified in Section 2, this

Agreement shall terminate and be of no further force or effect. Contractor shall transfer title to City, and deliver in the manner, at the times, and to the extent, if any, directed by City, any work in progress, completed work, supplies, equipment, and other materials produced as a part of, or acquired in connection with the performance of this Agreement, and any completed or partially completed work which, if this Agreement had been completed, would have been required to be furnished to City. This subsection shall survive termination of this Agreement.

23 Conflict of Interest

Through its execution of this Agreement, Contractor acknowledges that it is familiar with the provisions of section 15.103 of the City's Charter, Article III, Chapter 2 of the City's Campaign and Governmental Conduct Code and sections 87100 et seq. and sections 1090 et seq. of the Government Code of the State of California, and certifies that it does not know of any facts which constitute a violation of said provision and agrees that if it becomes aware of any such fact during the term of this Agreement it shall immediately notify the City.

24 Proprietary or Confidential Information of City

Contractor understands and agrees that, in the performance of the work or services under this Agreement or in contemplation thereof, Contractor may have access to private or confidential information, which may be owned or controlled by City, and that such information may contain proprietary or confidential details, the disclosure of which to third parties may be damaging to City. Contractor agrees that all information disclosed by City to Contractor shall be held in confidence and used only in performance of the Agreement. Contractor shall exercise the same standard of care to protect such information as a reasonably prudent contractor would use to protect its own proprietary data.

25 Notices to the Parties

Unless otherwise indicated elsewhere in this Agreement, all written communications sent by the parties may be by U.S. mail or e-mail, and shall be addressed as follows:

To City: San Francisco Municipal Transportation Agency
425 Geneva Avenue, Room 210
San Francisco, CA 94112
Attn: Louis Maffei
louis.maffei@sfmta.com

To Contractor: Brookville Equipment Corporation
175 Evans Street
Brookville, PA 15825
jmneil@brookvillecorp.com
Fax: 814-849-2010

Any notice of default must be sent by registered mail.

26 Ownership of Results

Any interest of Contractor or its Subcontractors, in drawings, plans, specifications, blueprints, studies, reports, memoranda, computation sheets, computer files and media or other documents prepared by Contractor or its subcontractors in connection with services to be performed under this Agreement, shall become the property of and will be transmitted to City. However, Contractor may retain and use copies for reference and as documentation of its experience and capabilities.

27 Works for Hire

If, in connection with services performed under this Agreement, Contractor or its subcontractors create artwork, copy, posters, billboards, photographs, videotapes, audiotapes, systems designs, software, reports, diagrams, surveys, blueprints, source codes or any other original works of authorship, such works of authorship shall be works for hire as defined under Title 17 of the United States Code, and all copyrights in such works are the property of the City. If it is ever determined that any works created by Contractor or its subcontractors under this Agreement are not works for hire under U.S. law, Contractor hereby assigns all copyrights to such works to the City, and agrees to provide any material and execute any documents necessary to effectuate such assignment. With the approval of the City, Contractor may retain and use copies of such works for reference and as documentation of its experience and capabilities.

28 Audits and Inspection of Records

Contractor agrees to maintain and make available to the City, during regular business hours, accurate books and accounting records relating to its work under this Agreement. Contractor will permit City to audit, examine and make excerpts and transcripts from such books and records, and to make audits of all invoices, materials, payrolls, records or personnel and other data related to all other matters covered by this Agreement, whether funded in whole or in part under this Agreement. Contractor shall maintain such data and records in an accessible location and condition for a period of not less than five years after final payment under this Agreement or until after final audit has been resolved, whichever is later. The State of California or any federal agency having an interest in the subject matter of this Agreement shall have the same rights conferred upon City by this Section.

29 Subcontracting

Contractor is prohibited from subcontracting this Agreement or any part of it unless such subcontracting is first approved by City in writing. Neither party shall, on the basis of this Agreement, contract on behalf of or in the name of the other party. An agreement made in violation of this provision shall confer no rights on any party and shall be null and void.

30 Assignment

The services to be performed by Contractor are personal in character and neither this Agreement nor any duties or obligations hereunder may be assigned or delegated by the Contractor unless first approved by City by written instrument executed and approved by the SFMTA.

31 Non-Waiver of Rights

The omission by either party at any time to enforce any default or right reserved to it, or to require performance of any of the terms, covenants, or provisions hereof by the other party at the time designated, shall not be a waiver of any such default or right to which the party is entitled, nor shall it in any way affect the right of the party to enforce such provisions thereafter.

32 Reserved.

33 Claims

Contractor shall not be entitled to the payment of any additional compensation for any action, or failure to act, by the SFMTA, including failure or refusal to issue a Contract Modification or for the happening of any event, thing, occurrence, or other cause, unless Contractor shall have given the Engineer due written notice of potential claim.

The written notice of potential claim shall set forth the reasons for which Contractor believes additional compensation will or may be due, the nature of the costs involved, and insofar as possible, the amount of the potential claim. The said notice as above required must have been given to the Engineer prior to the time that Contractor shall have performed the work giving rise to the potential claim for additional compensation, or in all other cases, within 15 days after the happening of the event, thing, occurrence, or other cause giving rise to the potential claim.

It is the intention of this Section that differences between the parties arising under and by virtue of the Contract be brought to the attention of the SFMTA at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly be taken. Contractor agrees that it shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing, or occurrence for which no written notice of potential claim as herein required was filed.

34 Nondiscrimination; Penalties

34.1 Contractor Shall Not Discriminate. In the performance of this Agreement, Contractor agrees not to discriminate against any employee, City and County employee working with such contractor or subcontractor, applicant for employment with such contractor or subcontractor, or against any person seeking accommodations, advantages, facilities, privileges, services, or membership in all business, social, or other establishments or organizations, on the basis of the fact or perception of a person's race, color, creed, religion, national origin, ancestry, age, height, weight, sex, sexual orientation, gender identity, domestic partner status, marital status, disability or Acquired Immune Deficiency Syndrome or HIV status (AIDS/HIV status), or association with members of such protected classes, or in retaliation for opposition to discrimination against such classes.

- 34.2 Subcontracts.** Contractor shall incorporate by reference in all subcontracts the provisions of §§12B.2(a), 12B.2(c)-(k), and 12C.3 of the San Francisco Administrative Code (copies of which are available from SFMTA) and shall require all subcontractors to comply with such provisions. Contractor's failure to comply with the obligations in this subsection shall constitute a material breach of this Agreement.
- 34.3 Nondiscrimination in Benefits.** Contractor does not as of the date of this Agreement and will not during the term of this Agreement, in any of its operations in San Francisco, on real property owned by San Francisco, or where work is being performed for the City elsewhere in the United States, discriminate in the provision of bereavement leave, family medical leave, health benefits, membership or membership discounts, moving expenses, pension and retirement benefits or travel benefits, as well as any benefits other than the benefits specified above, between employees with domestic partners and employees with spouses, and/or between the domestic partners and spouses of such employees, where the domestic partnership has been registered with a governmental entity pursuant to state or local law authorizing such registration, subject to the conditions set forth in §12B.2(b) of the San Francisco Administrative Code.. As a condition to this Agreement, Contractor shall execute the "Chapter 12B Declaration: Nondiscrimination in Contracts and Benefits" form (form HRC-12B-101) with supporting documentation and secure the approval of the form by the San Francisco Human Rights Commission.
- 34.4 Incorporation of Administrative Code Provisions by Reference,** The provisions of Chapters 12B and 12C of the San Francisco Administrative Code are incorporated in this Section by reference and made a part of this Agreement as though fully set forth herein. Contractor shall comply fully with and be bound by all of the provisions that apply to this Agreement under such Chapters, including but not limited to the remedies provided in such Chapters. Without limiting the foregoing, Contractor understands that pursuant to §12B.2(h) of the San Francisco Administrative Code, a penalty of \$50 for each person for each calendar day during which such person was discriminated against in violation of the provisions of this Agreement may be assessed against Contractor and/or deducted from any payments due Contractor.

35 Tropical Hardwoods and Virgin Redwood Ban.

Pursuant to §804(b) of the San Francisco Environment Code, the City and County of San Francisco urges contractors not to import, purchase, obtain, or use for any purpose, any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product.

36 Drug-Free Workplace Policy.

Contractor acknowledges that pursuant to the Federal Drug-Free Workplace Act of 1989, the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited on City premises. Contractor agrees that any violation of this prohibition by Contractor, its employees, agents or assigns will be deemed a material breach of this Agreement.

37 Resource Conservation.

Chapter 5 of the San Francisco Environment Code (“Resource Conservation”) is incorporated herein by reference. Failure by Contractor to comply with any of the applicable requirements of Chapter 5 will be deemed a material breach of contract.

38 Compliance with Americans with Disabilities Act.

Contractor acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a contractor, must be accessible to the disabled public. Contractor shall provide the services specified in this Agreement in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Contractor agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under this Agreement and further agrees that any violation of this prohibition on the part of Contractor, its employees, agents or assigns will constitute a material breach of this Agreement.

39 Sunshine Ordinance.

In accordance with San Francisco Administrative Code §67.24(e), contracts, contractors’ bids, responses to solicitations and all other records of communications between City and persons or firms seeking contracts, shall be open to inspection immediately after a contract has been awarded. Nothing in this provision requires the disclosure of a private person or organization’s net worth or other proprietary financial data submitted for qualification for a contract or other benefit until and unless that person or organization is awarded the contract or benefit. Information provided which is covered by this paragraph will be made available to the public upon request.

40 Public Access to Meetings and Records.

If the Contractor receives a cumulative total per year of at least \$250,000 in City funds or City-administered funds and is a non-profit organization as defined in Chapter 12L of the San Francisco Administrative Code, Contractor shall comply with and be bound by all the applicable provisions of that Chapter. By executing this Agreement, the Contractor agrees to open its meetings and records to the public in the manner set forth in §§12L.4 and 12L.5 of the Administrative Code. Contractor further agrees to make-good faith efforts to promote community membership on its Board of Directors in the manner set forth in §12L.6 of the Administrative Code. The Contractor acknowledges that its material failure to comply with any of the provisions of this paragraph shall constitute a material breach of this Agreement. The Contractor further acknowledges that such material breach of the Agreement shall be grounds for the City to terminate and/or not renew the Agreement, partially or in its entirety.

41 Notification of Limitations on Contributions.

Through execution of this Agreement, Contractor acknowledges that it is familiar with section 1.126 of the City's Campaign and Governmental Conduct Code, which prohibits any person who contracts with the City for the rendition of personal services, for the furnishing of any material, supplies or equipment, for the sale or lease of any land or building, or for a grant, loan or loan guarantee, from making any campaign contribution to (1) an individual holding a City elective office if the contract must be approved by the individual, a board on which that individual serves, or a board on which an appointee of that individual serves, (2) a candidate for the office held by such individual, or (3) a committee controlled by such individual, at any time from the commencement of negotiations for the contract until the later of either the termination of negotiations for such contract or six months after the date the contract is approved. Contractor acknowledges that the foregoing restriction applies only if the contract or a combination or series of contracts approved by the same individual or board in a fiscal year have a total anticipated or actual value of \$50,000 or more. Contractor further acknowledges that the prohibition on contributions applies to each prospective party to the contract; each member of Contractor's board of directors; Contractor's chairperson, chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than 20 percent in Contractor; any subcontractor listed in the bid or contract; and any committee that is sponsored or controlled by Contractor. Additionally, Contractor acknowledges that Contractor must inform each of the persons described in the preceding sentence of the prohibitions contained in Section 1.126.

42 Requiring Minimum Compensation for Covered Employees

Contractor agrees to pay covered employees no less than the minimum compensation required by San Francisco's Minimum Compensation Ordinance (MCO), and shall otherwise comply with the MCO as set forth in San Francisco Administrative Code Chapter 12P (Chapter 12P). The provisions of Chapter 12P, including but not limited to the penalties for noncompliance provided therein, are incorporated herein by this reference, and made part of this Agreement as though fully set forth herein.

43 Health Benefits for Covered Employees

Contractor agrees to choose and perform one of the Health Care Accountability options set forth in Section 12Q.3 of the Health Care Accountability Ordinance (HCAO), and to comply with the HCAO as set forth in San Francisco Administrative Code Chapter 12Q.

44 Employment Training Program

In furtherance of its existing company policy to promote job training for disadvantaged individuals, Contractor agrees to undertake an employment training program to provide disadvantaged individuals with the skills necessary to work at various trades in the production department of Contractor's firm. At a minimum, Contractor agrees to recruit disadvantaged individuals through various organizations and supply all necessary training at its expense for the following positions:

3 individuals for careers as welders

2 individuals for careers as electronics and electrical technicians

2 individuals for careers as general mechanics

45 Prohibition on Political Activity with City Funds

In accordance with San Francisco Administrative Code Chapter 12.G, Contractor may not participate in, support, or attempt to influence any political campaign for a candidate or for a ballot measure (collectively, "Political Activity") in the performance of the services provided under this Agreement. Contractor agrees to comply with San Francisco Administrative Code Chapter 12.G and any implementing rules and regulations promulgated by the City's Controller. The terms and provisions of Chapter 12.G are incorporated herein by this reference. In the event Contractor violates the provisions of this section, the City may, in addition to any other rights or remedies available hereunder, (i) terminate this Agreement, and (ii) prohibit Contractor from bidding on or receiving any new City contract for a period of two (2) years.

46 Preservative-treated Wood Containing Arsenic

Contractor may not purchase preservative-treated wood products containing arsenic in the performance of this Agreement unless an exemption from the requirements of Chapter 13 of the San Francisco Environment Code is obtained from the Department of the Environment under Section 1304 of the Code. The term "preservative-treated wood containing arsenic" shall mean wood treated with a preservative that contains arsenic, elemental arsenic, or an arsenic copper combination, including, but not limited to, chromate copper arsenate preservative, ammonia cal copper zinc arsenate preservative, or ammonia cal copper arsenate preservative. Contractor may purchase preservative-treated wood products on the list of environmentally preferable alternatives prepared and adopted by the Department of the Environment. This provision does not preclude Contractor from purchasing preservative-treated wood containing arsenic for saltwater immersion. The term "saltwater immersion" shall mean a pressure-treated wood that is used for construction purposes or facilities that are partially or totally immersed in saltwater.

47 Modification of Agreement

This Agreement may not be modified, nor may compliance with any of its terms be waived, except by written instrument executed and approved as required by law. Contractor shall cooperate with the SFMTA to submit to the Contract Compliance Office any amendment, modification, supplement or change order that would result in a cumulative increase of the original amount of this Agreement by more than 20%.

48 Authority of Engineer

The Engineer shall decide all questions, which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work; all questions, which may arise as to the acceptable fulfillment of the Contract on the part of the Contractor; and all questions as to compensation. In discharging the responsibilities outlined above, the Engineer shall at all times act fairly and reasonably. Any appeal of the Engineer's decisions shall be in accordance with the provisions of Section 54.2 of this Agreement. As with any claim, change, extra or additional work, Contractor shall be paid in accordance with the payment provisions of this Contract when the dispute is finally resolved.

Should any questions arise as to the meaning and intent of the Contract, the matter shall be referred to the Engineer, who, with input from SFMTA staff and from the Contractor, shall decide the

true meaning and intent of the Contract. The Engineer's decision in this regard shall be administratively final and conclusive.

49 Agreement Made in California; Venue

The formation, interpretation and performance of this Agreement shall be governed by the laws of the State of California. Venue for all litigation relative to the formation, interpretation and performance of this Agreement shall be in San Francisco.

50 Construction

All paragraph captions are for reference only and shall not be considered in construing this Agreement.

51 Entire Agreement

This contract sets forth the entire Agreement between the parties, and supersedes all other oral or written provisions. This contract may be modified only as provided in Section 47.

52 Compliance with Laws

Contractor shall keep itself fully informed of the City's Charter, codes, ordinances and regulations of the City and of all state, and federal laws in any manner affecting the performance of this Agreement, and must at all times comply with such local codes, ordinances, and regulations and all applicable laws as they may be amended from time to time.

53 Services Provided by Attorneys

Any services to be provided by a law firm or attorney must be reviewed and approved in writing in advance by the City Attorney. No invoices for services provided by law firms or attorneys, including, without limitation, as subcontractors of Contractor, will be paid unless the provider received advance written approval from the City Attorney.

54 Disputes

54.1 Notice of Dispute. For any dispute involving a question of fact that does not involve a claim for additional compensation, the aggrieved party shall furnish the other party with a notice of dispute within 15 days of the determination of the dispute. The party receiving a notice of dispute shall submit a written reply with 14 days of delivery of the notice. The notice and response shall contain the following: (a) a statement of the party's position and a summary of the arguments supporting that position, and (b) any evidence supporting the party's position.

54.2 Resolution of Disputes. Disputes arising in the performance of this Agreement that are not resolved by negotiation between the SFMTA Project Manager and Contractor shall be decided in writing by the SFMTA Manager of Fleet Engineering. The decision shall be administratively final and conclusive unless within 10 days from the date of such

decision, the Contract Consultant mails or otherwise furnishes a written appeal to the Director of Transit, or his/her designee. In connection with such an appeal, the Consultant shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the Director of Transit shall be administratively final and conclusive. This section applies to all disputes unless a specific provision of this Agreement provides that the Engineer's decision as to a particular dispute is final.

- 54.3 No Cessation of Work.** Pending final resolution of a dispute hereunder, the Contractor shall proceed diligently with the performance of its obligations under this Agreement in accordance with the written directions of the Engineer.
- 54.4 Alternative Dispute Resolution.** If agreed to by both parties, disputes may be resolved by a mutually agreed to alternative dispute resolution process.
- 54.5 Claims for Additional Compensation.** For disputes involving a claim for additional compensation, parties involved shall attempt to resolve such disputes expediently and in good faith so as not to impact the performance or schedule of the Project. Under no circumstances shall the Contractor or its sub-contractors stop work due to an unresolved dispute.
- 54.6 Disputes among Contractor's Partners.** The resolution of any contractual disputes related to Contractor's Joint Venture or Association partners (if any) shall be the sole responsibility of the Contractor. Each party of the Joint Venture or Association shall resolve all such disputes within 30 calendar days of when the dispute first surfaced so as not to impact the performance of the contract with the City. Any such disputes which impact the Project and which are left unresolved for more than one month shall be cause for the City to withhold and/or reduce invoice payments to the Contractor's Joint Venture or Association firms until the dispute is resolved.

55 Severability

Should the application of any provision of this Agreement to any particular facts or circumstances be found by a court of competent jurisdiction to be invalid or unenforceable, then (a) the validity of other provisions of this Agreement shall not be affected or impaired thereby, and (b) such provision shall be enforced to the maximum extent possible so as to effect the intent of the parties and shall be reformed without further action by the parties to the extent necessary to make such provision valid and enforceable.

56 Protection of Private Information

Contractor has read and agrees to the terms set forth in San Francisco Administrative Code Sections 12M.2, "Nondisclosure of Private Information," and 12M.3, "Enforcement" of Administrative Code Chapter 12M, "Protection of Private Information," which are incorporated herein as if fully set forth. Contractor agrees that any failure of Contractor to comply with the requirements of Section 12M.2 of this Chapter shall be a material breach of the Contract. In such an event, in addition to any other remedies available to it under equity or law, the City may terminate the Contract, bring a false claim action against the Contractor pursuant to Chapter 6 or Chapter 21 of the Administrative Code, or debar the Contractor

57 Time of Essence

Time is of the essence in this Agreement.

58 Technical Specifications

58.1 Fabrication. The Vehicles shall be rehabilitated and guaranteed in accordance with the "Technical Specifications."

58.2 Omission. Notwithstanding the Technical Specifications or other data provided by the Engineer, the Contractor shall have the responsibility of supplying all parts and details required to make these Vehicles complete and ready for service even though such details may not be specifically mentioned in the Specifications. Items that are installed by SFMTA shall not be the responsibility of the Contractor unless they are included in this Contract or should have been installed by the Contractor. If additional repairs are needed to make any Vehicles complete and ready for service beyond what is in the Specifications, these repairs will be handled by change orders through a Contract Modification, as approved by the SFMTA and the SFMTA Board, as required.

58.3 Priority. In the event of any deviation between the description of these Vehicles or the description of the Work in the Technical Specifications and in this document or the Contractor's Proposal, the Technical Specifications shall govern.

58.4 Design Review. Prior to commencement of Vehicle rehabilitation, the Contractor and the Engineer shall agree to the specific details of the rehabilitation. These details may include, but not be limited to, items such as: engineering and design details, test plans and procedures, appropriate training, sub-suppliers equipment, colors, wording, and placement of numbers and signs. In cases where consensus cannot be reached, the opinion of the Engineer as to design details shall be administratively final unless clearly arbitrary or capricious. Disputes regarding cost and other matters shall be subject to the provisions of Sections 33 and 54. When plans, drawings, requests for information, procedures or other contract deliverables are submitted to SFMTA for approval and/or comments, the Contractor shall delineate any deviations from the Technical Specifications in such deliverables. SFMTA shall approve, disapprove and/or comment on such deliverables within 30 days after receipt. However, no extension of time will be allowed for review of submittals that have been disapproved. Such disapproved submittals shall be resubmitted and will be reviewed and returned within 30 days after subsequent receipt. Neither review nor approval of any plans, drawings, procedures, other contract deliverables or the materials supplied under this contract shall in any way relieve the Contractor of its obligations to perform work under the provision of this Contract.

58.5 Preliminary Drawings. Preliminary drawings shall provide enough detail to conduct preliminary engineering evaluations of structural, electrical, mechanical, and other subsystems. Drawings shall show the general arrangement of equipment layout and subsystems and such detail as is necessary to give a comprehensive idea of the product contemplated.

58.6 Materials/Accessories Responsibility. The Contractor shall be responsible for all materials and workmanship in the rehabilitation of the Vehicles and all components used, whether the same are manufactured by the Contractor or purchased from a Subcontractor.

This provision excludes equipment leased or supplied by SFMTA, except insofar as such equipment is damaged by the failure of a part or component for which the Contractor is responsible, or except insofar as the damage to such equipment is caused by the Contractor during the rehabilitation of the Vehicle.

59 Project Planning, Scheduling and Control

59.1 Introduction. This Section specifies the requirements for project planning, scheduling and progress reporting to be performed by the Contractor in conjunction with the Contract work. Critical Path Method scheduling (CPM) shall be employed by the Contractor for planning, scheduling and reporting all work required by the Contract Documents.

59.2 Scheduling Terms

59.2.1 Baseline Schedule: The detailed schedule, in bar-chart format, prepared by the Contractor, indicating the Contractor's plan for executing the Contract work. The Baseline Schedule shall be developed using Microsoft Project Software or approved equal. The Baseline Schedule shall be revised as necessary to incorporate approved Contract modifications. The Contractor's performance or other avoidable delays shall not be considered justification for Baseline Schedule revision.

59.2.2 Current Schedule: The updated logic network and supporting reports indicating actual progress to date and forecasted logic and progress for the remaining work. The update will be, at a minimum, to the same level of detail as the Baseline Schedule.

59.2.3 Supplemental Schedule(s): Detailed schedules prepared by the Contractor, at the request of the Engineer, to substantiate proposed Contractor changes that may have a schedule impact.

59.2.4 Monthly Work Plan and Reports: A detailed plan of the work, in bar-chart format, to be accomplished in the coming weeks. Contractor shall provide SFMTA with monthly project and production status and schedule reports by E-mail. Contractor shall also provide monthly and quarterly schedule reports in Microsoft Project and Power Point, or SFMTA-approved equivalents, and per SFMTA Engineer requirements for reporting to funding agencies..

59.3 Descriptions of Submittals

59.3.1 Project Plan and Baseline Schedule: The schedule documents, reports, lists, computer software with documentation and computer diskettes and E-mail files are required with each submittal. The Baseline Schedule shall be submitted within 30 days from NTP or by the first design review meeting, whichever comes first. Baseline schedule will include dates for submittal of contract deliverables listed in the Technical Specification. This is further described in Technical Specification section 1.1.6

59.3.2 Management Plan: Contractor shall submit a Management Work Plan within thirty (30) days after NTP. The Management Plan shall include protocols, procedures, and assignments of responsibility for key personnel and correspondence forms for all phases of the contract and all project activities for the duration of the contract. Once the Management Plan is approved, key

personnel shall not be substituted without approval from the SFMTA. If the Contractor plans to substitute key personnel, a 30-day advance notice, and qualification of new personnel shall be required. At the request of the SFMTA, or when approved changes are made, the Contractor's Management Plan shall be updated to include the latest revision to the project scope or other changes in project circumstances. Plan is further described in Technical Specification section 1.1.1

59.3.3 Monthly Work Plan and Reports: Contractor shall provide SFMTA with monthly project and production status and schedule reports by E-mail. Contractor shall also provide monthly and quarterly schedule reports in Microsoft Project and Power Point, or SFMTA-approved equivalents, and per SFMTA Engineer requirements for reporting to funding agencies..

59.4 Modifications to the Schedule. When requested by the Engineer, the Contractor shall submit Supplemental Schedules to the Engineer to substantiate proposed Contract changes that may have an impact on the schedule. Contractor shall submit such schedules to the Engineer for review and approval within three (3) working days from the request; otherwise, any proposed Contract change will not be considered by the City. On approval of a Contract modification by the City, the approved change will be incorporated in the Baseline Schedule during the monthly update process.

60 Assumption of Risk of Loss

Prior to acceptance of the rehabilitated Vehicles, the Contractor shall bear risk of loss of the Vehicles, including any damage sustained during transportation to the delivery site or during acceptance testing. The City shall assume risk of loss of the Vehicles only after acceptance.

61 FTA Requirements

The provisions contained in "FTA Requirements for Personal Services Contracts," attached as Exhibit A, are incorporated into this Agreement. If there is any conflict between the FTA terms and conditions and any other terms and conditions of this Agreement, the FTA terms and conditions shall take precedence.

62 Cooperative Drafting

This Agreement has been drafted through a cooperative effort of both parties, and both parties have had an opportunity to have the Agreement reviewed and revised by legal counsel. No party shall be considered the drafter of this Agreement, and no presumption or rule that an ambiguity shall be construed against the party drafting the clause shall apply to the interpretation or enforcement of this Agreement.

63 Warranty

Contractor shall provide warranties of Vehicles, training, parts and special tools as described in the Technical Specifications.

64 Title

The Contractor covenants and warrants that the SFMTA continuously retains good and exclusive title to all Vehicles, subcomponents, parts and supplies supplied by the SFMTA to the Contractor as part of this Contract, that the Contractor shall not assign or have any lien or mortgage of any type applied against these goods, and that all additions made to the Vehicles furnished under the Contract shall vest in the SFMTA immediately upon acceptance by the SFMTA of such additions. Title to the spare parts to be delivered under this Contract shall vest in the SFMTA immediately upon acceptance by the SFMTA.

65 Small Business Enterprise Program.

65.1 General. The SFMTA is committed to a Small Business Enterprise Program (“SBE Program”) for the participation of SBEs in contracting opportunities. In addition, the Consultant must comply with all applicable federal regulations regarding Disadvantaged Business Enterprise (DBE) participation, as set out in Title 49, Part 26 of the Code of Federal Regulations, with respect to DBEs performing work under this Agreement. More information on federal DBE requirements can be found on the internet at: www.fta.dot.gov/civilrights/12326.html.

65.2 Compliance with SBE Program. Consultant shall comply with the SBE provisions contained in Exhibit E attached to this Agreement and incorporated by reference as though fully set forth, including, but not limited to, achieving and maintaining the SBE goal set for the total dollar amount awarded for the services to be performed under this Agreement and timely completing all forms that may be required by the SFMTA’s Contract Compliance Office. Failure of Consultant to comply with any of these requirements shall be deemed a material breach of this Agreement.

66 MacBride Principles—Northern Ireland

Pursuant to San Francisco Administrative Code §12F.5, the City and County of San Francisco urges companies doing business in Northern Ireland to move towards resolving employment inequities, and encourages such companies to abide by the MacBride Principles. The City and County of San Francisco urges San Francisco companies to do business with corporations that abide by the MacBride Principles. By signing below, the person executing this agreement on behalf of Contractor acknowledges and agrees that he or she has read and understood this section.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day first mentioned above.

CITY

San Francisco Municipal Transportation Agency

Edward D. Reiskin
Director of Transportation

Approved as to Form:

Dennis J. Herrera
City Attorney

By _____
Robin M. Reitzes
Deputy City Attorney

San Francisco Municipal Transportation Agency
Board of Directors

Resolution No. _____

Dated: _____

Attest:

Secretary

Board of Supervisors

Resolution No. _____

Dated: _____

Attest:

Clerk

CONTRACTOR

Brookville Equipment Corporation

By signing this Agreement, I certify that I comply with the requirements of the Minimum Compensation Ordinance, which entitle Covered Employees to certain minimum hourly wages and compensated and uncompensated time off.

Larry Conrad, President
175 Evans Street / P.O. Box 130
Brookville, PA 15825

City vendor number: 65901

Exhibits:

Exhibit A: FTA Requirements For Personal Services Contracts

Exhibit B: Project Delivery Schedule

Exhibit C: Schedule of Prices

Exhibit D: Payment Schedule

**EXHIBIT A:
FTA REQUIREMENTS FOR PERSONAL SERVICES CONTRACTS**

I. DEFINITIONS

- A. Approved Project Budget** means the most recent statement, approved by the FTA, of the costs of the Project, the maximum amount of Federal assistance for which the City is currently eligible, the specific tasks (including specified contingencies) covered, and the estimated cost of each task.
- B. Contractor** means the individual or entity awarded a third party contract financed in whole or in part with Federal assistance originally derived from FTA.
- C. Cooperative Agreement** means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project or Program, and in which FTA takes an active role or retains substantial control.
- D. Federal Transit Administration (FTA)** is an operating administration of the U.S. DOT.
- E. FTA Directive** includes any FTA circular, notice, order or guidance providing information about FTA's programs, application processing procedures, and Project management guidelines. In addition to FTA directives, certain U.S. DOT directives also apply to the Project.
- F. Grant Agreement** means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project, and in which FTA does not take an active role or retain substantial control, in accordance with 31 U.S.C. § 6304.
- G. Government** means the United States of America and any executive department or agency thereof.
- H. Project** means the task or set of tasks listed in the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement or Cooperative Agreement applicable to the Project. In the case of the formula assistance program for urbanized areas, for elderly and persons with disabilities, and non-urbanized areas, 49 U.S.C. §§ 5307, 5310, and 5311, respectively, the term "Project" encompasses both "Program" and "each Project within the Program," as the context may require, to effectuate the requirements of the Grant Agreement or Cooperative Agreement.
- I. Recipient** means any entity that receives Federal assistance directly from FTA to accomplish the Project. The term "Recipient" includes each FTA "Grantee" as well as each FTA Recipient of a Cooperative Agreement. For the purpose of this Agreement, Recipient is the City.
- J. Secretary** means the U.S. DOT Secretary, including his or her duly authorized designee.
- K. Third Party Contract** means a contract or purchase order awarded by the Recipient to a vendor or contractor, financed in whole or in part with Federal assistance awarded by FTA.
- L. Third Party Subcontract** means a subcontract at any tier entered into by Contractor or third party subcontractor, financed in whole or in part with Federal assistance originally derived from FTA.
- M. U.S. DOT** is the acronym for the U.S. Department of Transportation, including its operating administrations.

II. FEDERAL CHANGES

Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between the City and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

III. ACCESS TO RECORDS

A. The Contractor agrees to provide the City and County of San Francisco, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Agreement for the purposes of making audits, examinations, excerpts and transcriptions.

B. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

C. The Contractor agrees to maintain all books, records, accounts and reports required under this Agreement for a period of not less than three years after the date of termination or expiration of this Agreement, except in the event of litigation or settlement of claims arising from the performance of this Agreement, in which case Contractor agrees to maintain same until the City, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. 49 CFR 18.36(i)(11).

IV. DEBARMENT AND SUSPENSION

See Certification Regarding Debarment, Suspension, and Other Responsibility Matters.

V. NO FEDERAL GOVERNMENT OBLIGATIONS TO CONTRACTOR

A. The City and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the City, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

B. The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

VI. CIVIL RIGHTS

A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 41 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOT) regulations, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor,” 41 CFR Parts 60 et seq., (which implement Executive Order No. 11246, “Equal Employment Opportunity,” as amended by Executive Order No. 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

2. Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623 and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

3. Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, “Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act,” 29 CFR Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

C. Flow Down. The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

VII. PATENT RIGHTS (*applicable to contracts for experimental, research, or development projects financed by FTA*)

A. General. If any invention, improvement, or discovery is conceived or first actually reduced to practice in the course of or under this Agreement, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the City and Contractor agree to take actions necessary to provide immediate notice and a detailed report to the FTA.

B. Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor’s status (large business, small business, state government or instrumentality, local government, nonprofit organization, institution of higher education, individual), the City and Contractor agree to take the necessary actions to provide, through FTA,

those rights in that invention due the Federal Government described in U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 CFR Part 401.

C. The Contractor also agrees to include the requirements of this clause in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

VIII. RIGHTS IN DATA AND COPYRIGHTS (Applicable to contracts for planning, research, or development financed by FTA)

A. Definition. The term "subject data" used in this section means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under this Agreement. The term includes graphic or pictorial delineation in media such as drawings or photographs; text in specifications or related performance or design-type documents; machine forms such as punched cards, magnetic tape, or computer memory printouts; and information retained in computer memory. Examples include, but are not limited to, computer software, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information. The term "subject data" does not include financial reports, cost analyses, and similar information incidental to contract administration.

B. Federal Restrictions. The following restrictions apply to all subject data first produced in the performance of this Agreement.

1. Publication of Data. Except for its own internal use in conjunction with the Agreement, Contractor may not publish or reproduce subject data in whole or in part, or in any manner or form, nor may Contractor authorize others to do so, without the written consent of the Federal Government, until such time as the Federal Government may have either released or approved the release of such data to the public; this restriction on publication, however, does not apply to any contract with an academic institution.

2. Federal License. In accordance with 49 CFR §§ 18.34 and 19.36, the Federal Government reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, "for Federal Government purposes," any subject data or copyright described below. As used in the previous sentence, "for Federal Government purposes" means use only for the direct purposes of the Federal Government. Without the copyright owner's consent, the Federal Government may not extend its Federal license to any other party:

a. Any subject data developed under this Agreement, whether or not a copyright has been obtained; and

b. Any rights of copyright purchased by City or Contractor using Federal assistance in whole or in part provided by FTA.

3. FTA Intention. When FTA awards Federal assistance for a experimental, research or developmental work, it is FTA's general intention to increase transportation knowledge available to the public, rather than to restrict the benefits resulting from the work to participants in the work. Therefore, unless FTA determines otherwise, the Contractor

performing experimental, research, or developmental work required by the underlying Agreement agrees to permit FTA to make available to the public, either FTA's license in the copyright to any subject data developed in the course of the Agreement, or a copy of the subject data first produced under the Agreement for which a copyright has not been obtained. If the experimental, research, or developmental work which is the subject of this Agreement is not completed for any reason whatsoever, all data developed under this Agreement shall become subject data as defined in Subsection a. above and shall be delivered as the Federal Government may direct. This subsection does not apply to adaptations of automatic data processing equipment or programs for the City's use the costs of which are financed with Federal transportation funds for capital projects.

4. Hold Harmless. Unless prohibited by state law, upon request by the Federal Government, the Contractor agrees to indemnify, save, and hold harmless the Federal Government, its officers, agents, and employees acting within the scope of their official duties, against any liability, including costs and expenses, resulting from any willful or intentional violation by the Contractor of proprietary rights, copyrights, or right of privacy, arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under this Agreement. The Contractor shall not be required to indemnify the Federal Government for any such liability arising out of the wrongful acts of employees or agents of the Federal Government.

5. Restrictions on Access to Patent Rights. Nothing contained in this section on rights in data shall imply a license to the Federal Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Federal Government under any patent.

6. Application to Data Incorporated into Work. The requirements of Subsections (2), (3) and (4) of this Section do not apply to data developed by the City or Contractor and incorporated into the work carried out under this Agreement, provided that the City or Contractor identifies the data in writing at the time of delivery of the work.

7. Application to Subcontractors. Unless FTA determines otherwise, the Contractor agrees to include these requirements in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

C. Provision of Rights to Government. Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor's status (large business, small business, state government or instrumentality, local government, nonprofit organization, institution of higher education, individual, etc.), the City and Contractor agree to take the necessary actions to provide, through FTA, those rights in that invention due the Federal Government described in U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 CFR Part 401.

D. Flow Down. The Contractor also agrees to include these requirements in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

IX. CONTRACT WORK HOURS AND SAFETY STANDARDS (*applicable to non-construction contracts in excess of \$100,000 that employ laborers or mechanics on a public work*)

A. Overtime requirements - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

B. Violation; liability for unpaid wages; liquidated damages - In the event of any violation of the clause set forth in paragraph A of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph A of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph A of this section.

C. Withholding for unpaid wages and liquidated damages - The City and County of San Francisco shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

D. Subcontracts - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs A through D of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs A through D of this section.

X. ENERGY CONSERVATION REQUIREMENTS

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

XI. CLEAN WATER REQUIREMENTS (*applicable to all contracts in excess of \$100,000*)

A. The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq. Contractor agrees to report each violation of these requirements to the City and understands

and agrees that the City will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA regional office.

B. The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

XII. CLEAN AIR (*applicable to all contracts and subcontracts in excess of \$100,000, including indefinite quantities where the amount is expected to exceed \$100,000 in any year.*)

A. Contractor agrees to comply with applicable standards, orders, or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

XIII. PRIVACY

If Contractor or its employees administer any system of records on behalf of the Federal Government, Contractor and its employees agree to comply with the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. § 552a (the Privacy Act). Specifically, Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Government. Contractor acknowledges that the requirements of the Privacy Act, including the civil and criminal penalties for violations of the Privacy Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of this Agreement. The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

XIV. DRUG AND ALCOHOL TESTING

To the extent Contractor, its subcontractors or their employees perform a safety-sensitive function under the Agreement, Contractor agrees to comply with, and assure compliance of its subcontractors, and their employees, with 49 U.S.C. § 5331, and FTA regulations, "Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations," 49 CFR Part 655.

XV. TERMINATION FOR CONVENIENCE OF CITY (*required for all contracts in excess of \$10,000*)

See Agreement Terms and Conditions.

XVI. TERMINATION FOR DEFAULT (*required for all contracts in excess of \$10,000*)

See Agreement Terms and Conditions.

XVII. FALSE OR FRAUDULENT STATEMENTS AND CLAIMS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying Agreement, the Contractor certifies or affirms the truthfulness and accuracy of

any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

XVIII. FLY AMERICA

The Contractor agrees to comply with 49 U.S.C. 40118 (the “Fly America” Act) in accordance with the General Services Administration’s regulations at 41 CFR Part 301-10, which provide that recipients and sub-recipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

XIX. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any (name of grantee) requests which would cause (name of grantee) to be in violation of the FTA terms and conditions.

XX. TRANSIT EMPLOYEE PROTECTIVE AGREEMENTS (applicable to each contract for transit operations performed by employees of a Contractor recognized by FTA to be a transit operator)

A. The Contractor agrees to comply with applicable transit employee protective requirements as follows:

1. General Transit Employee Protective Requirements - To the extent that FTA determines that transit operations are involved, the Contractor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this contract and to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the letter of certification from the U.S. DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Contractor agrees to carry out that work in compliance with the conditions stated in that U.S. DOL letter. The requirements of this subsection A, however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. § 5310(a)(2), or for projects for non-urbanized areas authorized by 49 U.S.C. § 5311. Alternate provisions for those projects are set forth in subsections (2) and (3) of this clause.

2. Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5310(a)(2) for Elderly Individuals and Individuals with Disabilities - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5310(a)(2), and if the U.S. Secretary of Transportation has determined or determines in the future that the employee protective requirements of 49 U.S.C. § 5333(b) are necessary or appropriate for the state and the public body sub-recipient for which work is performed on the underlying contract, the Contractor agrees to carry out the Project in compliance with the terms and conditions determined by the U.S. Secretary of Labor to meet the requirements of 49 U.S.C. § 5333(b), U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the U.S. DOL's letter of certification to FTA, the date of which is set forth Grant Agreement or Cooperative Agreement with the state. The Contractor agrees to perform transit operations in connection with the underlying contract in compliance with the conditions stated in that U.S. DOL letter.

3. Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5311 in Non-urbanized Areas - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5311, the Contractor agrees to comply with the terms and conditions of the Special Warranty for the Non-urbanized Area Program agreed to by the U.S. Secretaries of Transportation and Labor, dated May 31, 1979, and the procedures implemented by U.S. DOL or any revision thereto.

B. The Contractor also agrees to include the any applicable requirements in each subcontract involving transit operations financed in whole or in part with Federal assistance provided by FTA.

XXI NATIONAL ITS ARCHITECTURE POLICY (Applicable to contracts for ITS projects)

If providing Intelligent Transportation Systems (ITS) property or services, Contactor shall comply with the National ITS Architecture and standards to the extent required by 23

U.S.C. § 512, FTA Notice, "FTA National ITS Architecture Policy on Transit Projects," 66 FR 1455, et seq., January 8, 2001, and later published policies or implementing directives FTA may issue.

XXII. TEXTING WHILE DRIVING; DISTRACTED DRIVING

Consistent with Executive Order 13513 "Federal Leadership on Reducing Text Messaging While Driving", Oct. 1, 2009 (available at <http://edocket.access.gpo.gov/2009/E9-24203.htm>) and DOT Order 3902.10 "Text Messaging While Driving", Dec. 30, 2009, SFMTA encourages Contractor to promote policies and initiatives for employees and other personnel that adopt and promote safety policies to decrease crashes by distracted drivers, including policies to ban text messaging while driving, and to include this provision in each third party subcontract involving the project.

XXIII. SEAT BELT USE

In compliance with Executive Order 13043 "Increasing Seat Belt Use in the United States", April 16, 1997 23 U.S.C. Section 402 note, the SFMTA encourages Contractor to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company owned, rented, or personally operated vehicles, and to include this provision in each third party subcontract involving the project.

EXHIBIT B: PROJECT DELIVERY SCHEDULE

Item	Maximum Time after Notice to Proceed
Project Plan	1 month
Delivery of 1 st Vehicle to SFMTA	24 months
Completion of 1 st Vehicle, including testing	27 months
Delivery of 2 nd Vehicle to SFMTA	3 months after delivery of the 1 st Vehicle
Delivery of remaining PCCs	One car every 1.5 months
Monthly Progress Updates	10 th day of the month for the previous month
Delivery of Publications (Manuals, Parts Book, Drawings)	Drafts for review at delivery of 1 st Vehicle. Finals with delivery of 5 th Vehicle

Deliveries:

Note 1: All deliveries to SFMTA shall be to the SFMTA Muni Metro East facility, weekday working hours, **Monday through Friday, 9 a.m. – 3 p.m.**, except SFMTA holidays, or as otherwise specified in writing by SFMTA. Contractor shall provide at least five days notice to SFMTA prior to delivery.

Note 2: Due to service demands, SFMTA can only allow up to three PCCs at the Contractor's site at any one time and one PCC in Acceptance testing, for a total of up to four PCCs out of service at any one time.

Assuming that the SFMTA discovers no Defects with a Vehicle, the SFMTA will make every effort to test, burn-in, and Accept a Vehicle within 1.5 months (45 calendar days) after delivery. If the SFMTA has not completed acceptance of a Vehicle within that time period, then Contractor can deliver the next Vehicle, temporarily exceeding the above requirement of one Car in Acceptance testing at a time. If a Defect delays Acceptance Testing, then the 1.5-month time period will begin when the Defect is resolved. The term "Defect" as used in this paragraph is as defined in Section 17.1 of Volume 2 (Technical Specifications) of this Agreement.

Note 3: The SFMTA will release a Vehicle to Contractor upon delivery of a rehabilitated Vehicle from the Contractor subject to the limitation in Note 2 above.

EXHIBIT C: SCHEDULE OF PRICES

City is exempt from federal excise taxes. All bid item prices shall be accurate reflections of the bid items proposed.

Item	Description	Quantity	Unit Price	Total Price
1	Mechanical and electrical rehabilitation of 13 PCCs, including site support and warranty	16	\$1,990,381	\$31,846,096
2	Vehicle shipping	16	\$39,653	\$634,448
3	Training	Lump Sum	\$150,000	\$150,000
4	Spare parts & special tools	Lump Sum	\$500,000	\$500,000
5	Taxes (8.75% of taxable Items)	Lump Sum	\$1,351,884	\$1,351,884
BASE CONTRACT TOTAL				\$34,482,428

EXHIBIT D: PAYMENT SCHEDULE

1. Rehabilitation of PCC Vehicles

1a.	Delivery and approval of all plans required by Technical Specifications	5% of the total amount on line items 1 and 2
1b	Completion of Vehicle disassembly as approved by SFMTA	10% of the amount of Unit Price for Line Items 1 and 2, as per approved Price Schedule
1c	Completion of all Vehicle rehabilitation on each PCC Vehicle as approved by SFMTA, prior to shipment to SFMTA	50% of the amount of Unit Price for Line Items No. 1 and 2, as per approved Price Schedule
1d	Successful completion of all Vehicle acceptance testing of PCC Vehicle on SFMTA Property	30% of the amount of Line Items No. 1 and 2 on Price Schedule

2. Training

2.	Completion of all training	95% of Item 3 on Price Schedule.
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3. Spare Parts and Special Tools

3.	Delivery and Acceptance of Spare Parts and Special Tools	Cost of items delivered
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4. Final acceptance of all contract deliverables

4.	Final acceptance of all contract deliverables by SFMTA	5% of Items 1 and 2 and 3 on Price Schedule
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Note 1: Invoices can only be processed and approved when a Progress Payment Application is submitted with all required forms correctly completed and attached with the invoice.

EXHIBIT E

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

SBE REQUIREMENTS

Architects, Engineers, Planners, and Environmental Scientists and Other Professional Services

I. POLICY

The San Francisco Municipal Transportation Agency (SFMTA), recipient of federal financial assistance from the Federal Transit Administration (FTA), is committed to and has adopted, a Small Business Enterprise (SBE) Program to implement the Disadvantaged Business Enterprise regulations in 49 C.F.R. Part 26 (the "Regulations"), issued by the Department of Transportation (DOT).

It is the policy of the SFMTA to ensure nondiscrimination in the award and administration of DOT-assisted contracts and to create a level playing field on which SBEs can compete fairly for contracts and subcontracts relating to SFMTA's construction, procurement and professional services activities. To this end, SFMTA has developed procedures to remove barriers to SBE participation in the bidding and award process and to assist SBEs to develop and compete successfully outside of the SBE program. In connection with the performance of this contract, the Contractor will cooperate with SFMTA in meeting these commitments and objectives.

Pursuant to 49 C.F.R. Section 26.13, the Contractor is required to make the following assurance in its agreement with SFMTA and to include this assurance in any agreements it makes with subcontractors in the performance of this contract:

The Contractor or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 C.F.R. Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor or Subcontractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as SFMTA deems appropriate.

A. Applicability

Pursuant to 49 C.F.R. Sections 26.3 and 26.21, the SFMTA, a recipient of federal financial assistance from the FTA, is required to implement an SBE Program in accordance with the Regulations. The Regulations are incorporated into this Program as though fully set forth herein. This Program applies to all SFMTA contracts that are funded, in whole or in part, by DOT federal financial assistance.

B. Objectives

The objectives of this program are to:

1. Remove barriers to SBE participation in the bidding, award and administration of SFMTA contracts;
2. Assist SBEs to develop and compete successfully outside of the Program;
3. Ensure that the Program is narrowly tailored in accordance with 49 C.F.R. Part 26;
4. Ensure that only SBEs meeting the eligibility requirements are allowed to participate as SBEs;
5. Identify business enterprises that are qualified as SBEs and are qualified to provide SFMTA with required materials, equipment, supplies and services; and to develop a good rapport with the owners, managers and sales representatives of those enterprises;
6. Develop communications programs and procedures which will acquaint prospective SBEs with SFMTA's contract procedures, activities and requirements and allow SBEs to provide SFMTA with feedback on existing barriers to participation and effective procedures to eliminate those barriers; and
7. Administer the Program in close coordination with the various divisions within SFMTA so as to facilitate the successful implementation of this Program.

C. Administration of Program

The Director of Transportation is responsible for adherence to this policy. The Director of the SFMTA Contract Compliance Office (CCO) shall be responsible for the development, implementation and monitoring of this program. It is the expectation of the Municipal Transportation Board of Directors and the Director of Transportation that all SFMTA personnel shall adhere to the provisions and the spirit of this program.

D. Prohibited Discrimination

SFMTA shall not exclude persons from participation in, deny benefits to, or otherwise discriminate against any persons in connection with the award and performance of any contract governed by the Regulations on the basis of race, color, sex or national origin. The City and County of San Francisco also prohibits discrimination on the basis of (the fact or perception of a person's) race, color, creed, religion, national origin, ancestry, age, sex, sexual orientation, gender identity, domestic partner status, marital status, disability or Acquired Immune Deficiency Syndrome or HIV status (AIDS/HIV status).

SFMTA shall not directly or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of this program with respect to individuals in the groups or categories or having the characteristics listed above.

SFMTA has signed the federal assurances regarding non-discrimination required under 49 C.F.R. Section 26.13. See Exhibit E, Section VII (DBE Assurances) for requirements of Contractor and Subconsultants.

II. DEFINITIONS

Any terms used in SFMTA's SBE Program that are defined in 49 C.F.R. Section 26.5 or elsewhere in the Regulations shall have the meaning set forth in the Regulations. An SBE is defined as follows:

Small Business Enterprise (SBE): An SBE is a for-profit, small business concern with a three- (3-) year average gross revenue not exceeding \$12 million and is certified under any of the following programs: the State of California's Small Business Program with the Department of General Services, the California Unified Certification Program with a U.S. Department of Transportation recipient, or the City and County of San Francisco's LBE program with the Human Rights Commission.

III. SBE PARTICIPATION AND SUBCONTRACTING REQUIREMENTS

A. SBE Participation Goal

A goal of five percent SBE participation has been established for this contract. This SBE goal will apply to the following types of contracts or scope of work in the contract: Construction – Building, Heavy; Construction-Dredging and Surface Cleanup; Construction (specialty trades); General Freight Trucking; Hazardous Waste Collection, Trucking; Remediation; Testing Labs; Computer Programming and Design; Architecture & Engineering services (to include professional and technical services); Surveying and Mapping; Drafting (Design Services); Landscape Architecture; Building Inspection; Machinery and Equipment Rental (Construction); Merchant Wholesalers, Durable Goods; Public Relations; and Telecommunications.

B. Determining the Amount of SBE Participation

The SFMTA strongly encourages the prime contractor to make every good faith effort to include SBEs to perform meaningful work in all aspects of the projects. To accomplish this goal, the following guidance is provided:

1. SBE Participation

SBE participation includes contracts (other than employee contracts) with SBEs for any goods or services specifically required for the completion of the work under

the Agreement. An SBE may participate as a prime contractor/consultant, subcontractor/consultant, joint venture partner with a prime or consultant, vendor of material or supplies incorporated or expended in the work, or a supplier of other services such as shipping, transportation, testing, equipment rental, insurance services and other support services necessary to fulfill the requirements of the Agreement.

2. Function

An SBE must perform a commercially useful function, i.e., must be responsible for the execution of a distinct element of work and must carry out its responsibility by actually performing, managing and supervising the work. However, an SBE may contract out a portion of the work if it is considered to be a normal industry practice. If an SBE contractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of normal industry practices, the SBE shall be presumed not to be performing a commercially useful function.

3. Determining the amount of SBE Participation

SBE participation includes that portion of the contract work actually performed by a certified SBE with its own forces. An SBE may participate as a prime contractor, subcontractor, joint venture partner, or vendor or supplier of materials or services required by the contract.

An SBE's participation can only be counted if it is performing a commercially useful function.. An SBE is performing a commercially useful function when it actually performs, manages and supervises a portion of the work involved. There is a rebuttable presumption that if the SBE is not responsible for at least 30% of the work with its own forces, or subcontracts a greater portion of the work than the normal industry standard, it is not performing a commercially useful function.

The Contractor shall determine the amount of SBE participation for each SBE performing work on the contract in terms of both the total value of the work in dollars and the percentage of the total contract bid price. The Contractor shall also determine the total amount of SBE participation for the entire contract. The Contractor shall count SBE participation according to the following guidelines:

a. SBE Prime Contractor

Count the entire dollar amount of the work performed or services provided by the SBE's own forces, including the cost of materials and supplies obtained for the work and the reasonable fees and commissions charged for the services. Do not count any work subcontracted to another firm as SBE participation by the SBE Prime Contractor.

b. SBE Subcontractor

Count the entire amount of the work performed or services provided by the SBE's own forces, including the cost of materials

and supplies obtained for the work (except for materials and supplies purchased or leased from the Prime Contractor) and reasonable fees and commissions charged for the services. Do not count any work subcontracted by an SBE subcontractor to another firm as SBE participation by said SBE subcontractor. If the work has been subcontracted to another SBE, it will be counted as SBE participation by that other SBE.

c. SBE Joint Venture Partner

Count the portion of the work that is performed solely by the SBE's forces or if the work is not clearly delineated between the SBE and the joint venture partner, count the portion of the work equal to the SBE's percentage of ownership interest in the joint venture.

d. SBE Regular Dealer

Count 60% of the costs of materials and supplies obtained from an SBE regular dealer that owns, operates or maintains a store or warehouse in which the materials and supplies are regularly bought, kept in stock and sold or leased to the public in the usual course of business (except regular dealers of bulk items such as petroleum, cement and gravel who own and operate distribution equipment in lieu of maintaining a place of business). This applies whether an SBE is a prime contractor or subcontractor.

e. Other SBEs

Count the entire amount of fees or commissions charged for assistance in procuring or delivering materials and supplies when purchased from an SBE that is not a manufacturer or regular dealer. Do not count the cost of the materials and supplies.

C. Submission of Certification for SBEs

All firms wishing to work for the City and County of San Francisco must be certified as bona fide SBEs with the SFMTA. This requires submission of the completed certification applications for either SBEs, DBEs, or LBEs. For information where to obtain applications for these certifications, please contact the SFMTA Contract Compliance at:

San Francisco Municipal Transportation Agency
Contract Compliance Office
One South Van Ness Avenue
San Francisco, California 94103
(415) 701-4362

D. Prompt Payment to Subcontractors

In accordance with SFMTA's SBE Program, no later than three days from the date of Contractor's receipt of progress payments by SFMTA, the Contractor shall pay any subcontractors for work that has been satisfactorily performed by said subconsultants. Unless the prime consultant notifies the CCO Director in writing within 10 working days prior to receiving payment from the City that there is a bona fide dispute between the prime consultant and the subconsultant. Within five working days of such payment, Consultant shall provide City with a declaration under penalty of perjury that it has promptly paid such subconsultants for the work they have performed. Failure to provide such evidence shall be cause for City to suspend future progress payments to Consultants.

Consultant may withhold retention from subconsultants if City withholds retention from Consultant. Should retention be withheld from Consultant, within 30 days of City's payment of retention to Consultant for satisfactory completion of all work required of a subconsultant, Contractor shall release any retention withheld to the subconsultant. Satisfactory completion shall mean when all the tasks called for in the subcontract with subconsultant have been accomplished and documented as required by City.

If the Consultant does not pay its subconsultant as required under the above paragraph, it shall pay interest to the subconsultant at the legal rate set forth in subdivision (a) of Section 685.010 of the California Code of Civil Procedure.

IV. MONITORING AND COMPLIANCE

A. SBE Records; Reporting Requirements

The Contractor shall maintain records of all SBE participation in the performance of the contract including subcontracts entered into with certified SBEs and all materials purchased from certified SBEs.

The Contractor shall submit SBE participation reports to SFMTA on a monthly basis, or as otherwise directed by the CCO. The reports shall identify the name and address of each SBE performing work on the project, and show the total dollar amount requested for payment and the total dollar amount actually paid to each SBE. Within thirty (30) days of completion of the contract, or as otherwise directed by the CCO, the Contractor shall submit a final summary SBE report to the CCO.

B. Noncompliance; Administrative Remedies

SFMTA will implement appropriate mechanisms to ensure that its prime contractors and subcontractors comply with SBE Program regulatory requirements. SFMTA will apply legal and contractual remedies available under federal, state and local law.

SFMTA will also include a monitoring and enforcement mechanism to verify that the work committed to SBEs at contract award is actually performed by the SBEs. This mechanism will provide for a running tally of actual SBE attainments and include a provision ensuring that

SBE participation is credited toward overall or contract goals only when payments are actually made to SBE firms.

TECHNICAL SPECIFICATIONS

Complete Rehabilitation of 16 Ex-SEPTA PCC Historic Streetcars

CONTRACT No. CPT 660

(CCO No. 13-1241)

Volume II

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TECHNICAL SPECIFICATIONS

1 General:

This specification describes the remanufacture of 13 SFMTA single-ended and three double-ended historic Presidents' Conference Committee (PCC) streetcars.

1.1 DELIVERABLES

In addition to remanufacturing the PCCs, the Contractor will be required to submit a series of documents. These documents are known as Deliverables. The Contractor shall assign a unique title and tracking number to each deliverable. All Deliverables listed in this Technical Specification are to be signed by the Contractor, scanned in high resolution Adobe Portable Document Format PDF format and submitted to the Engineer for approval.

Timeliness of the deliverable is of the utmost importance since the work or subsequent work associated with each Deliverable shall not begin until the Engineer has approved the Deliverable.

Individual deliverables can initially be sent via email; however, the Contractor shall provide a DVD(s) with the complete set of deliverables at the time the final Car is delivered. The DVD shall also contain a Table of Contents listing each Deliverable by name, description, tracking number and submittal date.

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1.1.1 Management Plan

The Contractor shall provide a management plan describing the Contractor's project team organization listing the personnel responsible for the project's completion, their individual areas of responsibility, their qualifications, and their contact information. As the personnel resources change during the life of the project, the contractor will provide an updated management plan.

TDP DELIVERABLE: Management Plan

1.1.2 As-Built Drawings & Schematics

The Contractor shall provide as-built detail & assembly drawings and electrical schematics for the entire Car in AutoCAD 2000 .DWG format. Each drawing will be assigned a unique drawing number and all drawings shall be arranged into a top-down tree structure drawing package.

Each assembly drawing and schematic shall have a parts list describing the appropriate sub-assemblies, detail drawings and all other components necessary to complete the assembly. Each item in the parts list shall have a unique name, part number and quantity used.

The Contractor shall require that sub-suppliers provide assembly drawings with part lists. The sub-supplier drawings shall be integrated into the drawing package.

Contact information for the relevant sub-suppliers or part manufacturers shall be provided in the Notes section of each drawing.

Any additional information necessary to complete the manufacture of the part or assembly such as materials, bolt torque values, lubrication requirements, etc. shall be included in the Notes section of the drawings.

Wiring diagrams/schematics shall be provided in AutoCAD 2000 .DWG format. The diagrams shall be organized in a top-down structure and each diagram shall be assigned a unique drawing number. The top level should be a block diagram with individual systems separated (doors, console, propulsion, aux power, etc.) and showing the interconnections between each block with wire numbers, multi-pin connector or terminal block numbers, and each block shall indicate the individual detail drawing numbers for that particular sub-system. Detailed wiring diagrams for each sub-system shall include all wire numbers, terminal block and connector numbers, and references to different pages and page sector where the wiring continues. Diagrams shall employ a sector reference method at the top and left side of the page in order to narrow down the location of continuing wires. Any time a wire connects to a component or junction point, the terminal block and/or connector pin numbers of that particular junction point or component shall be referenced. This includes all relay coils, contacts, cam switches, console switches, motor connections, DC converter connections, terminal blocks, and multi-pin connectors. Detailed wiring diagrams shall also indicate the names of all relays (new and reinstalled), and relay contacts shall include their name and indicate the coil location if it is located on a separate page. If each PCC is not wired the same way, the wiring diagrams shall indicate the applicability by Car number and change pages shall be provided.

Drawings & Schematics shall be delivered prior to delivery of the second car. Later revisions shall be delivered as quickly as possible and a complete final drawing/schematic package will be delivered when the last car is delivered.

TDP DELIVERABLE: As-Built Drawings

1.1.3 Bill of Materials (BOM):

The Contractor shall compile all of the parts lists from the assembly drawings and schematics into a single searchable, sortable Microsoft Excel file. Each entry shall provide the part name, manufacturer, and part number. The Bill of Materials shall be delivered prior to the delivery of the second car.

TDP DELIVERABLE: Bill of Materials

1.1.4 Support Documentation:

The Contractor shall provide component support documents such as sub-suppliers manuals, materials data safety sheets, catalog cuts, spec sheets, vendor drawings, wiring diagrams, etc. sufficient that the SFMTA will be able to properly use and maintain each component. Support Documentation shall be delivered prior to delivery of the second car.

TDP DELIVERABLE: Support Documentation:

1.1.5 Instructions and Training for Maintenance and Operations:

For any modification from the Car's existing configuration or part substitution performed by the Contractor or sub-supplier that requires periodic maintenance or special repair procedures, the Contractor shall provide detailed maintenance instructions and preventative maintenance schedules sufficient that the components can be properly maintained by the SFMTA.

For any modification that requires that the Cars be operated in any way different from original, the Contractor shall provide Operator's training manuals, training course and matching video course. Instructions and Training documentation shall be delivered prior to delivery of the second car.

TDP DELIVERABLE: Maintenance Instructions and Training

1.1.6 Project Plan and Schedule:

The Contractor shall provide a detailed Project Plan and Schedule. The plan shall list the project tasks such as engineering, production planning, parts procurement, facilities preparation, production stages, QA/QC inspection points, testing, delivery and commissioning.

The plan shall include a schedule showing the planned start and finish dates for each task. The schedule shall be provided in the form of a Gantt chart. If at any time during the life of the project, the Contractor determines the planned schedule is not accurate, then the Contractor shall promptly update the schedule in accordance with Section 59.2 of the Agreement.

TDP DELIVERABLE: Project Plan & Schedule

1.1.7 Manufacturing/Repair Procedures and Sign Off Sheets:

The Contractor shall provide a complete set of manufacturing/repair procedures. These shall be the same procedures as supplied to the Contractor's work crew. The procedures shall describe in detail each step in the overhaul. If the Contractor farms out the remanufacture of any major subassembly to a sub-contractor, then the Contractor shall also require the sub-contractor to provide manufacturing procedures.

Processes for repair of the Carbody are to be described in especially thorough detail, describing any special tools that will be used: such as ultrasound, dye penetrant, X-ray, welding equipment, welding materials, welder's certifications, industry welding practices used, etc.

The Contractor shall provide sign off sheets for each of the procedures. As each of the procedures is completed, the Contractor shall sign and date the sign off sheet confirming the work has been completed.

TDP DELIVERABLE: Manufacturing/Repair Procedures

TDP DELIVERABLE: Manufacturing/Repair Sign Off Sheets

1.1.8 Quality Assurance/Quality Control Plan and Reports:

The Contractor shall provide a Quality Assurance/Quality Control (QA/QC) Plan to be approved by the Engineer. The plan shall describe the Contractor's quality control processes, material review procedures, and Quality Control inspection and test processes.

The plan shall allow the Engineer to perform his/her own inspections at any time during the manufacturing process to verify the work is being performed in accordance with the Technical Specification.

The plan shall include inspection points in which the work up to that point is inspected and determined to meet the QA/QC criteria or is otherwise dispositioned through the Contractor's Materials Review process before any additional work shall continue.

As each QA/QC Inspection is completed, the Contractor shall provide a signed and dated report documenting the results of the inspection

TDP DELIVERABLE: Quality Assurance/Quality Control Plan & Reports (QA/QCP)

1.1.9 Test and Commissioning Plan and Reports:

The Contractor shall provide a plan to test and commission the Cars. The plan shall include procedures to verify if each of the remanufactured systems meets the performance requirements of the Technical Specification.

The Contractor shall provide reports documenting the results of each test and commissioning procedure. The Contractor shall sign and date each test report upon completion.

The Contractor should anticipate that the SFMTA will run a 1000-mile burn-in period before acceptance of each Car.

TDP DELIVERABLE: Test and Commission Plan

TDP DELIVERABLE: Test and Commissioning Reports

1.1.10 State and Federal Requirements:

In addition to the requirements of the Technical Specification, the Contractor shall ensure that the Cars are compliant with all applicable State and Federal Regulations; including, but not limited to:

California Public Utilities Commission (CPUC) General Order 143-B: Safety Rules and Regulations Governing Light Rail Transit, Title 8: Special Provisions for Historical Streetcars.

California Public Utilities Commission (CPUC) General Order 172: Rules and Regulations Governing the Use of Personal Electronic Devices By Employees of Rail Transit Agencies and Rail Fixed Guideway Systems.

Code of Federal Regulations (CFR) Title 49, Part 38: Americans with Disabilities Act (ADA) Accessibility Specifications For Transportation Vehicles.

Code of Federal Regulations (CFR) Title 49, Part 238.103 Fire Safety

The Contractor shall submit a plan describing how the Cars will be made compliant with these requirements.

TDP DELIVERABLE: State and Federal Requirements Plan

1.1.11 Other Deliverables

In addition to the Deliverables list in this chapter, other Deliverables are listed throughout the Technical Specification.

1.1.12 Muni Furnished Drawings, Schematics, and Documents

Copies of PCC related drawings, schematics and documents from the SFMTA's archives will be made available to the Contractor. They are to be used for reference purposes only and do not necessarily reflect the current or final configuration of the Cars.

1.1.13 Shipment & Possession

1.1.13.1 Contractor Taking Possession of the Cars

The Contractor shall take possession of the Cars from the SFMTA's facilities in San Francisco, California (6:00am – 3:00pm Monday through Friday).

1.1.14 Pre-Shipment Inspection and Inventory

The Contractor shall conduct a pre-shipment inspection and inventory to determine the condition and completeness of each Car prior to it being loaded onto the transport vehicle for shipment to the Contractor's facility. The Contractor shall prepare an inspection and inventory report for each Car.

TDP DELIVERABLE: Pre-Shipment Inspection and Inventory Report

1.1.14.1 Shipment

The Contractor is responsible for all shipments of the Cars from the point the contractor takes possession of it at the SFMTA's facility to the point of which the SFMTA accepts the Car after its return to the SFMTA's facilities. The Contractor shall also provide shipping to the SFMTA for all spare and salvaged parts. The Contractor shall be responsible for shipping all of the SFMTA -provided parts to its location. The Contractor is responsible for all damage or missing parts that occur during the shipments.

1.1.14.2 Double Ended PCCs

Double ended cars require, and the Contractor shall provide, twice the number of certain components necessary to complete the overhaul, components such as the Operator's cab components, horn, bell, Life Safety Guard, destination signs, headlights, etc..

The Contractor shall install new Operator's cab enclosures with the rear panels relocated afterwards to accommodate Operator's knee clearance to the palm rest bar. The installation in PCC # 1009 can be used as an example.

1.2 DISASSEMBLY

The Cars shall be thoroughly disassembled to expose all structural, mechanical and electrical components to allow for complete rehabilitation of the Car. All components that are to be temporarily removed are to be cleaned, repaired if necessary, tagged and stored in a location dedicated to the project. The Engineer shall have access to the storage area for inspection. Items not being reused but deemed salvageable by the Engineer shall be delivered to the SFMTA.

1.2.1 Hazardous materials:

The contractor shall remove all Hazardous materials from the Cars and dispose of them in accordance with all applicable laws, Federal and State regulations.

1.2.2 Deferred Work:

If during any of the disassembly inspection processes, the parties determine and agree that a particular task doesn't need to be performed due to the good condition of the component, then the Contractor will credit back the SFMTA the monetary value of the task as agreed to by both parties.

1.2.3 Missing or Unrepairable Historic Components:

Historic Components are defined as original parts that cannot be readily bought or duplicated without special tooling, molds, or metal forming by hand using methods such as hammer and anvil work.

Historic Components that are missing or damaged beyond reuse are to be replaced in kind with original substitute parts if available.

For Historic Components that cannot be readily bought or duplicated, the Contractor will provide suitable substitutes which duplicates the look and function of the original parts to the greatest extent possible. Substitute parts shall be submitted to the Engineer for approval prior to installation.

1.3 CARBODY

1.3.1 Cleaning and Grit blasting

The carbody shall be cleaned and grit blasted inside and out, down to the clean bare metal such that no paint, dirt, grease, or rust exists anywhere throughout the carbody. Care shall be taken during the grit blasting process to minimize warping of the carbody panels.

1.3.2 Carbody Inspection and Repair Report

The Contractor shall inspect the stripped Carbody, also including the sub-structure, frame, ducts, channels, and equipment boxes and provide a report describing each item of damage found. The report shall include thickness measurements of the various sections of the carbody, sub-structure, frame, duct channels and equipment boxes. Included in the report shall be a condemning limit for the thickness of the various structural parts listed above. The check off sheet is to be included with the report.

TDP DELIVERABLE: Carbody Inspection and Repair Report

1.3.3 Primer Coating

The Contractor shall primer the carbody, interior and exterior immediately after inspection to prevent flash rusting.

The suggested primer materials are:

Chassis: PPG Zinc Rich Primer System no. ZNP101 followed by PPG Cora shield no. P7972 underbody protection (protects the Zinc Rich from abrasion and road wear)

All other body panels: PPG Epoxy Primer systems DEP351 or F3950C.

Although these are the suggested primer materials, responsibility for the effectiveness, suitability, and application of the primer materials remains with the Contractor. Primer materials to be approved by the Engineer.

TDP DELIVERABLE: Primer Materials

1.3.4 Carbody Repair Plan & Procedure

The Contractor shall provide a stand-alone repair plan and procedure to fix the damage or, where appropriate, reverse the modifications described in the Initial Carbody Inspection Report. The plan will describe the procedures, list the materials, and reference the applicable engineering documents to return the carbody to the original manufacturer's specification for carbody geometry, structural integrity, sheathing flatness, design tolerances, and general fit and finish. The repair plan will include the addition of any modifications performed by the Contractor. Any applicable engineering analysis or design drawings necessary to show the repairs will provide the original structural integrity are to be included.

TDP DELIVERABLE: Carbody Repair Plan

1.3.5 Carbody Repairs

The Contractor will make repairs in accordance with the approved Carbody Repair Plan. The Contractor shall inspect the repaired carbody to ensure that the Carbody Repair Plan has been followed.

The Contractor shall provide a Repaired Carbody Inspection Report based on the findings of the repaired carbody inspection.

TDP DELIVERABLE: Repaired Carbody Inspection Report.

1.3.6 Front Step well

The Contractor shall provide a new front step well. If not already modified, the step well shall be notched to accommodate inward swinging (bi-fold) doors.

1.3.7 Rear Step well

The Contractor shall provide new rear step well. The step well shall be designed to accommodate a treadle switch.

1.3.8 Anticlimbers

The Contractor shall remove, clean, repair or replace the anticlimber as necessary to regain the original form, fit and function.

1.3.9 Water Accumulation

As necessary, the Contractor shall modify the carbody such that there are no places for water to accumulate, i.e. under the windshields or the headlight recess.

1.3.10 Flip Skirt

The Contractor shall modify the body skirt forward of the Motor Generator compartment to flip up for access. The skirt shall have a continuous piano hinge along the top and gas struts to hold it open. Two square key locks shall hold the skirt down. The existing flip skirt installation on PCC #1057 shall be used as an example.

1.3.11 Prime and Paint

The Contractor shall prime the entire carbody throughout. The exterior shall be painted with up to four colors on the carbody and an anti-slip coating on the roof walk area. The under floor area shall be painted white. Visible areas of the carbody interior ceiling are to be painted are to be painted cream, and interior sides green. The following paint materials are to be used:

- PPG DPU217 Polyurethane Primer
- PPG NCP280 2.1 VOC Primer Surfacer
- PPG Delta DUHS Basecoat/Clearcoat
- Henkel Loctite Big Foot Heavy Duty Pedestrian Grade Anti-Slip Coating
- Interior Green- PPG #49408
- Interior Cream-PPG #29349

Paint shall be applied per the manufacturer's instructions. The carbody finish shall be glossy and free of flaws, runs, and sags or orange peel texture. The paint shall pass an adhesion test to be included in the Carbody Repair Plan. The Cars shall be painted in a historic paint scheme to be supplied by the Engineer. The anti-slip roof walk area coating shall cover the area previously covered by the rubber matting and extend forward to the front trolley pole mount on both sides of the trolley boards and extend to the trolley hook area.

1.3.12 Insulation

After water testing, the contractor shall apply primer and a sound absorbing undercoating to the interior side of all external side sheets, end sheets and roof sheets. Materials to be approved by the Engineer.

TDP DELIVERABLE: Insulation Materials Submittal

1.3.13 Subfloor

The Contractor shall install a new sub floor. The subfloor shall be ply-metal made from 3/4 inch marine grade plywood with a .016" 430 stainless steel skin bonded to both sides. Marine grade plywood must meet the Engineered Wood Association APA 3/4" Marine Grade standard.

Stainless Steel skin must meet the American Iron and Steel Institute (AISI) 430 standard. The stainless steel skins shall be securely bonded to the plywood with epoxy adhesive and the edges epoxy sealed from moisture entry.

Tapping plates shall be incorporated into the floor system design to allow mounting of the seat pedestals. Neoprene anti-squeak tape shall be installed over all carbody structural cross members that support the floor prior to the installation of the floor panels. All panels shall be as long as possible, and shall extend the full width of the car with transverse joints located over structural members. All exposed panel edges, such as openings for conduits and joints between panels, shall be waterproofed and sealed. All floor panel joints shall be made on a supporting member and a non-hardening, polyurethane sealant/adhesive equal to Sikaflex 221 shall be applied between joints of the panels. The floor panels shall be attached to the carbody structure using stainless steel flat head countersunk fasteners. The entire floor is to be smoothed with an epoxy-patching compound.

Any water drainage camber built into the original floor design will remain intact.

1.3.14 Floor Covering

The Contractor shall provide floor covering in the aisle way. The floor covering shall be black RCA Transit-Floor PGF Double Grooved Ribbed Transit Flooring with the ribs running lengthwise. The floor covering will be bonded to the sub floor with RCA epoxy adhesive. The step covering will be black RCA Transit-Floor Fiber Reinforced Rubber Step Treads with 22-gauge steel backing and straight ribbed yellow nosing. The floor covering in the area under the seats will be black RCA 1/8" thick Smooth Surface Transit Flooring. The floor covering at the front entrance shall be installed at 90 degrees to facilitate easy cleaning.

1.3.15 Passenger Seats

The Contractor shall remove, renew, and reinstall all passenger seating. Seat frames shall be inspected, cleaned and stripped, repainted, repaired or replaced if necessary and reinstalled. New seat cushions with new back/bottom panels shall be upholstered with dark green Naugahyde type vinyl and foam which meets ASTM E662 (suggest Naugahyde 2-200 Flame Blocker PH-51 Bottle Green). 1/4"-20 Tee-nuts shall be used to attach the seat backs to the frames.

1.3.15.1 Wheelchair Accommodation and ADA compliance

The existing ADA flip seats and wheelchair locks shall be refurbished to new condition or replaced with new and upholstered to match the passenger seating described previously.

TDP DELIVERABLE: Seating Area Design

1.3.16 Stanchions

The Contractor shall refurbish or replace, and install all of the stanchions and grab handles.

1.3.17 Modesty panels

The Contractor shall replace the modesty panels with new panels.

1.3.18 Interior Panels

The Contractor shall renew or replace the interior panels, ceiling panels, and air diffusers to new condition.

1.3.19 Side Destination Sign

The Contractor shall refurbish to new condition or replace with new, the Trans-Lite Inc DMU 300 sign above the passenger window behind the front door. The Contractor shall provide new sign curtains with destinations to be supplied by the Engineer.

1.3.20 Front Destination Sign

The Contractor shall refurbish to new condition or replace with new the front destination sign, Trans-Lite DMU 200 and DMU 100. The Contractor shall provide new sign curtains with destinations to be supplied by the Engineer.

1.3.21 Advertising frames

The Contractor shall refurbish to new condition or install new interior advertising frames duplicating the existing frames.

1.3.22 Glazing

The Contractor shall provide all new laminated safety glass per ANSI Z26.1 throughout the Car.

1.3.22.1 Windshields and Other Fixed Glass

On the windshields, destination sign windows and porthole windows, a new rubber extrusion, designed for easy glass replacement, shall be installed.

1.3.22.2 Passenger Windows

The Contractor shall install all new glass, gaskets and seals. The Contractor shall refurbish the sash, guides and latches such that the windows open, close and lock properly. Chalking shall be used between the rubber seals and the steel portal to prevent water ingress behind the carbody skin.

1.3.22.3 Rear Windows

The rear windows shall be emergency escape windows. The Contractor shall propose a design to the Engineer for approval.

TDP DELIVERABLE: Rear Window Design

1.3.22.4 Operator's Side Windows

The large Operators side window shall be refurbished in the same manner as the passenger windows.

The small horizontal window shall be refurbished with new glass, seals and gaskets. The Contractor shall refurbish the sash, guides and latches such that the windows open, close and lock properly.

1.3.22.5 Anti-Graffiti Shield

The Contractor shall provide a clear plastic film protection to minimize etching on the inside of all passenger windows, porthole windows, door windows, and rear windows. The contractor shall submit the film and its application to the Engineer for approval.

TDP DELIVERABLE: Anti-Graffiti Shield

1.3.23 Wiring

All of the existing wiring shall be removed and disposed of in accordance with all appropriate laws and regulations.

The Contractor shall install all new wiring throughout the Car. Permanent individually coded wire markers are to be attached to both ends of each wire and again six inches inward on both ends. All exposed wiring is to be run through metal conduit with strain relief on the ends. Exterior conduit is to be watertight. The wire sheathing shall meet the fire, smoke and toxicity requirements of NFPA 130. Rockbestos Surprenant Cable Exane wiring or approved equivalent shall be used.

To the greatest extent possible, the wiring should use existing raceways and always be hidden from passenger view and protected from the elements. Wire ends shall have terminals approved by the Engineer. Friction fit terminals are prohibited. Only one wire per terminal lug is allowed, and there shall be no more than two terminal lugs installed per binding post.

Passive components in the low voltage bus shall be installed on terminal boards or other devices using connections which are easily accessible for testing and replacement. Floating components within wire bundles is not permitted. Hidden components installed within proprietary terminal blocks are not permitted.

The Contractor shall provide a wiring test plan for approval by the Engineer to test all of the wiring harnesses. The Contractor shall perform the wiring test on each Car upon completion of the wiring installation. The wiring test shall verify point-to-point continuity, and proper termination at binding posts and devices per the design drawings. The test procedure shall include steps to verify wire labels match the design drawings.

TDP DELIVERABLE: Wiring Test Plan and Report

1.3.24 Horn

The Contractor shall refurbish or install a new electric horn; however, the Contractor shall show through testing that the horn will produce at least 85dBA at 100 feet away from the Car.

The Contractor shall install a momentary switch to operate the horn in a convenient location on the Operator's console. The Location shall be submitted to the Engineer for approval.

1.3.25 Bell (Gong)

The Contractor shall refurbish or install a new repeating bell (equivalent to Selective Transit Products 92037100010 or AnsaldoBreda R07492710); however, the Contractor shall show through test that the bell will produce at least 75dBA at 100 feet away.

If the Car is configured to energize the gong when the reverse direction is selected; the gong shall be silenced when the front door is opened.

TDP DELIVERABLE: Horn & Bell Test Results

1.4 OPERATOR'S AREA

1.4.1 Console

The Contractor shall completely refurbish the Operator's Console as set forth in this section.

1.4.1.1 Speedometer / Odometer

The Contractor shall install a new combination speedometer/odometer on the Operator's console. The speedometer/odometer shall be wired to the Car for power and to the Tachometer Sensor (see Trucks). An approved speedometer is the AMETEK Dixson 500 Series 49522 5-B2-00050-MPH-12-BA--W-22. The Contractor shall calibrate the speedometer once installed.

TDP DELIVERABLE: Speedometer Calibration Report

1.4.1.2 Console Indicators

The existing incandescent indicator lights shall be replaced with LEDs.

The existing Center Door Open light shall be reconfigured into a green All Doors Closed light.

The Contractor shall install new LED console indicators lights.

- * All Doors Closed Green
- * Shaft Brake Applied Red
- * Regular Stop Request Yellow
- * ADA Stop Request Blue

A new All Doors Closed and Shaft Brakes Applied label strip shall be configured as:

“ALL SHAFT DOORS BRAKES CLOSED APPLIED”

A new Stop Request light label strip shall be configured as:

“REGULAR ADA STOP REQUEST”

1.4.1.3 Gang Switch Assembly

The gang switch assembly shall be disassembled, rebuilt and modified-as-required with all new switch contacts, wire shunts, hardware, stationary contacts and return springs (sander switch return switch to be shunted). All other parts shall be cleaned, lubricated and reassembled. After replacing contact and cleaning, each switch shall be megohm meter tested at 1000 volts for 1

megohm resistance to ground. Any switch that fails the resistance to ground test shall be repaired or replaced as necessary. Contacts shall be rated for the load. Flexible shunt straps shall be replaced with appropriately sized wire shunts and terminal lugs.

All high voltage (600 VDC) circuits shall be removed from the console and the gang switch assembly. These high voltage circuits are the heater and lighting circuits, switch numbers 17, 18 and 19. The high voltage circuits shall be controlled by relays in an under floor box to be installed by the Contractor.

The interior lighting control switch shall be changed to a low voltage control circuit and shall be controlled separately.

The Contractor shall install new laminated plastic label strips to replace the current label strips for the Gang Switches and the indicator lights. The label strips shall be engraved to provide the designation of each of the switches or indicators. The engraving shall be Helvetica Medium font and shall be white lettering on a black background. Gang switch labels shall be as listed below:

Single-ended Cars:

Switch No.	Label
1	Gong
2	Front Door #1
3	FRONT DOOR #2
4	TREADLE
5	REAR DOOR #3
6	REAR DOOR #4
7	REAR DOOR TREADLE
8	FAN
9	M-G
10	TRACK BRAKE
11	BRIGHT/DIM
12	HEADLIGHTS
13	SAND
14	DOMELIGHT
15	MICROPHONE
16	CAB HEAT
17	(blank spacer)
18	(blank spacer)
19	INTERIOR LIGHT 1
20	INTERIOR LIGHT 2

Double-ended Cars:

Switch No.	Label
1	GONG
2	FRONT DOOR #1
3	FRONT DOOR #2
4	TREADLE
5	REAR DOOR #3
6	REAR DOOR #4
7	REAR DOOR TREADLE
8	FAN
9	(blank spacer)
10	TRACK BRAKE
11	BRIGHT/DIM
12	HEADLIGHTS
13	SAND
14	DOMELIGHT
15	MICROPHONE
16	CAB HEAT

Notes:

Switches 1 Gong, 4 Treadle, 10 Track Brake, 13 Sand, 15 Microphone and 18 Horn are to be momentary. 10 Track Brakes and 13 Sand are to have a coil spring extension.

1.4.2 Cab Heater, Defroster And Fan

The Contractor shall install a new cab heater. The heater shall be thermostatically controlled, it shall be ducted and have a fan to distribute the heat into the cab area. If necessary for safe operation, the fan shall continue to run after the heating element has been shut off until the heating element has sufficiently cooled. Areas of the heater too hot for human touch shall be isolated so they cannot be reached.

The Contractor shall replace the operator's ventilation fan with a new fan of the same type. If the new fan is of a different manufacture or part number, it shall be approved by the Engineer.

The Contractor shall install a new windshield defroster and control switch. Design to be submitted to the Engineer for approval.

TDP DELIVERABLE: Fan & Defroster Submittal

1.4.3 Operator's Seat

The Contractor shall install a new USSC Group 9200MLX operator seat. No adjustment lever shall interfere with the operation of the reverse lever or other parts critical to the Car's operation. Operator's seat upholstery shall be black cloth. The Operator's seat shall be installed with enough clearance to the gang switch wrist rest such that a 98% percentile male shall have clearance for his legs.

1.4.4 Clipper®

The Contractor shall provide all new wiring for the installation of the Clipper® fare collection equipment. Clipper® equipment consists of a Drivers Display unit mounted in the Operator's compartment and Card Reader mounted on stanchions located at each doorway. Necessary technical information will be provided by the SFMTA.

1.4.5 Fare Box

The Contractor shall refurbish the mounting provisions and 12 VDC circuits and conduits for the fare collection box.

1.4.6 Windshield Wipers

The Contractor shall install new windshield wiper mechanisms. The motors and control system shall be replaced with new. Each arm to be powered by an individual motor. The speed of the wiper mechanism shall be variable and controlled through a rotary rheostat to be located on the Operator's console. The wiper control system shall include an intermittent operation position.

1.4.7 Radio And Public Announcement System (PA)

1.4.7.1 Contractor Supplied Items

The Contractor shall supply the following items:

- * Motorola Syntor Radio Cable TKN-8127B
- * Motorola Alarm Cable TKN8130A
- * Motorola Filter Tray Cable 30-5827T01
- * Motorola Power Filter TLN5277B
- * Motorola 15Amp Fuse Holder 0984277B01
- * Motorola 15Amp Fuse 6500136969
- * Motorola EA Switch 40-8260M03
- * Motorola Transmitter/Receiver Radome Antenna RRA4738A
- * Radio Engineering International 25" Microphone 480117BK
- * Radio Engineering International Transit PA Amplifier 700168
- * Atlas Sound Loudspeaker Assembly APF-15 & L20-100 & BX-3A
- * DPDT Switch for the PA

The Contractor shall also provide any number of various brackets, hardware, connectors, or lengths of stranded oil/grease/abrasion resistant wire that are necessary to complete the installation.

1.4.7.2 SFMTA Supplied Items

SFMTA will supply and install the following:

- * Motorola Mobile Data Terminal T1941 (includes handset, speaker, mounting tray and Terminal head).
- * Motorola Transmitter/Receiver T34RTA
- * Power blocks and terminal strip

1.4.7.3 Radio Installation Detail

The Contractor shall install all of the Contractor supplied components listed above except the Power Filter, 15-amp fuse and 15 amp fuse holder, which will be installed by the SFMTA. The Contractor will install the balance of the components necessary to complete the installation.

The Contractor shall refurbish, or install new, the watertight locking Radio Compartment near the Operator's console for mounting the Transmitter/Receiver, power blocks and terminal strip. The Contractor shall install threaded inserts to mount the equipment. The transmitter/receiver shall be serviceable without removal of handrails, stanchions, or other equipment.

The Contractor shall be responsible for the routing of all cables. To the maximum extent possible, the cables shall be hidden from view. If visible, they shall be enclosed in conduit. All undercar cabling shall be protected in waterproof conduit. The ends of all cables shall be labeled. All free lengths of wire shall have a 12" diameter service loop at both ends. Fixed length cables shall split any extra length evenly between the two ends.

The Contractor shall provide mounting provision and watertight locking box for the radio terminal head and headset on the interior panel to the left of the Operator and below the window. The Contractor shall install threaded inserts to mount the Terminal head. The Filter Tray Cable shall run from the Terminal head location into the Radio compartment with the white connector towards the Terminal head. The Syntor Radio Cable shall run from the Terminal head location into the Radio Compartment with the blue/white connector towards the Terminal head.

The Data Terminal speaker shall be mounted on the Operator console between the gang switch and the windshield. Two 16 AWG wires shall run from the speaker to the Terminal head location.

The PA microphone shall be mounted on the left corner of the Operator's console. The SFMTA will install the handset. The Contractor shall install the PA microphone and threaded inserts for the mounting of the handset. Two 16 AWG-shielded wires shall run from the microphone through the gang switch and to the audio input of the PA amplifier.

The PA amplifier shall be mounted in the cabinet below the Operator's console. The PA amplifier shall be serviceable without removal of the transmitter/receiver. A 12 VDC circuit shall provide power to the Motorola Transmitter/Receiver, PA amplifier, Farebox, and Next Bus GPS system. Each device shall be input protected with a circuit breaker.

Shielded 14 AWG positive (red) negative (black) and ground (white) wires for the Farebox shall run under the floor and extend 36" into the cab beyond the Farebox mounting location. The wires shall be terminated with an AMP connector to be designated by the Engineer.

12 AWG positive (red) and ground (black) wires for the Transmitter/Receiver shall run to the Radio Cabinet.

16 AWG positive (red) and ground (black) wires shall run to the PA amplifier.

The DPDT switch for the PA shall be mounted on the console and labeled "Interior," "Exterior," and "Both."

16 AWG wire shall connect the audio output side of the PA amplifier through the DPDT switch to the PA speakers and exterior loudspeaker.

A waterproof exterior PA loudspeaker shall be installed outside the car near the front door, similar to the installation on the SFMTA's PCC #1060.

The emergency call pushbutton (EA switch) shall be mounted on the underside of the Operator's console. The Alarm Cable shall be routed from the EA switch to the Terminal Head with the black/white connector towards the Terminal head.

The Radome Antenna shall be mounted on the roof of the PCC between the roof shroud and the front trolley pole, similar to the installation on the SFMTA's PCC #1060. An aluminum ground plane is required, size and design to be specified by the SFMTA. The RG58AU coaxial cable that comes with the antenna shall be snaked through the ceiling to the radio compartment. A removable cover on the ceiling shall provide access to the antenna.

The Contractor shall demonstrate that the PA functions properly, that there is power at the Transmitter/Receiver, and that there is power at the fare box mounting location.

1.4.8 Next Bus Equipment

The Contractor shall provide all new wiring for the Next Bus equipment. Technical information will be provided by the SFMTA. On double ended Cars, the GPS tracker electronics shall be powered regardless of end selection.

1.4.9 Vetag, Remote Switch Operation

The Contractor shall provide new and install the following Vecom/Peek Industries VETAG system components for remote operation of track switches and other possible future applications.

HP2 Transponders & Connector Assy	28836221-02
Cable XPDR – CCB	28826213-01
Cable CCB Input	28816192-02
TWC Code Control Box	28846134

The equipment for each car shall include the variable-code transponder, code control box, and multi-conductor connecting cables. The transponder shall be mounted according to the manufacturer's instructions under each cab, and shall be accessible and removable from under the car. The Transponder shall be connected via multi-conductor cable to the code control box to be mounted on the Operator's console. The receiver coil shall be mounted from the car body approximately 10 inches above the rail on the centerline of the car and in front of each truck.

Power for the VETAG equipment shall be taken from the car's low voltage DC power supply (36 VDC nominal) and protected by a 3 Amp circuit breaker. The low voltage power for the VETAG equipment shall be controlled by Gang Switch No. 9, the M-G set's control.

1.4.10 Storage Locker

The Contractor shall replace or refurbish the existing locker to new condition. On single enders, the locker shall be relocated to ten inches aft of the seat box. If necessary, the adjacent stop request switch shall be moved forward sufficiently that access to its mounting hardware is not blocked by the locker. The stanchions shall be modified as-necessary to accommodate the new locker position. The locker shall have a new lock, keyed for SFMTA's standard key.

1.4.11 Transfer Cutter

The Contractor shall provide and install a new transfer cutter.

1.4.12 Mirrors

The Contractor shall install all new mirrors equivalent in size and location to the existing mirrors.

1.4.13 Exterior Cameras

The Contractor will install two exterior color cameras to provide the Operator with a view looking down the left and right sides of the Car. The camera output shall be displayed on one or more LCD displays on the Operator's console. The Contractor will provide a system design package to be approved by the Engineer.

TDP DELIVERABLE: Exterior Camera Design

1.5 DIGITAL VIDEO RECORDING SYSTEM (DVRS)

The DVRS system equipment supplied by the Contractor shall include wiring, cabling, and software for the installation of DVRS system in the vehicles and all fixed-end information system components, including wiring, cabling, hardware, and software that are required for retrieval, viewing, and storage of recorded images. The DVRS system equipment shall provide the capability and expandability that allows for system additions and future technological upgrades.

The new DVRS systems shall be compatible with the video retrieval methods of the systems currently being installed by SFMTA on its revenue vehicles. In other words, the SFMTA must be able to either remove the Data Pack (hard drive) of the video system bring it to an off-site location where the contents can be viewed or download the contents wirelessly from the vehicle upon entering the maintenance site and view the contents at an off-site location.

The mobile DVR shall be a sixteen (16) channel video server and digital recorder providing access to live and recorded images via wireless or wired IP connections. The units shall be specifically designed for public and commercial transit applications and enclosed in a robust metal chassis. The DVR shall be capable of integration with accelerometer, intelligent power management, vehicle system data, and a driver silent alarm.

The Contractor shall install a new base station including servers, transmitters, receivers, antennas, wireless access points, and other accessories needed to download data from transit vehicles to a central management system located in the SFMTA Cameron Beach maintenance facility.

The Contractor shall install wireless network equipment on transit vehicles and at the maintenance facility capable of wirelessly downloading any selected video(s) via 802.11 wireless protocols. The new DVRS systems, utilizing transit vehicle GPS technology, shall have the ability to provide exact vehicle location to the SFMTA's Operations Control Center ("OCC") for transit operations and law enforcement purposes. The DVRS system equipment shall also provide the ability for law enforcement or other authorized SFMTA personnel to view real-time transit vehicle video and audio recordings from a distance of up to 500 yards away from the vehicle.

The Contractor shall comply with all applicable federal, state, and local laws and regulations. In addition, Contractor shall adhere to all applicable SAE, IEEE, and NTSC standards. It is the full responsibility of the Contractor to dispose of all removed material (cabling, electronic equipment, and other related equipment) according to all applicable environmental regulations.

The manufacturer shall provide all service and support within the continental U.S. without the need to ship products out of the country and/or overseas for service.

1.5.1 DVRS Definitions

AGC:	Automatic Gain Control
CCD:	Charge Coupled Device
CCTV:	Closed-circuit Television
CIF:	Common Intermediate Format
Data Pack:	Hard drive in the DVR
DVR:	Digital Video Recording unit refers to the individual digital recording unit on each vehicle
DVRS:	Digital Video Recording System refers to the system in its entirety.
EMI:	Electromagnetic Interference
ETI:	Electrical Training Institute
GPS:	Global Positioning System
H.264:	A video compression format also known as MPEG-4 AVC.
HD:	High Definition 1280x1024 resolution
IEEE:	Institute of Electrical and Electronics Engineers
IP:	Internet Protocol
MRO:	Metro Rail Operations
MRU:	Mobile Response Unit
NTSC:	National Television System Committee

PDA:	Personal Digital Assistant
RFI:	Radio Frequency Interference
SD:	Secure Digital
UV:	Ultra Violet

1.5.2 DVRS SUBMITTALS

The Contractor shall provide the following DVRS related documents:

1.5.3 DVRS Product Data

The contractor shall provide for approval a complete list of all of major products proposed for use. The data shall include name of manufacturer, trade name, model number, and related contract document section number, paragraph number, and referenced standards for each listed product. The data package shall include manufacture's data for all materials and equipment, including sensors, local processors, and console equipment provided under this specification.

1.5.4 DVRS Shop Drawings

Provide system block diagram; console installation and wiring diagrams; local processor installation, typical block, and wiring diagrams; local processor physical layout and schematics; unit wiring and installation drawings; wire and conduit sizes for the complete system design; details of connections to power sources, including power supplies and grounding; details of surge protection device installation; and details of interconnections with radio/silent alarm and GPS media transmission sources.

The Contractor shall supply four (4) complete sets of system operation, parts, and maintenance manuals for each type and/or model of equipment purchased by SFMTA in both hard copy and electronic formats. The manuals shall cover all aspects of hardware and software, and address different needs from various users, such as maintenance technicians, security personnel and traffic control officers.

TDP DELIVERABLE: DVRS Deliverables

1.5.5 DVRS Equipment

The DVR shall have programmable parameters embedded or otherwise non-corruptible operating system to the satisfaction of the SFMTA. The programmable parameters shall not be subject to corruption by environmental factors, powering down, power failure, transient power fluctuations, power surges, or other irregularities. The parameters shall be capable of being stored for a minimum of five years without power.

The DVR shall power down at a user selected time after switched power is removed. If it is unable to power down automatically, the unit shall tolerate having power removed suddenly with no negative effect on the DVR, system hardware, operating system, stored data/video/audio, or on the system's ability to function normally once power is restored. If the operating system stops or stalls during startup due to some power irregularity, it shall automatically restart once full power is restored.

The DVR shall be designed specifically for use in transit applications to the satisfaction of the SFMTA. It shall incorporate internal shock and vibration isolation systems that allow recording while the unit is subjected to the vibration and impacts that occur in a moving transit vehicle. The on-board system shall operate in humidity ranges between 10 percent and 85 percent and in temperature ranges between 31°F and 131°F.

The DVR shall capture high quality images in a digital format to the satisfaction of the SFMTA. The images shall be stored on removable hard disk drives described herein for review and playback at central viewing stations wirelessly or through an on-board connection to a laptop computer. The hard disk drive shall be housed in a rugged enclosure that locks to the recording unit. The hard drive shall be removable while the DVR is powered without corrupting data on the drive. When the hard drive is re-inserted, it shall automatically mount to the DVR operating system with no additional user interaction required. Each enclosure shall be keyed alike, and one key per enclosure shall be provided.

The DVR shall be designed to restrict access, prevent alteration of images, and prevent tampering with the unit to the satisfaction of the SFMTA. The DVR shall provide an external connection to off load data and run set-up diagnostics via a laptop computer. The DVR shall provide system status indicators on the front panel.

The DVRS shall interface with the existing GPS unit on the vehicle, and mapping software shall be provided for displaying transit vehicle location and time stamp at the viewing station during revenue service to the satisfaction of the SFMTA.

The DVRS shall be programmable to automatically tag events, or pre-programmed activities to the satisfaction of the SFMTA. Tagged and programmed events shall be stored, and when a recording is retrieved, the tagged events shall be easily identifiable.

The DVRS shall be able to retain time, date, and any user programmable data (i.e., vehicle number, etc.) without connection to the power source to the satisfaction of the SFMTA. The system shall have its own power supply connected to the power of the transit vehicle. The system must be able to withstand all transients, surges, and dips in power from the vehicle's electrical system without any deterioration of system performance. The system shall not be affected by electro-magnetic interference (EMI) or radio frequency interference (RFI). The system shall meet all applicable rules and regulations of the Federal Communications Commission (including FCC Part 15 Rules and Regulations) and the Department of Transportation.

At the discretion of the SFMTA, the SFMTA can request the Contractor to demonstrate and/or submit test reports that the DVRS system equipment can withstand failure injected conditions.

TDP DELIVERABLE: DVRS Test Reports

1.6 HEALTH MONITOR TOOL ("HMT")

The Contractor shall provide application software for continuous monitoring of the health of remote DVRs to the satisfaction of the SFMTA.

1.6.1 HMT Capabilities

The HMT shall be provided with the following:

Automatically monitors multiple remote connected DVRs at set intervals.

Ability to manually poll all DVRs for system health variables.

Provide an on-line report of all results.

Export reporting capability in 3 formats (Excel, HTML, and CSV).

Email notification of events to multiple recipients.

1.6.2 Monitored Events

The HMT shall monitor the following events:

Connection: Network connectivity test.

Failed Drive Access: Each drive shall be verified.

Camera Failures during Defined Intervals: Cameras shall be continuously tested to ensure connectivity.

Reboots anytime a DVR is restarted or shutdown.

Time Since Recording: Verification that recording is continuing up to current time.

Protected Capacity Used % shall monitor space remaining for protected video and displaying percentage utilized.

Days of Storage shall display the number of days currently retained on the DVR for unprotected recorded video.

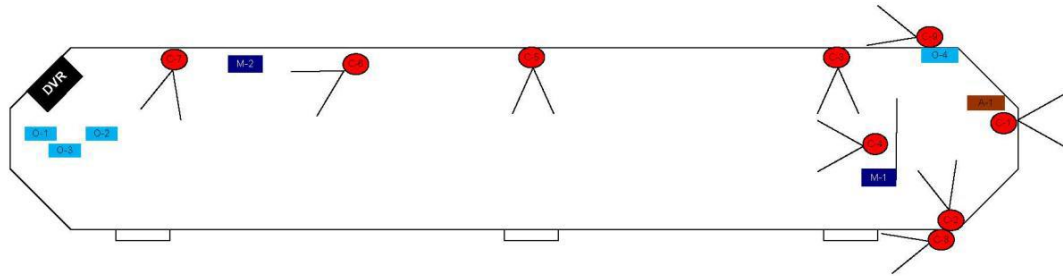
1.6.3 Cameras

The DVRS installation shall include 2 360 degrees POE IP cameras, 1 forward facing POE IP camera and 2 side camera to view along the street and curb sides of the vehicle as shown in the attached PCC camera system layout. The side cameras outputs shall be displayed on one or more LCD displays on the Operator's console.

The cameras outside the vehicle shall be pointed towards the rear and at the doors of the transit vehicle to prevent damage to the lens from the transit vehicles washers or tree branches on the vehicle's route. Weatherproof housings shall be utilized to protect the cameras to the greatest extent possible. Exterior cameras shall not make any audio recordings outside of the transit vehicle including in the front of the vehicle or on the side of the vehicle.

All cameras supplied shall have a standard NTSC or IP color signal output. The NTSC cameras shall be capable of producing a 540 TVL high resolution undistorted wide dynamic image in all lighting conditions (auto back light compensation/auto or electronic iris or Pixim technology chip set required) without the need for manual adjustment to any equipment while the IP cameras shall be power over Ethernet (PoE) and capable of HD or greater resolution. The cameras shall also be capable of capturing face images with bright backgrounds within the transit vehicle. A Day/Night capability shall provide display images from 0.3 lux in day mode and 0.05 lux in night mode.

Single Operator



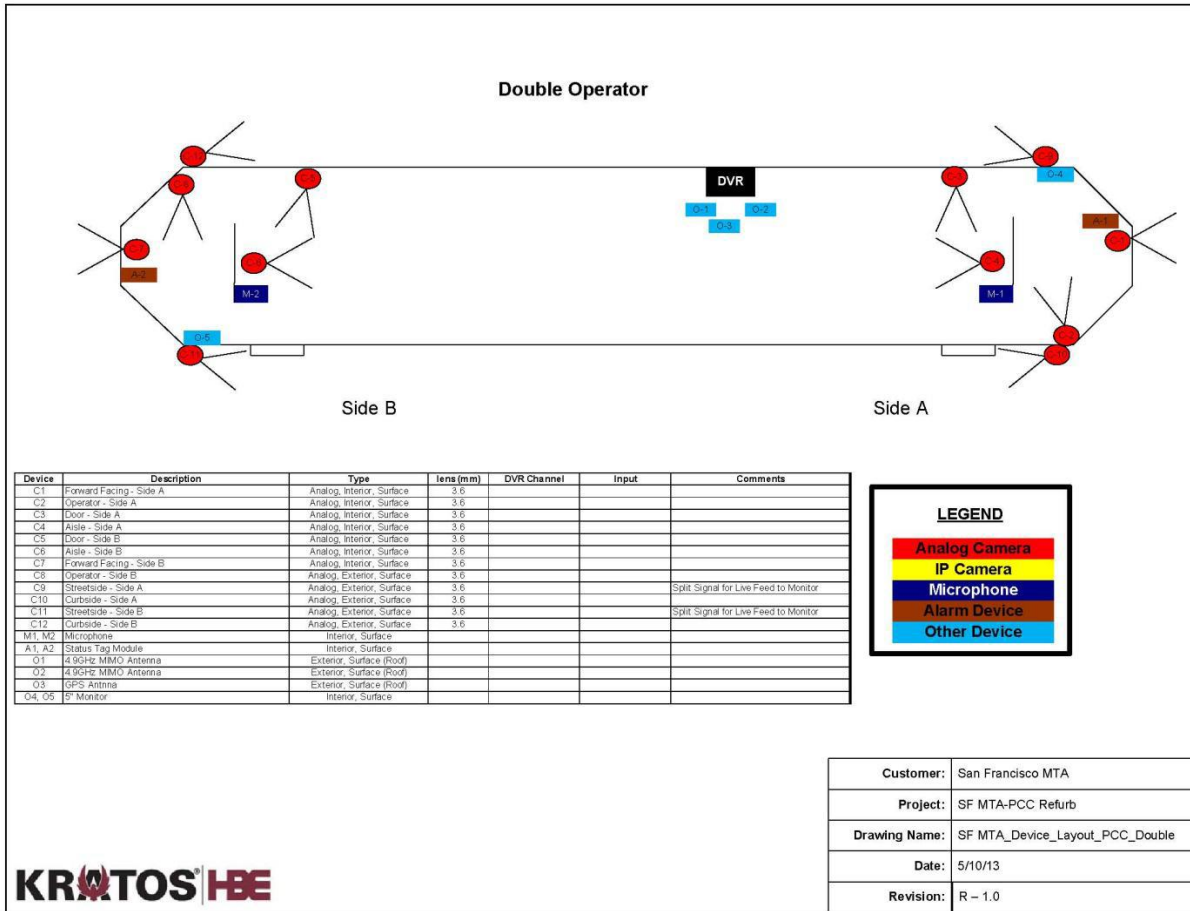
Device	Description	Type	Lens (mm)	DVR Channel	Input	Comments
C1	Forward Facing Camera	Analog, Interior, Surface	3.6			
C2	Operator	Analog, Interior, Surface	3.6			
C3	Front Door	Analog, Interior, Surface	3.6			
C4	Aisle	Analog, Interior, Surface	3.6			
C5	Middle Door	Analog, Interior, Surface	3.6			
C6	Rear Section	Analog, Interior, Surface	3.6			
C7	Rear Door	Analog, Interior, Surface	3.6			
C8	Curb Side	Analog, Exterior, Surface	3.6			Split Signal for Live Feed to Monitor
C9	Streetside	Analog, Exterior, Surface	3.6			
M1, M2	Microphone	Interior, Surface				
A1	Stallup Tag Module	Interior, Surface				
O1	4.9GHz MIMO Antenna	Exterior, Surface (Roof)				
O2	4.9GHz MIMO Antenna	Exterior, Surface (Roof)				
O3	GPS Antenna	Exterior, Surface (Roof)				
O4	5" Monitor	Interior, Surface				

LEGEND

- Analog Camera
- IP Camera
- Microphone
- Alarm Device
- Other Device

Customer:	San Francisco MTA
Project:	SF MTA-PCC Refurb
Drawing Name:	SF MTA_Device_Layout_PCC_Single
Date:	5/10/13
Revision:	R - 1.0





1.6.4 Digital Video Recorder (DVR)

The DVR shall record at a speed of not less than five frames per second each along with the synchronous audio track and be identified with time, date, vehicle number, GPS location information, and time sync.

The DVR shall record the events from the video surveillance cameras inside and outside the transit vehicle on a hard drive. The hard drive shall have a minimum capacity of 1 terabyte. All hard drives shall be “hot swappable” (i.e., the hard drives shall be removable without corrupting the data even when the DVR is powered).

The DVR shall be integrated into the existing silent alarm system of the vehicle so that upon activation of the silent alarm switch, the recording system will protect a window of recorded data that extends to a point prior up to thirty (30) minutes to the activation of the silent alarm to a point after activation up to thirty (30) minutes and will not allow the recording to be erased. The software system shall allow the SFMTA to adjust the extent of the data to be saved through software without the need for contractor’s support. The activation of the silent alarm switch must be recorded on the video medium.

The DVR shall have the ability to automatically download selected video events in user selectable increments via a wireless connection to the satisfaction of the SFMTA. Specific transit vehicle and specific times shall be selectable.

The DVR shall have the capability to be pre-programmed to download recorded incidents that have not been “tagged” by the operator up to one (1) hour in length from all cameras recorded in the transit vehicle when the vehicle returns to the yard to the satisfaction of the SFMTA. The download shall continue until complete even if the transit vehicle is powered down.

The DVR shall have the capability to transmit live video, from inside the transit vehicle, upon demand to a laptop or PDA while the transit vehicle is still in revenue service to the satisfaction of the SFMTA. The live video feed shall be transmitted up to a distance of 500 yards from the transit vehicle.

The transmission of live video from inside the transit vehicle shall be compatible with the existing access points provided in SFMTA’s MRO/MRU vehicles to enable remote surveillance of the transit vehicle and allow for on-site viewing of event data to the satisfaction of the SFMTA.

The DVR shall be capable of continuous recording for a user-selectable period of up to thirty (30) minutes after the vehicle has been powered down to the satisfaction of the SFMTA. This capability shall be provided through a battery backup with a minimum of 30 minutes back-up capacity.

The DVR shall be capable of accepting both composite and IP camera inputs to the satisfaction of the SFMTA.

The DVR shall be able to retain time, date, vehicle number, and other user programmable data without connection to the power source to the satisfaction of the SFMTA. The system shall have its own power supply connected to the 36 VDC power supply of the transit vehicle and shall have a power management feature to shut down the DVR in 30 minutes or a user programmable amount of time after switched power is removed. The DVR shall continue recording during the time out period.

The DVR and cameras shall perform a managed shutdown sequence when the shutdown timer threshold is reached.

The DVR and cameras shall perform a managed power up when the input voltage to the unit exceeds minimum operating supply voltage and the switched power input receives a user defined positive voltage. The DVR shall be able to withstand all transients, surges, and dips in power from the vehicle’s electrical system without any deterioration of system performance to the satisfaction of the SFMTA.

The DVR shall provide recorded video capability to a storage unit at Cameron Beach maintenance facility, capable of storing at least one (1) month of video retention with H.264 compression algorithm to the satisfaction of the SFMTA.

The wireless system on the transit vehicle shall be the latest wireless bridge, currently 802.11N HauteSpot WRAPDXCi-MN or approved equal. The Contractor shall supply or use an existing antenna mounted on the roof of the transit vehicle of at least 3dbm gain, and if needed per the Contractor’s power configuration, an external power supply to power the bridge may be installed. The wireless bridge shall have the capability to turn on and off the DVR via a wireless switch or IP relay.

1.6.4.1 Recording and Management Software

The recording and management software shall have the capability to be programmed by a maintenance technician at the server to be able to download recently recorded video for QA checks of equipment functionality of each transit vehicle on a daily, weekly, and monthly basis to the satisfaction of the SFMTA. The software shall have the ability to download the error/status log from the DVR every time the transit vehicle is back in the depot yard and shall include a "GPS Search" feature that will allow video search based on location to allow SFMTA staff to query the fleet based on the location of the incident.

The software shall have fleet-wide software for viewing DVR and camera "health status" that are continuously updated and recorded in a log file accessible to the SFMTA Video Technicians and shall include real time health checks and notification that can send notifications to SFMTA staff via e-mail/text of any defect noted during operation.

1.6.4.2 Video Channel Output

Shall support spot monitor for displaying images from cameras, full screen, or full screen sequence to the satisfaction of the SFMTA.

Shall allow advertising and customer information to be shown to commuters using two (2) monitor outputs located on the unit to the satisfaction of the SFMTA. The messaging can be location specific (via GPS integration) advertising shops or attractions along a vehicle's route. User definable text can be layered on the monitors to add specific messages to customers.

1.6.4.3 Audio Recording

The DVR shall be capable of audio recording and playback through the unit in real time to the satisfaction of the SFMTA. Recorded with images, audio shall be played back from the unit network converter or external docking station. The audio microphone will have automatic gain control and be shock mounted. The recorded audio shall be automatically copied when video is exported across a network to an FTP server.

Two channels of audio shall be recorded on the DVR: local and line out.

The DVR shall support simultaneous audio recording and playback in real time to the satisfaction of the SFMTA.

1.6.4.4 Microphones

The Contractor shall provide two (1) microphone for each video surveillance system installation to the satisfaction of the SFMTA. The microphone shall have automatically adjustable gain. The installation shall be shock mounted to avoid panel noise.

1.6.4.5 Security Enclosure

The mobile DVR shall be encased in a vented, rugged metal chassis with shock absorbers to withstand exposure to extreme shocks, vibrations, and temperatures to the satisfaction of the SFMTA.

A pick resistant "ACE"-type lock or better shall be used to the satisfaction of the SFMTA. The lock shall be quarter turn lock and unlock. Each enclosure shall be keyed alike, and one key per enclosure shall be provided.

The external assembly of the security enclosure shall be designed for secure encasement to prevent unauthorized access and/or removal, but upon access by authorized personnel, the assembly shall allow for ease of removal and repair of an internal subassembly and of the entire assembly to the satisfaction of the SFMTA.

Ease of and convenience of maintenance, changing user parameters and media removal and replacement are also important functional requirements for the DVRS system equipment.

The enclosure will have a system status indicator, and event button indicator located on the front panel.

Design of the security enclosure shall be reviewed and approved by SFMTA.

1.6.4.6 DVR Physical and Environmental Properties

The Contractor shall be responsible for any filters, power stabilizers, rectifiers, and other devices that protect the DVR from spikes, drops, harmonic resonance, and other power issues routinely experienced in a transit environment to the satisfaction of the SFMTA.

The Contractor shall ensure that the DVR fully performs in the intended operational environments without being affected by, or causing harmful interference to other on-board systems to the satisfaction of the SFMTA. Protection shall be provided against radio frequency and electromagnetic interference (RFI/EMI) emission sources, as well as internal conductive or inductive emissions, and should be proven by testing during prototype demo. Contractor to provide test plan for review and approval by SFMTA.

1.6.5 Base Station

The Contractor shall install a new base station including servers, transmitters, receivers, antennas, wireless access points, and other accessories needed to download data from transit vehicles to a central management system located in three SFMTA maintenance facilities. The wireless router for the base station shall be the latest wireless bridge, currently 802.11N, HauteSpot WRAPXC-N wireless router or equal.

1.6.5.1 Base Station Wiring and Cabling

The Contractor shall submit wiring and cabling product information for review and approval by the SFMTA.

All wire sizes and insulation shall be based on the current carrying capability, voltage drop, mechanical strength, temperature and flexibility requirements, as well as fire resistance requirements for heavy duty transit applications to the satisfaction of the SFMTA.

Wiring shall be uniformly color coded and tagged to the satisfaction of the SFMTA. Wiring shall be prefabricated into standardized harnesses, wrapped and tied with “all weather UV type” nylon ties. All wiring harnesses over five (5) feet long shall include 15% excess wires for spares that are the same size as the largest wire in the harness.

The power source wires must be sized appropriately to meet specified requirements for unit to the satisfaction of the SFMTA. Wherever there is a possibility of interference, wiring and interconnecting cables shall be properly shielded. Video and audio cables shall be gauged to minimize signal loss.

A protective plastic or rubber grommet must be installed in every hole that provides passage for conduit or wiring to avoid chaffing or cutting of the conduit or wiring to the satisfaction of the SFMTA.

TDP DELIVERABLE: DVRS Base Station

1.6.5.2 DVRS Testing and Acceptance

The Contractor shall conduct testing to verify that all equipment and installations comply with the Technical Specifications to the satisfaction of SFMTA. All equipment provided by the Contractor shall be acceptable to SFMTA.

The Contractor shall submit a test procedure for review and approval by SFMTA. The test procedure must show the equipment complies with both the manufacturer's product specifications and the Technical Specifications. This specifically must include RFI/EMI testing and prototype testing (see Section 5.6.8).

TDP DELIVERABLE: DVRS Test Procedure

Acceptance of each installation shall be verified by SFMTA-designated staff after the Contractor and SFMTA-designated staff completes a visual inspection, vehicle identification, and test video review.

1.6.5.3 DVRS Spare parts and Special Tools

The Contractor shall provide spare parts as specified in Attachment 1: Price Proposal of the contract.

The Contractor shall provide special tools, test equipment, all necessary accessories and software that will be required for SFMTA to operate, maintain, and repair the proposed DVRS system to the satisfaction of the SFMTA. If computers are provided as the test equipment, the latest Panasonic Tough-Book model with the current software must be provided as specified in Attachment 1: Price Proposal of the contract.

TDP DELIVERABLE: DVRS Spare Parts & Tools

1.7 DOOR SYSTEM

The Contractor shall provide and install complete new doors and door drive assemblies.

The Contractor shall install new Vapor (Wabtec Corp) door operator assemblies #5796753600 and door motors #5772635700 or approved equal that will operate the doors using the pivot shaft at the fixed end of the doors. The Contractor shall install all new door panels, all door rods, pivot arms, tie rods, fittings, bearings and hardware.

The interface between the top of the door rod and the pivot arm shall be splined, not clamped.

New door panel clamps shall be welded to the door rod.

The door rod bearings shall be configured to be easily replaceable.

New door panels shall be made of 1" Marine grade plywood and sealed with epoxy primer. New glass, piano hinges, brushes and seals are to be installed. The short door stanchions are to be refurbished and reinstalled. The door panels shall be painted to the carbody livery instructions.

New rear door sensitive edges, tubing, tubing springs and air switches are to be installed.

New door relays are to be installed. The installation in PCC #1076 can be observed and considered as a developmental prototype.

All switches, bypass circuit and relays for the brake and propulsion interlocks shall be replaced with new.

The Contractor shall provide a door design package and an acceptance test procedure for the Engineer's approval.

TDP DELIVERABLE: Door System Design and Acceptance Test

1.8 AIR COMFORT

1.8.1 Ventilation

The Contractor shall refurbish or replace the overhead ventilation diffusers. The diffusers shall be painted in the same color as the ceiling panels and reinstalled.

1.9 LIGHTING

1.9.1 Interior Lighting

The Contractor shall disassemble, clean, refurbish and polish all interior lighting fixtures. Broken parts are to be replaced with original type equipment. The beehive (bullseye) light fixtures above the passenger seats and over the stepwells shall be resocketed and rewired for use with the low voltage power supply and LED based bulbs. Bulbs shall be selected to provide an appropriate luminance at 36 VDC. Care shall be taken not to damage the surface of the reflectors when cleaning. Following buffing of the surface, the bezels shall be chrome plated. Fixtures shall be reinstalled using new bulbs, new heat resistant fiber seals, and new stainless steel fasteners.

The Emergency Lighting circuit shall receive power from the battery bus when the LVPS is not running.

All interior lighting circuits shall be rewired for parallel 36 VDC operation and LED based bulbs installed. Dropping resistors are prohibited.

Gang switch # 17 (INTERIOR LIGHT 1) shall operate the lamp directly behind the Operator, every other lamp on the street side behind that and the alternate lamps on the curbside.

Gang switch # 18 (INTERIOR LIGHT 2) shall operate all of the passenger lamps not operated by gang switch # 17.

1.9.1.1 Fare Box Light

The Contractor shall provide a new ceiling mounted focused beam LED light fixture to illuminate the fare box area. The fixture shall provide a minimum of 10-foot candles at three feet above the floor at the fare box. The fixture shall be designed and placed such that the illumination is not directed into the Operator's vision. The fixture shall be connected through a circuit breaker to the car's low voltage 36 VDC distribution systems. The fare box light is to be on when either of the front doors are open. The light shall not be connected to Gang Switch No.

14. The Contractor shall submit catalog data for the fare box light fixture for approval by the Engineer.

1.9.1.2 Operator's Dome Light

The Contractor shall provide a new ceiling mounted 36 VDC LED light fixture to illuminate the operator's console. The fixture shall be the same as the new fare box light and shall meet the same requirements. This fixture shall be switched by the "Dome Light" gang switch #14 on the operator's console.

1.9.1.3 Step Well Light

The Contractor shall furnish and install two new LED light fixtures to illuminate each step well. These fixtures shall be switched on whenever either bank of the interior lights are on. Rear step well lights shall illuminate when the rear doors are opened.

TDP DELIVERABLE: Interior Lighting Plan

1.9.2 Exterior Lights

All Exterior lighting fixtures shall be replaced. Exterior lighting fixtures shall be waterproof. All exterior lights shall be incandescent, unless agreed to by the Engineer, and shall operate from the 36 VDC power supply. All new and refurbished fixtures shall be installed using new lamps, new seals, and new stainless steel fasteners.

1.9.2.1 Headlight

The Contractor shall fit a reproduction 1932 Ford headlight into the headlight well. The headlight luminosity shall meet G.O. 143B requirements. The well and headlight mounting & wiring shall be water tight. Headlight shall not require adjustment of its aiming position by SFMTA personnel.

1.9.2.2 Tail Lights

The Contractor shall install new taillights. An LED lamp shall be used if it can be fitted into the fixture along with the stop light and meet the requirements of G.O. 143B. The Contractor shall recommend to the Engineer and install modification to meet those requirements. The contractor shall install a new socket, lamp, and hardware. The wiring shall be verified to assure that the taillights are energized whenever the headlight is on.

1.9.2.3 Stop lights

Each tail light assembly shall house a combined stop and tail light and shall be an integral part of each tail light assembly. A two brightness tail/brake LED bulb shall be used if it can be fitted to the fixture. If not, a double filament bulb shall be used. Stoplights shall produce approximately 150 percent of the intensity of the taillights and must be activated whenever braking is selected.

1.9.2.4 Rear Marker Lights

The Contractor shall install new rear corner LED marker lights located near the roofline.

1.9.2.5 Front Marker “Eyebrow” Lights

The Eyebrow light fixtures shall be replaced with LED fixtures that provide downward facing illumination and forward illumination through the reflector with a luminosity similar to the existing incandescent fixture.

1.9.2.6 Exterior Door “Active” Light

The exterior rear door active light shall be replaced with a red LED unit.

1.9.3 Emergency Lighting

Seven interior lights, the over-the-stepwell lights, the headlight, the rear stop lights and the marker lights shall be able to remain lit together on battery power for at least five minutes after the loss of overhead power.

1.9.4 Ceiling Center Courtesy lights

The courtesy light fixtures shall be rebuilt for 36 VDC and are to operate whenever the headlight is on.

TDP DELIVERABLE: Exterior Lighting Plan

1.10 AUXILIARY ELECTRICAL

The auxiliary electrical equipment includes the high voltage (600 VDC) electrical equipment, low voltage distribution equipment, trolley pole, and storage batteries.

1.10.1 Low Voltage Power Supply (LVPS)

The Contractor shall install a solid state 600 VDC to 37.5 VDC power supply (LVPS) to replace the MG set. The LVPS output shall be adjustable between 32 to 40 VDC.

The LVPS shall be able to fully charge a discharged battery at 25 VDC within 2 hours. It shall be sized to supply peak overloads of 20% above its max rated current output at 37.5 VDC. The unit shall be protected against output short conditions, starting inrush currents, and have an external input line filter for protection from the unregulated voltage transient swings in the overhead line 600 VDC power supply. The LVPS input and output(s) shall be protected with exclusive use protection devices.

The Contractor shall propose the LVPS design for approval of the Engineer, prior to production. The submission shall include an LVPS load analysis of normal and emergency connected loads, and information on the service history with at least 5 other transit agencies in the US. The Contractor shall perform a revenue service life-cycle test on the Car during revenue service. At least three Cars shall be considered and tested without failure for 2000 hours of revenue service time per Car. In the event of a failure, the Contractor shall provide a failure analysis and corrective action plan and the life-cycle test shall be restarted.

TDP DELIVERABLE: LVPS Design & Lifecycle Test Procedure

1.10.2 Propulsion Blower and Blower Power Supply

The Contractor shall install a three-phase 208 VAC driven blower/motor assembly replacing the MG Set's blower and providing cooling to the Cars' propulsion system. A separate inverter, 600 VDC to 120/208 VAC 3 phase 60 Hz with a 30% power rating margin for extra loads, shall be provided and installed to provide power to the blower.

The blower functionality shall be interlocked with the line breaker and shaft brakes, preventing motoring in the event of a blower system failure. A bypass switch shall be provided to allow Car movement for short distances. The bypass switch shall be time limited to avoid propulsion equipment damage from long term use. The bypass system and time design shall be subject to approval by the Engineer.

The Contractor shall propose the 120/208 VAC inverter design for approval of the Engineer prior to production. The submission shall include an AC load analysis of all connected loads, and information on the service history with at least five other transit agencies in the US. The Contractor shall perform a revenue service life-cycle test on the Car during revenue service. At least three Cars shall be considered and tested without failure for 2000 hours of revenue service time per Car. In the event of a failure, the Contractor shall provide a failure analysis and corrective action plan and the life-cycle test shall be restarted.

TDP DELIVERABLE: Propulsion Blower Design

1.10.2.1 Cooling

The Contractor shall be responsible for assuring that the propulsion equipment and LVPS are adequately cooled and that cooling air is filtered. If feasible, the Contractor shall propose moving the air intake locations to a point at least 3 feet above top of rail so that the equipment will not ingest dirt, debris, or water.

TDP DELIVERABLE: Cooling Air Location Design

1.10.3 12 VDC Power Supply

The Contractor shall provide and install a 12 VDC power supply nominal 13.6 VDC rated for 60 A continuous output in either a standalone DC to DC converter or as a separate output from the LVPS sized to provide power to the radios, PA, NextBus®, Clipper®, fareboxes, and headlight loads. Design shall be submitted to the Engineer for approval. The 12 VDC supply input and output(s) shall be protected with exclusive use protection devices.

The Contractor shall propose the 12 VDC supply design for approval by the Engineer, prior to production. The submission shall include a 12 VDC supply load analysis of normal and emergency connected loads. If a standalone supply is chosen, the 12 VDC supply chosen by the Contractor shall have a service proven history with at least 5 other transit agencies in the US. The Contractor shall perform a revenue service life-cycle test on the Car during revenue service. At least three Cars shall be considered and tested without failure for 2000 hours of revenue service time per Car. In the event of a failure, the Contractor shall perform a failure analysis and corrective action plan and the life-cycle test shall be restarted.

The Contractor shall be responsible to assure that the 12 VDC supply is adequately cooled with filtered air. If feasible, the Contractor shall locate the air intake at least 3 feet above top of rail so that the equipment will not ingest dirt, debris, or water from the track or roadway.

TDP DELIVERABLE: 12 VDC Power Supply design

1.10.4 Battery

The Contractor shall remove the existing Car battery and install a new Lithium Ion battery pack, regulated and with a voltage suitable for use with the LVPS. Technical specifications shall be provided to the Engineer for approval prior to final selection. An over-temperature sensor shall be installed in the battery compartment. The Contractor shall install a battery circuit breaker with shunt trip mechanism to activate on over-temp and low battery voltage. The low battery voltage trip point shall depend on the propulsion system chosen under this Contract, and its particular requirements or susceptibilities.

TDP DELIVERABLE: Battery Design

1.10.5 Trolley Poles

The Contractor shall install all new trolley poles and base assemblies including bases, poles, hooks, trolley boards, cleats, standoffs, braces, and hardware. All hardware including standoffs, braces, hook, etc. shall be stainless steel. Trolley poles are to be painted PPG DUHS 9000 Black in the middle with 16" of silver paint at the top end and 28" of silver paint at the bottom end.

All trolley boards, forward and end cleats shall be red oak. Center cleats shall be stainless steel. All wooden parts shall be painted with Pittsburgh Paint's 6-9 Exterior Oil Wood Primer 7-809 Safety Black high gloss paint.

A new power cable and conduit shall connect the trolley poles' power cable. The Contractor shall provide a design for the cable routing to the Engineer for approval.

The Contractor shall provide a safety harness lanyard on the trolley pole boards, per California OSHA standards.

TDP DELIVERABLE: Cable Routing

1.10.6 Catchers

A new catcher, rope and mounting plate shall be installed on each end of the car.

1.10.7 Battery Box

The Contractor shall install a new battery box with new rollout trays to be approved by the Engineer.

TDP DELIVERABLE: Battery Tray Design

1.10.8 Lightning Arrestor

Contractor shall replace all lightning arrestors with new weatherproof units of the same electrical ratings. An appropriate approved ground connection shall be provided. If the old lightning

arrestors are found to contain PCBs, the lightning arrestors shall be disposed using proper handling and disposal procedures for PCB- contaminated materials.

1.11 PROPULSION POWER AND BRAKING SYSTEM.

1.11.1 Westinghouse Propulsion Power and Braking System.

The Contractor shall install a new Bombardier Westinghouse type PCC propulsion system except for the traction motors, and foot pedal assembly, which shall be rebuilt. The Single-Ended Propulsion System shall be Bombardier PN# 8101800G01. The Doubled-Ended Propulsion System shall be Bombardier PN# 8101800G02.

The Contractor shall install a new main fuse in the 600 VDC collection circuit. The fuse and terminals shall be contained in a waterproof box located on the roof near the base of the rear pole.

The Contractor shall provide a propulsion system installation plan and a test plan for approval by the Engineer.

The Contractor shall be responsible for ensuring that the propulsion system functions properly. The Contractor shall assume liability for any damages caused during testing due to defects in the PCC wiring or propulsion equipment.

TDP DELIVERABLE: Propulsion & Braking Installation Plan

TDP DELIVERABLE: Propulsion and Braking Test Results

1.11.2 Foot Pedal Assembly

The foot pedal assembly (deadman, brake, and accelerator) shall be rebuilt and made fully functional. All hardware, control rods, rollers, springs, bearings, bushings, cogs, contacts, wiring, and plastic parts shall be replaced with new. Linkages connecting the Operator controls to the master/brake controller box shall be replaced with new.

The Contractor shall provide and perform an acceptance test procedure for the Engineer's Approval.

TDP DELIVERABLE: Operator Pedal System Test Procedure

1.11.3 Back Up Controller

The Contractor shall provide a new back-up controller. It shall be fully functional with the propulsion system provided under this Contract. The back-up controller shall have an Operator controlled variable acceleration rate. Shaft brakes shall be fully released from the back-up controller in the 'coast' position. 600 VDC overhead voltage shall not be necessary to obtain full shaft brake release.

1.11.4 Traction Motor Overhaul

The Contractor shall overhaul the traction motors: The armature, main field, and interpole coils are to be rewound and vacuum pressure impregnated. All coils and windings shall use fused Kapton insulation or equivalent winding insulation if approved by the Engineer. The commutator shall be replaced with new components. Motor shafts shall be replaced with new unless the

Engineer agrees that the existing shafts are in satisfactory condition and may be reused. The armature core laminations shall be inspected and tested with a core loss tester for burnt and damaged laminations. The core is to be restacked as needed. All brushes and brush holders are to be replaced. Traction motor bearings shall be replaced with new bearings on all traction motors. Bearing shall be installed, lubricated, and adjusted. Salvageable coils, windings, commutators, and brush holders shall be returned to the SFMTA. The motor end bearing seats and matching bearing retainers shall be inspected and repaired as needed.

The motors shall be painted black. A motor overhaul plate with serial number, overhaul company name, and overhaul date shall be attached to each motor.

The Contractor shall burn-in test each motor including final shaft Total Indicated Runout (TIR), the commutator TIR and dynamic balance values. Motor build and test records are to be included in the CHB

TDP DELIVERABLE: Motor Build Records

1.11.5 Tow Mode Feature

The Contractor shall replace the Tow Mode wiring harness and show through testing that the PCC can successfully tow an inoperable PCC from the furthest street stop to the SFMTA Beach Car House at up to 25 mph. If 25mph is not possible, the contractor shall explain why, to the satisfaction of the Engineer, and provide recovery instructions in the Maintenance manual.

TDP DELIVERABLE: Tow Mode Test

1.12 OTHER ELECTRICAL

1.12.1 Sander System

The Contractor shall provide and install a new sanding system complete with solenoid valves, stainless steel boxes, filler ports, and hoses.

Solenoid valves shall be wired in parallel and individually protected with an inline fuse.

Sanders shall be activated under the following conditions:

Deadman pedal in the fully released position.

Brake pedal in the emergency brake position.

Sander gang switch manually activated.

The design and testing of the sander system shall be submitted to the Engineer for approval.

TDP DELIVERABLE: Sander System

1.12.2 Passenger Stop Request Light and Chime

The Contractor shall install new passenger stop request lights and circuitry. The passenger stop request lights and circuit shall consist of two interior lighted signs, visible to the passengers, indicator lights on the Operator's Consoles, and the necessary circuitry to implement this function.

The passenger stop request light and the operator's indicator light in the active cab shall be illuminated when any one of the passenger stop pull cords are pulled (these pull cords currently sound the stop request chime) and it shall remain illuminated until Gang Switch Number 2, 3, 5, or 6 have been turned on (i.e. a door has been opened) in the active cab. This light shall be extinguished when the Door operator closes.

The passenger stop request lights shall be mounted from the car's ceiling approximately 8 feet from each front end of the car ceiling. The exact location is subject to approval by the Engineer. This light shall have an illuminated sign that reads "STOP REQUESTED". The sign shall essentially be a dead front type display, with a letter height of one-inch, a Helvetica medium font, white lettering on a red background. The sign's lights shall be incandescent bulbs, powered from the low voltage bus. There shall be a diffuser layer between the light bulbs and the imprinted layer to effectively diffuse the light from individual bulbs. The sign shall be equal in quality and performance to Flyer Co. Part No. 599097, or the SFMTA approved equivalent. The indicator light on the Operator's Console shall be of the same type and manufacture as the other indicator lights on the console, except that it shall be blue in color.

The Contractor shall install a new passenger stop request chime. The chime shall sound only once after one pull of the cord until the passenger stop request light has been reset by Gang Switch Number 2, 3, 5, or 6.

A circuit breaker shall be provided for protection.

The Contractor shall install new stop request pull cord switches, ferrules, and cords. The pull cords shall activate the stop request circuit.

An ADA stop request system shall be installed and include ADA approved stop request strip switches, integration with the ceiling mounted visual indicator, and a latching visual indicator and audible alarm in the Operator's area. The Operator's audible indicator shall consist of a continuous sounding alarm on a timer circuit; alarm and timer duration to be approved by the Engineer. The passenger and Operator annunciators shall release upon opening of the front door only

1.12.3 Towing Circuit

The Contractor shall refurbish the towing circuit. The towing circuit is a control circuit to provide remote control of the track brakes of an inoperable PCC car when it is coupled to a functional PCC. When activated this control circuit shall apply the track brakes in the car being towed (or pushed). The remote track brake control shall be operated from the "Track Brake" gang switch on the towing Car's Operator's console. The electrical connection between the towing and the towed car shall be by the Emergency Inter-Car Cable. Electrical isolation shall be maintained by using relays or contactors to electrically isolate the cars. The circuit shall be fully compatible and functional with the existing circuit in the SFMTA's existing PCC cars.

The track brake during towing circuit shall not interrupt the function of the track brake switch on the car being towed.

Relays or contactors used to implement this circuit shall be approved by the Engineer

TDP DELIVERABLE: Towing Circuit Design

1.12.4 Inter-Car Communication while Towing (PA)

The contractor shall refurbish the inter-car communication circuitry. The inter-car communication circuit facilitates communications between cars while towing or pushing an inoperative car. The circuit shall be integrated as part of the PA system. Connection between the two cars shall be by the emergency inter-car cable. The circuit shall be fully compatible and functional with the existing circuit in the SFMTA's existing PCC cars.

1.12.5 Emergency Inter-Car Cable

The contractor shall provide new emergency inter-car cables at both ends of the Car to connect to another car during towing (or pushing) operations. This cable shall carry the necessary conductors for track brake and PA control from the towing car. The Contractor shall refurbish or replace the junction boxes installed near the tow bar connection. Cable connections inside the junction box shall be made on a terminal strip, in order to readily replace damaged cables. The cable entrance to the junction box shall use a seal tight, strain relief bushing.

A multi-pin connector equal to either a bayonet railroad type or Pyle National Star Line connector shall be provided on the other end of the cable. The cable shall be of sufficient length to reach between cars connected by the standard tow bar and connect to the forward end cable receptacle, with sufficient slack to permit operation over all curves and reverse curves; an initial estimate of the cable length is 16 feet. The cable shall be a fully jacketed multi-conductor cable suitable for use in a physically abusive environment and where a high degree of flexibility is required.

The Contractor shall replace the waterproof receptacle and junction box for connecting an emergency cable from another car at the each end of the Car. All exposed connectors shall be waterproof and have a spring cover installed.

1.12.6 Track Brake Operator's Control

The operator manually selectable track brake control shall be made functional from the Gang Switch assembly. This control shall allow the Operator to apply the track brakes independent of any other braking or powering action being taken, and shall apply the track brakes at the full level of effort.

1.13 MISCELLANEOUS

1.13.1 Tow Bar, Pin, and Storage Tube

The Contractor shall refurbish the tow bar or install a new tow bar. The Contractor shall add two strips of reflective tape to the sides of the tow bar. The Contractor shall furnish a new 1-1/8" diameter X 7" long tow bar pin with a 12" handle and chain on each anti-climber. The pin shall be attached to the anti-climber by welding the tether chain to the anti-climber. The pin shall have a 3/8" hole 3/4" from the lower end to allow a hitch pin.

The Contractor shall install a new storage tube under the Car.

1.13.2 Flag holders and Rope Hooks

On the cab front, the Contractor shall install two rope hooks on the right side to hold the reverse direction trolley pole rope the left side (Operator's view) of the windshield.

1.13.3 Life Safety Guard

The Contractor shall refurbish or install new life safety guards at the front end of the Car. A safety or pilot board shall be attached to the rear of the rear truck.

1.13.4 Trucks

The Contractor shall rebuild the existing trucks

The truck frames, bolster and axle housings are to be stripped down to the clean, bare steel and inspected for damage, cracks and corrosion. Crack inspection shall be done through magnetic particle, dye penetrate or an x-ray process. The Contractor shall make all necessary repairs and paint the frames and axle housings with an epoxy primer and black top coat.

All other components like bellow guides, shields, guards, linkages, speed sensor wheel, etc. are to be stripped down to the clean bare steel, inspected, repaired if necessary, primed and painted black. If the existing parts are missing or irreparable, they are to be replaced with new.

All hardware, shock absorbers, universal joints, bellows, king pin bearing, all other bearings, traction motor cables, springs, and all rubber parts shall be replaced with new.

All new drive shafts, new bellows, and new sand funnels shall be installed.

Axle sets shall be rebuilt with new axles, gear sets, hubs, tires, cheek plates and king pin bearings. The axle gear sets shall include new wheels, ground bushes, axles, bearings, seals, shims, gears and cheek plates, and shall be assembled with new hardware.

New speed sensors shall be installed, of a type to be approved by the Engineer.

1.13.5 Inspection

Prior to the axle/gear sets installation in the truck frame, the ring gear backlash shall be inspected to insure that it is within manufacturer's specification. The gear unit shall be run on a test stand and inspected to verify that no leaks are present and that the temperatures and noise levels are acceptable at slow speeds.

New wheels shall be installed on the completed assembly. Axle pressing records shall be maintained and provided to the SFMTA as part of the car history data. Wheel pressing pressure charts shall show a steadily increasing pressure until the final wheel position is obtained; no fall off in pressure or erratic pressure trace is acceptable.

1.13.6 Axle Assemblies

Axle assemblies shall be assembled to established manufacturing methods:

- a. Axles shall have an exterior finish in accordance with Section 1 of the AAR Wheel and Axle Manual.
- b. Axles shall be made in accordance with AAR Specification M-101.
- c. Each axle shall be ultrasonically inspected per AAR Specification M-101 and magnetic particle inspected following finish machining.
- d. Axles shall be marked in accordance with the AAR Wheel and Axle Manual except.

1.13.7 Wheel Assemblies

New wheel assemblies shall be furnished and installed onto the wheel, axle and gear assembly. Wheels shall be Super Resilient Wheel (Carnegie) or D2a-1a1 Super Resilient Wheel (NACO). All wheels furnished must be of the same type. New cheek plates shall be installed. Wheel assemblies shall be complete and ready for installation, including cheek plates, all rubber elements; spacer bolts, and shunt straps.

1.13.8 Ground Brush, Grounding Ring and Ground Brush Holder

New ground brushes and grounding rings shall be provided and installed on each wheel, axle, and gear assembly. The grounding rings shall be fabricated from either hard copper or copper bearing bronze. Carbon ground brushes shall be of a carbon grade known to provide satisfactory service when operating against the material being used for the grounding ring. The ground brush shall be similar to the existing configuration. The ground brush holder shall be new, with new spring, gaskets, and insulating components.

1.13.9 Track Brake

The track brakes shall be completely overhauled with new springs, hardware, armature rewinding, and replacement of the single pole piece to a segmented wear bar (pole piece) design. The mounting system shall be modified as necessary to account for the segmented design. The system shall be statically and dynamically tested on each Car and shall be capable of holding the car on a 10% grade.

TDP DELIVERABLE: Track Brake Design & Test Report

1.13.10 Friction Brake

The Contractor shall design, install, and test a new disc brake system. It shall be designed such that preventative maintenance servicing and replacement of the pads shall take less than 30 minutes per car.

If compatible with the new disc brakes, the Contractor shall rebuild the existing Westinghouse actuators, if not, the Contractor shall supply new actuators. All linkages shall be refurbished and receive new bushings, springs, hardware, bearings, cogs, and non-metallic parts.

The Contractor shall demonstrate that the new braking system meets the required brake rate (GO 143B), is serviceable once installed, and that spare parts are available.

TDP DELIVERABLE: Disc Brake Design & Test Report

1.13.11 Drive Shaft

The Contractor shall provide new drive shafts and connecting joints.

1.13.12 Truck assembly

Once each truck has been assembled, the contractor shall inspect the truck to ensure that it has been properly assembled, lubricated and is in a condition to be installed under the car. After successful completion of the inspection, the contractor shall perform a spin test. The spin test

shall be performed under power and will be used to evaluate wheel run-out, high temperatures, vibration, noise, electrical issues and leaks that were not detected in the axle spin test.

1.13.13 Truck Build Documentation

The Contractor shall provide a detailed plan of how the trucks will be rebuilt and tested. Each truck's rebuild and testing shall be recorded.

TDP DELIVERABLE: Truck Rebuild Plan

TDP DELIVERABLE: Individual Truck Build/Inspection Report

1.14 MANAGEMENT

1.14.1 The Engineer

Throughout this Specification, the "Engineer" is defined as the SFMTA's Project Engineer or assigned representative.

1.14.2 The Contractor

Throughout this Specification, the "Contractor" is defined as the prime Contractor.

1.14.3 Documentation

For any components, or wiring that the Contractor installs, the Contractor shall provide dimensioned mechanical drawings, installation drawings, wiring diagrams and wire run list with bills of materials sufficient for review for the SFMTA's approval. The drawings and wiring diagrams will need to have sufficient information so that the items can be serviced and parts replaced in the future. The wiring diagrams shall be produced in a manner that is conducive for SFMTA maintenance personnel to use for circuit tracing and troubleshooting. The Contractor shall provide the written procedures for all work and testing to be performed on the Car. This documentation is intended to provide information to the SFMTA, and must also be provided by Contractor to Contractor's assembly crew and subcontractors to insure that all the Cars are modified in the same way and as engineered.

The documents will be submitted for the SFMTA's approval prior to the work being performed.

TDP DELIVERABLE: Procedure Package

1.15 MATERIAL AND WORKMANSHIP

1.15.1 Material responsibility

Unless otherwise noted, the Contractor shall supply all material and labor necessary to complete this remanufacturing project.

1.15.2 Test and Troubleshoot

All new, modified, or serviced circuits and electrical components shall be tested to assure proper function. The testing of these circuits shall be described in the Test and Commissioning Plan.

1.15.3 Water Tightness Test

The Contractor shall propose and conduct a water tightness test subject to the Engineer's approval. This test shall include an undercar test.

TDP DELIVERABLE: Water Tightness Test Procedure

TDP DELIVERABLE: Water Tightness Results

1.15.4 Subcontractors

The name and contact information for all subcontractors and vendors shall be provided to the SFMTA.

DELIVERABLE: Listing of Subcontractors and Vendors

1.15.5 Alternate Parts and Materials

All specific parts and materials called out for in this Specification are approved for use; however, the Contractor is encouraged to use alternates if those alternates are equivalent and interchangeable with the approved parts and materials. Alternates shall be submitted to the Engineer for approval.

TDP DELIVERABLE: Alternate Parts

1.15.6 Salvageable Parts

The Engineer shall have the right to review any and all parts removed from the Car but not reinstalled. All such parts deemed salvageable by the Engineer shall be cleaned, boxed, and delivered to the SFMTA by the Contractor at the Contractor's cost. Salvaged trucks do not need to be boxed.

1.16 ACCEPTANCE OF THE CARS

1.16.1 Delivery Preparation

The Cars shall be delivered to the SFMTA clean inside and out.

1.16.2 Procedure

The Cars will undergo specification compliance acceptance tests and burn-in upon arrival at the SFMTA. The Contractor shall provide acceptance testing and burn-in procedures to be approved by the Engineer.

Along with the testing, the SFMTA will run the car for a 1000-mile burn-in period, not to exceed 90 days, prior to acceptance. The SFMTA will then issue a notification of acceptance or non-acceptance.

If a Car fails the acceptance tests, it will not be accepted until any and all deficiencies have been corrected and the Car has been retested and passes all applicable tests.

TDP DELIVERABLE: Acceptance Test Procedure

1.16.3 Repairs Prior To Acceptance

The Engineer may require the Contractor, or its designated representative, to perform repairs after non-acceptance, or the Contractor may request that the work be done by the SFMTA personnel with reimbursement by the Contractor. The SFMTA shall be informed in advance of any modifications made to the Car during the acceptance period. The Contractor is encouraged to provide an on-site representative to participate during the burn-in and acceptance tests.

1.16.4 Repairs by Contractor

If the Engineer requires the Contractor to perform repairs after non-acceptance of a Car, the Contractor's representative must begin the repair within 5 working days after receiving notification from the Engineer of the failed acceptance test(s).

The Contractor shall provide, at its own expense, all spare parts, tools, and labor required to complete the repairs. At the Engineer's option, the Contractor may be required to remove, at its own expense, the Car from the SFMTA property while repairs are being affected. The Contractor shall then provide a space to complete the repairs, and shall diligently pursue the repairs.

If the Contractor becomes aware at any time before acceptance by the SFMTA that a Defect exists in a Car or with any material, equipment or services provided by Contractor, the Contractor shall (i) promptly correct the Defect and (ii) promptly notify the SFMTA, in writing, of the Defect.

1.16.5 Repairs by the SFMTA

If the Engineer agrees to a request by the Contractor for SFMTA personnel to perform repairs on a Car prior to acceptance, the SFMTA shall correct or repair the defect using parts supplied by the Contractor specifically for this repair.

If the Contractor supplies parts for repairs being performed by the SFMTA before acceptance of a Car, these parts shall be shipped prepaid to the SFMTA by the Contractor within 10 working days after receipt of the request for said parts. The Contractor may request that defective components covered by this provision be returned to the manufacturing plant. The total cost for supplying and shipping such parts and the labor shall be paid by the Contractor.

The SFMTA shall be reimbursed by the Contractor for labor. The amount shall be determined by multiplying the number of man-hours actually required to correct the defect by the current top mechanic's hourly overtime wage rate, which includes fringe benefits and project overhead rate, plus the cost of towing or transporting the Cars if such action was necessary. The use of the SFMTA personnel will not relieve the Contractor from the responsibility to ensure that repairs are carried out in accordance with proper procedures.

The SFMTA shall be reimbursed by the Contractor for defective parts that must be replaced to correct the defect. The reimbursement shall include taxes and shipping charges where applicable.

1.17 WARRANTIES

1.17.1 Definitions

"Acceptance," as used in this Section, means the act of an authorized representative of the SFMTA Engineer to approve specific services rendered, as partial or complete performance of the Contract.

"Correction," as used in this Section, means the elimination of a defect.

"Defect," as used in this Section means any patent or latent malfunctions or failure in manufacture or design of any component or subsystem.

"Material and/or Equipment," as used in this Section, means the completely rehabilitated PCCs (including all parts and equipment installed in them) and other deliverables furnished by the Contractor under the provisions of the Contract.

"Related Defect(s)," as used in this Section means damages inflicted on any component or subsystem as a direct result of a Defect.

1.17.2 Warranty Requirements

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Contractor. Consistent with this requirement, the Contractor shall warrant and guarantee to SFMTA each Car and specific subsystems and components according to the following provisions:

The Contractor shall ensure that the warranty requirements of this Contract are enforceable through and against the Contractor's suppliers, vendors, and subcontractors. Any inconsistency or difference between the warranties extended to SFMTA by the Contractor and those extended to the Contractor by its suppliers, vendors, and subcontractors, shall be at the risk and expense of the Contractor. Such inconsistency or difference will not excuse the Contractor's full compliance with its obligations under the Contract Documents.

Upon request of SFMTA, the Contractor shall promptly provide complete copies of written warranties or guarantees and of documentation of any other arrangement relating to such warranties or guarantees extended by the Contractor's suppliers, sub-suppliers, vendors, and subcontractors covering parts, components, and systems utilized in the Coach. If any vendor/supplier to the Contractor offers a warranty on a component that is longer or more comprehensive than the requirement in Section 1.17.3.2, Warranty Provisions, the Contractor shall provide this information to SFMTA in their bid documents and pass it through to SFMTA at no additional cost to SFMTA.

The Contractor shall ensure that such suppliers, sub-suppliers, vendors, and subcontractors satisfactorily perform warranty-related work.

1.17.3 Warranty Provisions

1.17.3.1 Materials and Equipment

The Contractor warrants that all Material and/or Equipment, and installation thereof, meets all requirements and standards set by the Specifications. All Material and/or Equipment shall be repaired /rehabilitated as specified in the Specifications. All new Material and/or Equipment

shall be the best of its kind or quality, reasonably fit for its intended use as set forth in the Specifications, and of safe, substantial, and durable construction. All installation shall be performed in a good and workmanlike manner and shall be safe and installed to operate in the manner intended in the Specifications. The Contractor further warrants that any Material and/or Equipment, and installation thereof, shall conform to representations and descriptions, either oral or written, made by the Contractor, and to any literature, sample, or other Car information supplied by the Contractor in its Technical Proposal.

1.17.3.2 General Warranty

In addition to all warranties under or implied by law or required by the Specifications, the Contractor expressly warrants all work performed, Material and/or Equipment, including all parts and labor, installed or performed by Contractor to be free from Defects and Related Defects for two (2) years beginning on the date of final acceptance of each PCC, except for the paint and carbody warranty which shall be three (3) years. The Contractor shall make any necessary repairs to and any replacements of all or parts of the Material and/or Equipment, during the warranty periods set forth above, and in the Specification at no additional cost to the SFMTA and to the SFMTA 's sole satisfaction.

1.17.4 Additional Warranties

1. If the customary standard warranties for the Material and/or Equipment, and installation thereof, exceed the period specified in Section 1.17.3.2, such warranties shall run to the SFMTA.
2. If separate or additional warranties covering the Material and/or Equipment are furnished by the manufacturer, supplier, or seller of component part or parts of any item of said Material and/or Equipment, the SFMTA shall have the right, but not the duty, to benefit from these separate or additional warranties, along with the primary warranties set forth herein above. The SFMTA shall look only to Contractor for fulfillment of all warranty requirements expressed and implied by the making of the Contract.
3. The existence of any separate or additional warranties that run to the Contractor from the manufacturer, supplier, or installer of a component part of an item of Material and/or Equipment shall not relieve the Contractor of its obligation to repair or replace any of the Material and/or Equipment on account of faulty design, manufacture or workmanship during the warranty period. The SFMTA shall not be required to look to any other party for fulfillment of warranty provisions.

1.17.5 Voiding of Warranty

The warranty shall not apply to any part or component of the Car that has failed solely as a direct result of misuse, negligence, or accident, or that has been repaired or altered in any way so as to affect adversely its performance or reliability, except insofar as such repairs were in accordance with the Contractor's maintenance manuals and the workmanship was in accordance with recognized standards of the industry.

The warranty on any part or component of the Coach shall also be void if SFMTA fails to conduct normal inspections and scheduled preventive maintenance procedures on the same part or component substantially as recommended in the Contractor's maintenance manuals, and such failure by SFMTA is the sole cause of the part or component failure.

1.17.6 Detection of Defects

1. If SFMTA finds Defects within the warranty period defined in Section 1.17.3.2 or 1.17.4, it shall notify the Contractor's representative in writing. Within five Working Days after receipt of notification, the Contractor's representative shall either agree that the Defect is in fact covered by warranty, or reserve judgment until the sub-system or component is inspected by the Contractor's representative or is removed and examined at SFMTA property or at the Contractor's plant. At that time the status of warranty coverage on the sub-system or component shall be mutually resolved between SFMTA and the Contractor. Work necessary to commence the inspection or repairs, under the provisions of Section 1.17.8, Repair Procedures shall proceed immediately after receipt of notification by the Contractor. If within 10 Working Days of notification to contractor, SFMTA and Contractor are unable to agree whether a Defect is covered by warranty provisions, SFMTA reserves the right to commence repairs and seek reimbursement through Section 1.17.8 Repair Procedures.

2. If Contractor independently becomes aware of a Defect in accepted Material and/or Equipment or services, the Contractor shall submit to SFMTA, in writing, within 15 days a recommendation for corrective actions, together with supporting information in sufficient detail to enable SFMTA to determine what corrective action, if any, shall be taken.

3. The Contractor shall promptly comply with any timely written direction from the SFMTA to correct or partially correct a Defect, at no cost to the SFMTA.

4. The Contractor shall also prepare and furnish to the SFMTA data and reports applicable to any correction required under this Section (including revision and updating of all other affected data called for under the Contract) at no cost to the SFMTA.

5. In the event of timely notice of a decision not to correct, or only to partially correct, the Contractor shall submit a technical and cost proposal within fifteen (15) days to amend the Contract to permit acceptance of the affected Material and/or Equipment or services in accordance with the revised requirement, and an equitable reduction in the Contract Price shall promptly be negotiated by the parties and be reflected in a Change Order to the Contract.

1.17.7 Fleet Defects

A Fleet Defect is defined as cumulative failures of any kind in the same new systems or components in the same or similar application where such items are covered by the warranty and such failures occur within the warranty period in at least three of the Cars delivered under this contract. SFMTA shall have final approval of corrections or changes under these conditions, which may include requesting Failure Analysis Report (see Section 1.17.8.7) for the failed system.

1.17.7.1 Correction of Fleet Defects

The Contractor shall provide a corrective action plan within 10 Days of receipt of notification of a Fleet Defect under the procedures specified in this subsection. Unless SFMTA grants an extension, the Contractor shall provide SFMTA with a retrofit work plan, a Field Service Repair Procedure (FSRP) and schedule, to be reviewed and approved by SFMTA. The schedule shall specify how and when all Coaches with Defects shall be corrected.

Any proposed changes to an approved Fleet Defect work plan or program must be submitted to SFMTA for review and approval.

If Contractor does not provide a plan for correction within 10 Days (or as extended by SFMTA); or a specific declared Fleet Defect is not fully corrected within the time specified in the agreed upon schedule; or the remainder of the Cars are not corrected in accordance with the Contractor's work plan; then SFMTA will assess liquidated damages in the amount of \$500/Car per calendar Day as provided in Section 19 of the Agreement.

The warranty on parts, components or sub-systems replaced as a result of a Fleet Defect shall be assigned a new warranty period equal to the original manufacturers or contract part warranty, whichever is longer, effective the replacement date. Any extended warranties shall commence at the conclusion of the new warranty period.

1.17.7.2 Fleet Defect Repairs

When SFMTA requires the Contractor to perform warranty-covered repairs under the Fleet Defect corrections, the Contractor's representative must begin work necessary to effect repairs in a proper and timely manner, within five Working Days after the approval of the retrofit plan/schedule. Whenever the Contractor makes warranty repairs, new parts, subcomponents and subsystems shall be used, unless the repair of original parts is authorized in writing by SFMTA. SFMTA shall make the Car available to complete repairs timely with the Contractor's repair schedule.

The Contractor shall provide, at its own expense, all spare parts, labor, tools and space required to complete repairs. The Contractor shall reimburse SFMTA for all expenses incurred, including labor for moving Cars, or towing charges for Cars transported, between SFMTA's facilities and Contractor's service center or the facilities of its subcontractors or suppliers.

1.17.7.3 Contractor-Supplied Parts

The Contractor shall furnish parts for all warranty work performed by the Contractor.

1.17.7.4 Voiding of Warranty Provisions

The Fleet Defect provisions shall not apply to Car Defects solely caused by non-compliance with the Contractor's recommended preventive maintenance practices and procedures or caused solely by abuse of the equipment.

1.17.8 Repair Procedures

The Contractor shall reimburse SFMTA for labor, parts and administrative costs for warranty claims performed by SFMTA personnel or by any contractor(s) hired by SFMTA to perform warranty work.

Contractor shall reimburse SFMTA for warranty claims within 30 Days after each warranty claim has been submitted by SFMTA. If SFMTA does not receive payment within 30 Days, SFMTA will deduct the amount of the claim, which includes labor, parts, administrative overhead, and towing costs, from payments due to Contractor or will deduct the amount of the claim from the Retention.

1.17.8.1 Parts Used

SFMTA shall use new parts, subcomponents and subsystems that Contractor shall provide specifically for these repairs. All parts shall be stamped or permanently marked with the OEM part number, and serial number if applicable. Warranties on parts used shall begin once the Car has been repaired. The warranty on parts, components or sub-systems replaced as a result of a standard warranty repair shall be assigned a new warranty period equal to the original manufacturers or contract part warranty, whichever is longer, effective the replacement date. Any extended warranties shall commence at the conclusion of the new warranty period.

SFMTA shall use parts or components available from its own stock only on an emergency basis. Monthly reports, or reports at intervals mutually agreed upon, of all repairs covered by warranty will be submitted by SFMTA to the Contractor for reimbursement or replacement of parts or components. The Contractor shall provide forms for these reports.

1.17.8.2 Defective Parts Return

The Contractor may request that Defective parts or components covered by warranty be returned to the Contractor. The Contractor is responsible for all costs associated with material return. Material will be returned in accordance with the Contractor's instructions. Contractor shall provide such instructions to SFMTA at the beginning of the project. The Contractor's representative shall meet with a SFMTA representative on as required basis to determine which parts need to be returned to the manufacturer for evaluation, or which parts may be discarded.

1.17.8.3 Reimbursement for Labor

The Contractor shall reimburse SFMTA for all warranty labor incurred by SFMTA. The amount shall be determined by multiplying the number of man-hours required to correct the Defect by the current top mechanic's hourly overtime wage rate. The wage rate, and therefore, the warranty labor rate, is subject to adjustment each year. As of January 31, 2013, the warranty labor rate shall be based on the mechanic's wage rate of \$140.40/hour, which includes labor, fringe benefits, and overhead.

In the event SFMTA deems it necessary to contract out for warranty repairs, the Contractor shall reimburse SFMTA for the actual cost of the repair, including charges for any warrantable parts, consequential parts or damages, labor, and towing or transportation. A 15% handling fee will be included on all outside invoices for warranty related services submitted to the Contractor.

1.17.8.4 Reimbursement for Parts; Towing and Transportation

In the event SFMTA uses its own parts for warranty repairs, the Contractor shall reimburse SFMTA for those parts, including all Defective parts, components, and consequential parts supporting the warranty repair. The reimbursement shall be at the invoice cost of the parts or components at the time of repair and shall include applicable taxes plus a 15% handling fee.

The warranty will include the cost of towing or otherwise transporting a Car or a Car change if either was necessary because of the failure of a warranted part. Towing or transportation costs consist of the cost any SFMTA labor expended, any parts utilized in the transfer of the Car, and the actual cost of any other transportation costs incurred by SFMTA because of the failure of a warranted part, plus a 15% handling fee. The cost of a Car change will consist of the actual time spent at the established warranty labor rate.

1.17.8.5 Return of Material or Equipment

If the SFMTA returns Material and/or Equipment to the Contractor for correction or replacement under this Section, the Contractor shall be liable for transportation charges up to an amount equal to the cost of transportation by the usual commercial method of shipment from the place of delivery specified in the Contract (irrespective of the f.o.b. point or the point of acceptance) to the Contractor's plant and return to the place of delivery specified in the Contract. The Contractor shall also bear the responsibility for the supplies while in transit.

1.17.8.6 Warranty After Replacement or Repairs

The warranty on parts, components or sub-systems replaced as a result of a standard warranty repair shall be as follows: (a) each part or component replaced with a brand new component or part will be assigned a new warranty period equal to the original manufacturer's or contract part warranty, whichever is longer, effective the replacement date, with any extended warranties commencing at the conclusion of the new warranty period; (b) any SFMTA replaced component or part that is a certified rebuilt, certified reconditioned or a certified remanufactured component or part shall be warranted for the remainder of the original warranty period of the component or part, commencing on the replacement date

1.17.8.7 Failure Analysis

At SFMTA's request, the Contractor, at its cost, shall conduct a failure analysis of a failed part involved in a Fleet Defect or that is safety-related or a major component that could affect fleet operation that has been removed from Cars under the terms of the warranty. The analysis shall commence with the approved corrective action plan and be documented and compiled into a report. Failure Analysis Reports shall be delivered to SFMTA within 60 Days of the receipt of failed parts.

1.17.8.8 On-Site Support

From delivery of the first overhauled Car to the SFMTA until SFMTA's acceptance of the final Car, the Contractor shall have on-site at SFMTA's facility a minimum of at least one service technician, eight hours per day, Monday through Friday, major holidays excepted. The technician shall make warranty repairs, train SFMTA technicians and supply parts.

The Contractor shall maintain a supply of common warranty parts at SFMTA's facility during that period.