

File No. 161266

Committee Item No. 8

Board Item No. 6

**COMMITTEE/BOARD OF SUPERVISORS**  
AGENDA PACKET CONTENTS LIST

Committee: Budget & Finance Committee

Date February 2, 2017

Board of Supervisors Meeting

Date February 14, 2017

**Cmte Board**

- |                                     |                                     |  |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/>            | <input type="checkbox"/>            | Motion                                       |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Resolution                                   |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Ordinance                                    |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Legislative Digest                           |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Budget and Legislative Analyst Report        |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Youth Commission Report                      |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Introduction Form                            |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Department/Agency Cover Letter and/or Report |
| <input type="checkbox"/>            | <input type="checkbox"/>            | MOU  |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Grant Information Form                       |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Grant Budget                                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Subcontract Budget                           |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Contract/Agreement                           |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Form 126 – Ethics Commission                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Award Letter                                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Application                                  |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Public Correspondence                        |

**OTHER (Use back side if additional space is needed)**

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|-------------------------------------|-------------------------------------|---------------------------------------|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <u>Airport Commission Resolutions</u> |
| <input type="checkbox"/>            | <input type="checkbox"/>            | _____                                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | _____                                 |
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Completed by: Linda Wong Date January 27, 2017

Completed by: Linda Wong Date February 6, 2017

1 [Airport Professional Services Agreement Modification No. 3 - Operation and Maintenance  
2 Services for the AirTrain System - Not to Exceed \$115,444,968]

3 **Resolution approving Modification No. 3 to Professional Services Agreement, Airport**  
4 **Contract No. 8838, between Bombardier Transportation (Holdings) USA, Inc., and the**  
5 **City and County of San Francisco, acting by and through its Airport Commission, to**  
6 **exercise the first of two one-year options from March 1, 2017, through February 28,**  
7 **2018, to provide operation and maintenance services for the AirTrain System, and**  
8 **cover the replacement of obsolete AirTrain parts and equipment, for a new not-to-**  
9 **exceed amount of \$115,444,968, pursuant to Charter, Section 9.118(b).**

10  
11 WHEREAS, On September 16, 2008, pursuant to Resolution No. 08-0173, the Airport  
12 Commission awarded the Professional Services Agreement (PSA) to Bombardier  
13 Transportation (Holdings) USA, Inc., for a five (5) year initial term with one three (3) year  
14 option and two (2) additional one (1) year options to be exercised at the discretion of the  
15 Airport Commission, at an initial not to exceed amount of \$56,500,000; and

16 WHEREAS, On November 18, 2008, pursuant to Ordinance No. 266-08, the Board of  
17 Supervisors approved the PSA to Bombardier Transportation (Holdings) USA, Inc., to perform  
18 the maintenance and operation services of the AirTrain system in an amount not to exceed  
19 \$56,500,000 with a contingency budget of \$500,000 on file with the Clerk of the Board of  
20 Supervisors in File No. 080942, which is hereby declared to be a part of this resolution as if  
21 set forth fully herein; and

22 WHEREAS, On July 23, 2013, pursuant to Resolution No. 13-0156, the Airport  
23 Commission approved Amendment No. 1 to the Operation and Maintenance Services for the  
24 AirTrain System contract with Bombardier Transportation (Holdings) USA, Inc. to exercise the  
25

1 three (3) year option to renew the PSA from March 1, 2014 through February 28, 2017 for the  
2 amount of \$42,200,000 for a new not to exceed contract amount of \$98,700,000; and

3 WHEREAS, On December 10, 2013, pursuant to Resolution No. 429-13, the Board of  
4 Supervisors approved Modification No. 1, increasing the not-to-exceed amount by  
5 \$42,200,000 for a new total not-to exceed contract value of \$98,700,000; and

6 WHEREAS, On May 19, 2014, pursuant to Resolution No. 14-0104, the Airport  
7 Commission approved Modification No. 2, increasing the not-to-exceed amount by \$1,848,174  
8 to cover the replacement of obsolete AirTrain equipment and to provide a contingency fund for  
9 the replacement of any additional equipment over the three-year contract term for a new total  
10 not-to exceed contract value of \$100,548,174; and

11 WHEREAS, On September 9, 2014, pursuant to Resolution No. 328-14, the Board of  
12 Supervisors approved Modification No. 2, decreasing the not-to-exceed amount by \$4,340 for  
13 a new total not-to exceed contract value of \$100,543,834; and

14 WHEREAS, On November 1, 2016, pursuant to Resolution No. 16-0277, the Airport  
15 Commission approved Modification No. 3, increasing the not-to-exceed amount by  
16 \$14,901,134 to exercise the first 1-year option (March 1, 2017 through February 28, 2018)  
17 and cover the replacement cost of obsolete or worn out AirTrain parts and equipment for a  
18 new total not-to exceed contract value of \$115,444,968; and

19 WHEREAS, San Francisco Charter Section 9.118(b) provides that the agreements  
20 entered into by a department, board or commission requiring anticipated expenditures by the  
21 City and County of \$10,000,000, shall be subject to approval by the Board of Supervisors by  
22 resolution; and

23 WHEREAS, The Modification No. 3 is on file with the Clerk of the Board of Supervisors  
24 in File No. 161266, which is hereby declared to be a part of this resolution as if set forth fully  
25 herein; now, therefore, be it

1           RESOLVED, That the Board of Supervisors hereby approves Modification No. 3 to the  
2 Professional Services Agreement for Airport Contract 8838 – Operation and Maintenance  
3 Services for the AirTrain System between Bombardier Transportation (Holdings) USA, Inc.  
4 and the City and County of San Francisco, acting by and through its Airport Commission,  
5 increasing the not-to-exceed amount by \$14,901,134 to exercise the first 1-year option (March  
6 1, 2017 through February 28, 2018) and cover the replacement cost of obsolete or worn out  
7 AirTrain parts and equipment for a new total not-to exceed contract value of \$115,444,968,  
8 copies of which are contained in Clerk of the Board of Supervisors' File No. 161266; and, be it

9           FURTHER RESOLVED, That within thirty (30) days of to the Modification No. 3  
10 Professional Services Agreement for Airport Contract 8838 being fully executed by all parties,  
11 the Airport Commission shall provide the Modification No. 3 to the Clerk of the Board for  
12 inclusion into the official file.

**Item 8**  
**File 16-1266**

**Department:**  
San Francisco International Airport (Airport)

### EXECUTIVE SUMMARY

#### Legislative Objectives

- The proposed resolution would approve the third modification to the existing contract between the Airport and Bombardier to (a) exercise the first of two (2) one-year options to extend the contract from March 1, 2017, through February 28, 2018, in order for Bombardier to provide operation and maintenance services for the AirTrain System, and (b) increase the contract not-to-exceed amount by \$14,901,134 from \$100,543,834 to \$115,444,968.

#### Key Points

- In March 1998, The Airport entered into a two-phase contract with Bombardier Transportation (Holdings) USA Inc. (Bombardier), based on a competitive Request for Proposals process, to (a) design, construct, and install the light rail air train system (AirTrain) and (b) operate and maintain the AirTrain system through February 2009. In November 2008, the Board of Supervisors approved a new five-year contract from March 2009 through February 2014, which included one option to extend the term of the contract by three years through February 2017, and two additional one-year options to extend the term of the contract through February 2019.
- Two modifications to the contract were subsequently approved by the Board of Supervisors; one in December 2013 to extend the contract by three years until February 2017, and a second in September 2014, which increased the not-to-exceed amount of the contract to \$100,543,834.

#### Fiscal Impact

- The proposed resolution would increase the existing not-to-exceed contract amount by \$14,901,134 from \$100,543,834 to \$115,444,968. The contract is funded from the Airport's Operating Funds and Capital Funds, as previously appropriated by the Board of Supervisors. The Airport's Operating Funds will cover the AirTrain operations and maintenance and contingency fund. The Airport has budgeted \$15,100,000 for the AirTrain operations and maintenance through FY 2017-18.

#### Policy Consideration

- As part of the 2008 lawsuit settlement, Bombardier must hit target average availability of 99.5 percent. Bombardier has maintained an average availability of 99.69 percent since start of operations in March 2003, and 99.70 percent since 2008.

#### Recommendation

- Approve the proposed resolution.

**MANDATE STATEMENT**

City Charter Section 9.118(b) states that any contract entered into by a department, board or commission that (1) has a term of more than ten years, (2) requires expenditures of \$10 million or more, or (3) requires a modification of more than \$500,000 is subject to Board of Supervisors approval.

**BACKGROUND**

In March 1998, The Airport entered into a two-phase contract with Bombardier Transportation (Holdings) USA Inc. (Bombardier), based on a competitive Request for Proposals process, to (a) design, construct, and install the light rail air train system (AirTrain) (Phase I) and (b) operate and maintain the AirTrain system through February 2009 (Phase II).

In December 2004, the Airport filed a lawsuit against Bombardier for contract delays and property damages. Parties to the lawsuit settled their dispute in April 2008. The settlement included a provision that allowed the Airport to recover costs if Bombardier did not meet performance incentives in the service contract for operations and maintenance. Per the settlement, the Airport would approve a five-year contract that would begin in March 2009 through February 2014.

In November 2008, the Board of Supervisors approved an ordinance (File 08-0942) that approved a new five-year contract, from March 2009 through February 2014, for Bombardier to operate and maintain the AirTrain system. The Board of Supervisors also exempted the contract from a competitive request for proposal process because the contract was awarded as a result of a legal settlement.

The new five-year contract included one option to extend the term of the contract by three years through February 2017, which was mandatory if Bombardier met performance benchmarks, and two additional one-year options to extend the term of the contract through February 2019 at the sole discretion of the Airport. The new five-year contract was for an amount not-to-exceed \$56,500,000.

In December 2013, the Board of Supervisors approved the first modification to the contract (File 13-0879) to exercise the option to extend the term of the contract by three years, from March 2014 through February 2017 and increase the total not-to-exceed contract amount by \$42,200,000 from \$56,500,000 to \$98,700,000.

In September 2014, the Board of Supervisors approved the second modification to the contract to increase the not-to-exceed amount by \$1,843,834 from \$98,700,000 to \$100,543,834 to replace outdated equipment and provide a contingency for equipment replacement and repair (File 14-0742).

**DETAILS OF PROPOSED LEGISLATION**

The proposed resolution would approve the third modification to the existing contract between the Airport and Bombardier to (a) exercise the first of two (2) one-year options to extend the contract from March 1, 2017, through February 28, 2018, in order for Bombardier to continue to provide operation and maintenance services for the AirTrain System, and (b) increase the contract not-to-exceed amount by \$14,901,134 from \$100,543,834 to \$115,444,968.

Under the proposed third modification to the contract between the Airport and Bombardier, Bombardier will continue to operate and maintain the AirTrain system, including the maintenance and replacement of equipment within the train and stations.

**FISCAL IMPACT**

The proposed resolution would increase the existing not-to-exceed contract amount by \$14,901,134 from \$100,543,834 to \$115,444,968 in order to: (1) pay for AirTrain operations and maintenance through February 28, 2018; (2) replace old stanchions (support handles) in train cars; (3) replace obsolete station auto-locks; and (4) provide a \$100,000 contingency fund for unexpected expenditures. All of these tasks are detailed in Table 1 below.

**Table 1: AirTrain Proposed Increased Modification**

AirTrain Operations and Maintenance (Including contractual escalation, bonuses, and passenger count data management)	\$14,295,521
Replace old stanchions with new Tri-handle Stanchions	291,659
Replace obsolete station auto-locks with newly designed auto-locks	213,954
Contingency fund for replacement of unexpected items	100,000
<b>Total</b>	<b>\$14,901,134</b>

AirTrain Operations and Maintenance

The budget for operations and maintenance from March 1, 2017 through February 28, 2018 is \$14,295,521, which is \$475,021 or 3.4 percent more than the current operations and maintenance budget of \$13,820,500. The operations and maintenance budget consists of (a) base cost of \$11,300,000, which has been the same since FY 2009-10; (b) annual escalation;<sup>1</sup> (c) bonuses;<sup>2</sup> and (d) passenger count data management.

<sup>1</sup> The escalation rate in FY 2016-17 is 3.29 percent and in FY 2017-18 is 2.27 percent.

<sup>2</sup> The proposed third modification budget of \$14,901,134 includes \$139,326 for bonuses, which is the maximum bonus amount if Bombardier achieves all performance targets. Since FY 2009-10, Bombardier has not achieved the maximum bonus amount.

The contract is funded from the Airport's Operating Funds and Capital Funds, as previously appropriated by the Board of Supervisors. The Airport's Operating Funds will cover the AirTrain operations and maintenance and contingency fund. The Airport has budgeted \$15,100,000 for the AirTrain operations and maintenance through FY 2017-18.

**POLICY CONSIDERATION**

As part of the 2008 lawsuit settlement, Bombardier must hit target average availability of 99.5 percent, meaning the AirTrain system must be available to passengers 99.5 percent of the time as averaged over a monthly period.<sup>3</sup> System availability is managed by an automated computer system called SIMS (Site Information Management System). Bombardier has maintained an average availability of 99.69 percent since start of operations in March 2003, and 99.70 percent since 2008.

**RECOMMENDATION**

Approve the proposed resolution.

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<sup>3</sup> If Bombardier exceeds an average of 99.8 percent or higher for the month they receive a bonus; if they fall below 99.5 percent for the month they are penalized.



**City and County of San Francisco**  
**Airport Commission**  
**P.O. Box 8097**  
**San Francisco, California 94128**

**Modification No. 3**

THIS MODIFICATION (this "Modification") is made as of November 3, 2016, in San Francisco, California, by and between **Bombardier Transportation (Holdings) USA Inc.** ("Contractor"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Airport Commission or the Commission's designated agent, hereinafter referred to as "**Commission.**"

RECITALS

WHEREAS, City and Contractor have entered into the Agreement (as defined below); and

WHEREAS, City and Contractor desire to amend the Agreement on the terms and conditions set forth herein to address the replacement of obsolete equipment; and

WHEREAS, the Commission awarded this contract to Contractor on September 16, 2008, pursuant to an agreement to settle a dispute among the City and County of San Francisco, Bombardier Transportation (Holdings) USA, Inc., and Factory Mutual Insurance Company which was filed in the United States District Court for the Northern District of California, case number C 04-5307 PJH, and further pursuant to Resolution No. 08-0173; and

WHEREAS, on November 18, 2008, by Resolution No. 266-08, the Board of Supervisors approved the Agreement under San Francisco Charter Section 9.118; and

WHEREAS, Commission approved Modification No. 1 pursuant to Resolution No. 13-0156 on July 23, 2013; and

WHEREAS, on December 10, 2013, by Resolution No. 429-13, the Board of Supervisors approved the modification to the Agreement under San Francisco Charter Section 9.118; and

WHEREAS, Commission approved this Modification No. 2 pursuant to Resolution No. 14-0104 on May 19, 2014; and

WHEREAS, on September 9, 2014, by Resolution No. 328-14, the Board of Supervisors approved the modification to the Agreement under San Francisco Charter Section 9.118 but reduced the not to exceed amount by \$4,340 for a new not-to-exceed amount of \$100,543,834; and; and

WHEREAS, Commission approved this Modification No. 3 pursuant to Resolution No. 16-0277 on November 1, 2016; and

WHEREAS, on \_\_\_\_\_, by Resolution No. \_\_\_\_\_, the Board of Supervisors approved the modification to the Agreement under San Francisco Charter Section 9.118 for a new not-to-exceed amount of \$ \_\_\_\_\_; and

NOW, THEREFORE, Contractor and the City agree as follows:

**1. Definitions.** The following definitions shall apply to this Amendment:

**a. Agreement.** The term "Agreement" shall mean the Agreement dated September 16, 2008 between Contractor and City, as amended by the:

Modification No. 1,           dated August 1, 2013; and  
Modification No. 2,           dated May 20, 2014.

**b. Contract Monitoring Division.** Effective July 28, 2012, with the exception of Sections 14B.9(D) and 14B.17(F), all of the duties and functions of the Human Rights Commission under Chapter 14B of the Administrative Code (LBE Ordinance) were transferred to the City Administrator, Contract Monitoring Division ("CMD"). Wherever "Human Rights Commission" or "HRC" appears in the Agreement in reference to Chapter 14B of the Administrative Code or its implementing Rules and Regulations, it shall be construed to mean "Contract Monitoring Division" or "CMD" respectively.

**c. Other Terms.** Terms used and not defined in this Modification shall have the meanings assigned to such terms in the Agreement.

**2. Section 2. Term of the Agreement** is hereby amended to extend the term of the contract for one year for a new ending date of February 28, 2018.

**3. Section 4. Services Contractor Agrees to Perform** of the Agreement is amended to address the replacement of obsolete equipment as detailed in Appendix G, Tasks 5 and 6.

**4. Section 5. Compensation** is hereby amended to increase the total compensation payable by an amount not to exceed Fourteen Million Nine Hundred One Thousand One Hundred Thirty Four Dollars (\$14,901,134) for a new total not to exceed amount of One Hundred Fifteen Million Four Hundred Forty Four Thousand Nine Hundred Sixty Eight Dollars (\$115,444,968).

**5. New Section 32. Earned Income Credit (EIC) Forms** is hereby replaced in its entirety with a **New Section 32. Consideration of Criminal History in Hiring and Employment Decisions** to read as follows:

**32. Consideration of Criminal History in Hiring and Employment Decisions.**

a. Contractor agrees to comply fully with and be bound by all of the provisions of Chapter 12T "City Contractor/Subcontractor Consideration of Criminal History in Hiring and Employment Decisions," of the San Francisco Administrative Code (Chapter 12T), including the remedies provided, and implementing regulations, as may be amended from time to time. The provisions of Chapter 12T are incorporated by reference and made a part of this Agreement as though fully set forth herein. The text of the Chapter 12T is available on the web at [www.sfgov.org/olse/fco](http://www.sfgov.org/olse/fco). A partial listing of some of Contractor's obligations under Chapter 12T is set forth in this Section. Contractor is required to comply with all of the applicable provisions of 12T, irrespective of the listing of obligations in this Section. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 12T.

b. The requirements of Chapter 12T shall only apply to the Contractor's or Subcontractor's operations to the extent those operations are in furtherance of the performance of this Agreement, and shall apply only to applicants and employees who would be or are performing work in

furtherance of this Agreement, whose employment is or would be in whole or in substantial part physically located in the City and County of San Francisco, which excludes Airport property.

1) Applicants or employees who would be or are performing work in furtherance of this Agreement may be required to be screened by the U.S. Department of Homeland Security for security badging. A rejection by the U.S. Department of Homeland Security of an applicant's or employee's security badging application, and the resulting inability of the Contractor to hire the applicant or assign the employee to perform services under this Agreement, shall not be considered an Adverse Action under Chapter 12T.

c. Contractor shall incorporate by reference in all subcontracts the provisions of Chapter 12T, 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.

d Contractor or Subcontractor shall not inquire about, require disclosure of, or if such information is received, base an Adverse Action on an applicant's or potential applicant for employment or employee's: (1) Arrest not leading to a Conviction, unless the Arrest is undergoing an active pending criminal investigation or trial that has not yet been resolved; (2) participation in or completion of a diversion or a deferral of judgment program; (3) a Conviction that has been judicially dismissed, expunged, voided, invalidated, or otherwise rendered inoperative; (4) a Conviction or any other adjudication in the juvenile justice system; (5) a Conviction that is more than seven years old, from the date of sentencing; or (6) information pertaining to an offense other than a felony or misdemeanor, such as an infraction.

e. Contractor or Subcontractor shall not inquire about or require applicants, potential applicants for employment, or employees to disclose on any employment application the facts or details of any conviction history, unresolved arrest, or any matter identified in subsection 32.4, above. Contractor or Subcontractor shall not require such disclosure or make such inquiry until either after the first live interview with the person, or after a conditional offer of employment.

f. Contractor or Subcontractor shall state in all solicitations or advertisements for employees that are reasonably likely to reach persons who are reasonably likely to seek employment to be performed under this Agreement, that the Contractor or Subcontractor will consider for employment qualified applicants with criminal histories in a manner consistent with the requirements of Chapter 12T.

g. Contractor and Subcontractors shall post the notice prepared by the Office of Labor Standards Enforcement (OLSE), available on OLSE's website, in a conspicuous place at every workplace, job site, or other location under the Contractor or Subcontractor's control at which work is being done or will be done in furtherance of the performance of this Agreement. The notice shall be posted in English, Spanish, Chinese, and any language spoken by at least 5% of the employees at the workplace, job site, or other location at which it is posted.

h. Contractor understands and agrees that if it fails to comply with the requirements of Chapter 12T, the City shall have the right to pursue any rights or remedies available under Chapter 12T, including but not limited to, a penalty of \$50 for a second violation and \$100 for a subsequent violation for each employee, applicant or other person as to whom a violation occurred or continued, termination or suspension in whole or in part of this Agreement.

**6. New Section 58. Graffiti Removal** is hereby replaced in its entirety with a **New Section 58. Sugar-Sweetened Beverage Prohibition** to read as follows:

**58. Sugar-Sweetened Beverage Prohibition.** Contractor agrees that it will not sell, provide, or otherwise distribute Sugar-Sweetened Beverages, as defined by San Francisco Administrative Code Chapter 101, as part of its performance of this Agreement.

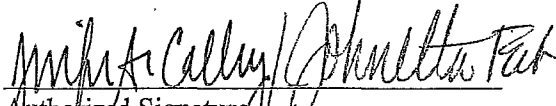

**7. Appendix E. Spare Parts, Tools, and Equipment List** is hereby replaced in its entirety with the new Appendix E-2. Additional spare parts needed for the work contemplated under this modification will be added to the Spare Parts, Tools, and Equipment List at the next modification.

**8. Appendix G.** Appendix G is hereby amended to add Tasks 5 and 6 to address replacement of obsolete equipment covered under the contract. Performance of the Tasks in Appendix G is subject to mutually agreeable terms and conditions, which shall be established prior to the start of each task. Appendix G is also amended to correct an administrative error in the heading of Modification No. 2 Appendix G pages 1 of 8 and 2 of 8. The correct heading should have been "Task 1: AirTrain LED to LCD Sign Upgrade" not "Task 2: AirTrain UPS Replacement."

**9. Effective Date.** Each of the changes set forth in this Modification shall be effective on and after the date of this Modification.

**10. Legal Effect.** Except as expressly modified by this Modification, all of the terms and conditions of the Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, Contractor and City have executed this Amendment as of the date first referenced above.

CITY	CONTRACTOR
AIRPORT COMMISSION CITY AND COUNTY OF SAN FRANCISCO	
By: _____ Ivar C. Satero, Airport Director	 Authorized Signature
Attest:	Jennifer Callery / Jolmetta Fam Printed Name Vice President / Secretary Title
By _____ Jean Caramatti, Secretary Airport Commission	Bombardier Transportation (Holdings) USA Inc. Company Name
Resolution No: _____	40554 City Vendor Number
Adopted on: _____	1501 Lebanon Church Road Address
Approved as to Form:	Pittsburgh, PA 15236 City, State, ZIP
Dennis J. Herrera City Attorney	(412) 655-5700 Telephone Number
By  Constance Menefee Deputy City Attorney	25-1579550 Federal Employer ID Number

Appendix E-2: Spare Parts

Part No	Description	Qty
0899363G01	CONTACT ASSEMBLY	8
1018J06G03	REVERSER TYPE XR-148 ELECTRO-PNEUMATIC	2
1074F75G07	BRAKE AIR COMPRESSOR 60HZ	2
1074F75H44	MOTOR	2
1252A46H04	RESISTOR 392 OHMS .250W 1% NA60	1
1252A46H15	RESISTOR 511 OHMS .250W 1% NA60	2
1252A55H29	RESISTOR 301K OHMS .250W 1% NA60	2
1252A80H21	RESISTOR 1.62K OHMS .750W 1% NA70	4
1253A04H01	RESISTOR 1 OHM 50W 1%	4
1253A44H05	TRANSISTOR 2N3715	4
1253A44H15	TRANSISTOR 2N6306	2
1502F63G05	GUIDE WHEEL ASSEMBLY	8
1502F97G10	WHEEL ASSEMBLY	2
18D9633H01	STD.CONTACT .62 LG COPPER EXTRUSION	8
1913F14G02	MODIFIED MOUNTING BRACKET	6
1913F14G03	MODIFIED MOUNTING BRACKET	12
1913F14G05	MODIFIED MOUNTING BRACKET	12
1913F14H01	MTG BRACKET 1) SIGNAL RAIL	4
1913F14H05	Shim	12
1913F14H06	MTG BRACKET 1) LOCK PIN	4
1999E63G02	DRAFTGEAR	1
1999E63H01	ELECTRICAL COUPLER HEAD ASSEMBLY	1
1999E63H02	MECHANICAL COUPLER HEAD ASSEMBLY	1
1999E63H03	CLAMP ASSEMBLY	2
1A96918G01	STD. UMC CONTRACTOR SHUNT AT ASSEMBLY	6
1A96920G01	STD. UMC CONTACTOR INTERLOCK FINGER	10
1A97462792	FUSE 5A 125V FAST-BLOWN PIG-TAIL	6
1A97462792	FUSE 5A 125V FAST BL	6
1A97462793	THERMAL PAD SCR 2.44X 4.25	1
1A97462794	THERMAL PAD SCR .81X	2
1A97462794	THERMAL PAD SCR .81X 3.64	1
1A97462799	FUSE 500 VOLT 100 AMP	2
1A97462801	FUSE 600VAC 3A DUAL ELEM UL	4
1A97462801	FUSE 600VAC 3A DUAL ELEM UL	2
1A97462802	CAP MET FOIL 70UF 280VAC	1
1A97462804	SCR MODULE 90A 800V	2
1A97462804	SCR MODULE 90A 800V	1
1A97599H04	STATIC RAM CARD 24MB	1
1A97601H01	SECOND SERIAL PORT CABLE & KIT	1
1B37424H09	DIODE ASSEMBLY 25A 200 PRV DA-180	2
1B38681G03	DIODE ASSEMBLY	4
1B38681G04	DIODE ASSEMBLY	4
1B38995G01	SHOE ASSEMBLY	3000
1B38996G01	SHOE HOLDER POWER SUB ASSEMBLY	16
1B38997G01	SHOE HOLDER ATO SUB-ASSEMBLY	64
1B39166G01	2 SLOT VME J2 BACKPLANE ASSEMBLY	1
1B39166G01	2 SLOT VME J2 BACKPLANE ASSEMBLY	1

**Appendix E-2: Spare Parts**

<b>Part No</b>	<b>Description</b>	<b>Qty</b>
1B39673H01	SENTRONIC VALVE	4
1B39824G02	RESISTOR ASSEMBLY	3
1B39825G02	CAPACITOR ASSEMBLY	2
1B39836G01	ATO SHOE HOLDER SUPPORT ASSEMBLY	16
1B39837G01	POWER SHOE HOLDER SUPPORT ASSEMBLY	12
1B40194G03	RESISTOR ASSEMBLY	2
1B40194G04	RESISTOR ASSEMBLY	2
1B40194G05	RESISTOR ASSEMBLY	3
1B40194G06	DIODE ASSEMBLY	2
1B40194G07	VOLTAGE REGULATOR ASSEMBLY	2
1B40194G10	RESISTOR ASSEMBLY	2
1B40194G11	RESISTOR ASSEMBLY	2
1B40194G13	DIODE ASSEMBLY	2
1B40488G01	COLLECTOR CABLE ASSEMBLY	8
1B40488G02	COLLECTOR CABLE ASSEMBLY	8
1B40488G03	COLLECTOR CABLE ASSEMBLY	8
1B40488G04	COLLECTOR CABLE ASSEMBLY	8
1B40811G06	COLLECTOR CABLE	32
1B40820G01	SFAA VEHICLE DYNAMIC GRAPHICS ASSEMBLY	0
1B40820G02	SFAA VEHICLE DYNAMIC GRAPHICS ASSEMBLY	0
1B40820G03	SFAA VEHICLE DYNAMIC GRAPHICS ASSEMBLY	0
1B40820G04	SFAA VEHICLE DYNAMIC GRAPHICS ASSEMBLY	0
1B41300H01	Trip shaft kit	2
1B41300H02	Upper stud assembly	3
1B41300H03	Lower stud assembly	3
1B41300H04	Elect. Operated Mechanism	3
1B41300H05	Shunt Trip Assembly	3
1B41300H06	Shunt Release Assembly	3
1B41300H07	Anti-Pump Relay	3
1B41300H08	Spring Charge Motor Kit	3
1B41300H09	Bussman Type FNQ-R Fuse, 2A, 600V	6
1B41300H10	Rating Plug, Digitrip T 10 Series, 800AS/600RP	4
1B41300H11	Rating Plug, Digitrip T 10 Series, 800AS/800RP	1
1B41300H12	Rating Plug, Digitrip T 10 Series, 1600AS/1200RP	1
1B41300H13	Rating Plug, Digitrip T 10 Series, 1600AS/1600RP	1
1B41300H14	Fuse, class J, fast Acting, 3A, 600V	6
1B41300H15	Bussman Type FRS Fuse, 20A, 600V	6
1B41300H16	Digitrip, 510 LSI	1
1B41300H17	Digitrip, 510 LS	1
1B41300H18	Bussman Type FNQ Fuse, 10A, 500V	2
1B41300H19	Bussman Type FNQ Fuse, 6A, 500V	6
1B41300H20	Fuse, 1A Class J	10
1B41301H01	Temperature Monitor	1
1B41301H02	Thermostat	2
1B41301H03	Heater	6
1B41302H01	Cutler Hammer Control Relay, 120VAC Coil, 2NO-2NC	6
1B41302H02	Time Mark Voltage Sensing Relay	6

**Appendix E-2: Spare Parts**

Part No	Description	Qty
1B41302H03	Cutler Hammer Molded Case Circuit breaker, 3 Pole, 600V, 600A	2
1B41302H04	Cutler Hammer Motor Operator, 120 VAC	2
1B41302H05	Cutler Hammer Molded Case Circuit breaker, 1 Pole, 15A	2
1B41302H06	Gould Time Delay Fuse, 600V, 1A	15
1B41303H01	C-H 240 VAC Relay	1
1B41303H02	C-H 240 VAC Reversing Contactor	1
1B41303H03	ITI Voltage Transformer 600V/120V	2
1B41303H04	Bussman Type FNQ-R Fuse, 2A, 600V	6
1B41303H05	ITI VT, 50 VA, 600/120	3
1B41303H06	Ohmite Resistor, 1000 Ohm, 175W	2
1B41303H07	Honeywell Thermostat, 40-80 Degree F	1
1B41303H08	Space Heater, 250-375W / 125V-95W	1
1B41303H09	CSM Customer Supplied Material (Vital Relays)	1
1B41303H10	15A/1P Circuit Breaker	3
1B41303H11	10A/2P Circuit Breaker	1
1B41303H12	25A/1P Circuit Breaker	1
1B41303H13	15A/2P Circuit Breaker	1
1B41303H14	Timemark 3 PH Monitor, 50 VAC PH-N	1
1B41303H15	C-H E22 2 POS Switch, Rotate 90 Degree	2
1B41303H16	Breaker Control SW	2
1B41303H17	C-H D15 Relay, 120 VAC	4
1B41303H18	Agastst On-Delay Timer 120V	1
1B41303H19	GE Voltage Relay	1
1B41303H20	Timemark 3 Phase Power Monitor	2
1B41303H21	Timemark Current Unbalance Relay	2
1B41303H22	Basler Reverse Power Relay	2
1B41303H23	Ind Lt, 22MM Resistor Type, 120 VAC/DC	3
1B41303H24	Bussman Type FNQ Fuse, 6A, 500V	6
1B41303H25	Class J Fuse, 3A, 600V	6
1B41303H26	Lightning Secondary Arresters, 3P, 650 V	4
1B41303H27	Bussmann Type LPJ Fuse, 1A, 600V	12
1B41303H28	Square D Circuit Monitor	1
1B41303H29	DSII Breaker Cell SW 3-NO, 3-NC	3
1B41303H30	Bussmann Type FRS-R Fuse, 20AA, 600V	4
1B41303H31	CPT, 56KV, 600/120-240V with Fuse Puller	1
1B41303H32	Bussman Type FNQ Fuse, 10A, 500V	4
1B41303H33	C-H breaker 150A/3P 100KAIC	1
1B41303H34	C-H breaker 100A/3P 100KAIC	1
1B41303H35	C-H breaker 30A/3P 100KAIC	1
1B41303H36	C-H breaker 200A/3P 100KAIC	1
1B41303H37	Crompton Voltage Relay, 120 VAC	3
1B41303H38	3PH Current Transformer, 1000/5A	2
1B41303H39	Contact Block for D15 Relay, 4-NO	2
1B41303H40	C-H D15 Relay, 4 N-O, 120 VAC	3
1B41303H41	GFR Relay, 1-12 A, Electric Reset	1
1B41303H42	GFR Sensor 1-12 A, 5.5 Dia	1
1B41303H43	AgastatTimer (64GFS)	1



**Appendix E-2: Spare Parts**

<b>Part No</b>	<b>Description</b>	<b>Qty</b>
1B41303H44	Contact Block for D15 Relay	1
1B41303H45	D15 Relay On/Off Delay Timer Module, 0.1-30 S	1
1B41303H46	DSII-516	1
1B41303H47	DSII-508	1
1B41304H01	Agastat Time Delay Relay	3
1B41304H02	Breaker GHC 1 Pole 15 A	4
1B41304H03	Breaker GHC 1 Pole 30 A	2
1B41304H04	Cap Trip Device 120 VAC	4
1B41304H05	Diode 400V PRV 40A	4
1B41304H06	Relay MG-6 125V DC, Open EL Rst	2
1B41304H07	Thermostat, Fixed 110 F/43.3	1
1B41304H08	S-D Relay 2120V/60Hz, DPDT, 12 Pin	3
1B41304H09	CT 600:5 C100	3
1B41304H10	Fuse 15.5 KV 0.5 E	6
1B41304H11	Pull Fuse 3 Pole 30 A	1
1B41304H12	Fuse 6 A Control	8
1B41304H13	MOC, 9-P, 5A-4B Conn Only	3
1B41304H14	Arrester, 9KV Station Class	6
1B41304H15	Voltage Xfrm, VIZ-11, 7200-120V	3
1B41304H16	36W Breaker Ramp Assy	1
1B41304H17	Rail Clamp, VCP-W	2
1B41304H18	Test Jumper, Ten Conductor VCP	1
1B41304H19	E22 Bulb Removal Tool	5
1B41304H20	Breaker 150 VCP-W 500 1200 A	3
1B41304H21	Snubber - 5 or 15 KV 1200A Main	2
1B41305H01	125 VDC/120VAC Spring Charging Motor	1
1B41305H02	125 VDC/120VAC Spring Release Coil	1
1B41305H03	120VAC Anti-Pump Y Relay	1
1B41305H04	Motor Cut-off Switch	1
1B41305H05	Position Switch	1
1B41305H06	Auxiliary Switch	1
1B41305H07	Fastener Kit	1
1B41305H08	Rectifier Assy	1
1B41305H09	1200A Push Rod Assy	1
1B41305H10	1200A Primary Contact Assy	6
1B41306H01	BKR CONT SW 24 1C, 1T Non-Pull	2
1B41306H02	E22 Contact Block 1NC	2
1B41306H03	IND LT E22 Green 48V	3
1B41306H04	IND LT E22 Red 48V	3
1B41306H05	REL LOR-24, 125VDC, 4A/4B, 2-ST	2
1B41306H06	Resistor 4020Ohm 5W	3
1B41306H07	Switch W2, 2Pos, 8 Poles	2
1B41306H08	Switch W2, 2Pos, 8 Poles	1
1B41306H09	BE1-27/59, 1PH, 55-160VAC, 125 V	1
1B41320H02	FUSE 500 VOLT 50 AMP	2
1B41320H04	SCR 3 PHASE BRIDGE 1200V 110A	1
1B41320H05	THERMAL PAD SCR 3.70X 1.34	1

**Appendix E-2: Spare Parts**

Part No	Description	Qty
1B41320H06	FUSE SUBMIN .1A	6
1B41320H12	CAP 3700UF 450VDC	1
1B41320H12	CAP 3700UF 450VDC	1
1B41320H13	IGBT DUAL 600V 150A	2
1B41320H15	FUSE 2-12A 125V PICO AX.LEAD	6
1B41320H15	FUSE 2-12A 125V PICO AX.LEAD	4
1B41320H18	PWB ASSY TRANSIENT SUPPRESSOR	1
1B41320H18	PWB ASSY TRANSIENT SUPPRESSOR	1
1B41320H19	PWB ASSY RECTIFIER DRIVE	1
1B41320H20	PWB ASSY POWER SUPPLY	1
1B41320H20	PWB ASSY POWER SUPPLY	1
1B41320H21	PWB ASSY UPS INTFC	1
1B41320H21	PWB ASSY UPS INTFC	1
1B41320H22	PWB ASSY SBS DRIVE	1
1B41320H22	PWB ASSY SBS DRIVE	1
1B41320H23	PWB ASSY POWER BOARD	1
1B41320H24	PWB ASSY PWR BOOSTER	1
1B41320H25	PWB ASSY DISPLAY BOARD	1
1B41320H25	PWB ASSY DISPLAY BOARD	1
1B41320H26	FUSE 500 VOLT 150AMP	2
1B41320H31	IGBT DUAL 600V 400A	1
1B41320H32	PWB ASSY INV. DRIVE	1
1B41320H33	PWB ASSY	1
1B41320H34	FUSE 70A 600V	3
1B41320H35	PWB ASSY RECTIFIER DRIVE	1
1C40468H04	CAM .63) 7.00 DIA	1
1C40483G15	RESISTOR TUBE RIBFLEX 7.5 OHMS	4
1C40540G01	AIR COMPRESSOR - GENL ASSEMBLY	0
1C40570G04	SWITCH & REPLACEMENT PARTS	1
1C40570H02	REPLACEMENT BLOCK	2
1C40570H04	REPLACEMENT HEAD	2
1C40811177	RELAY	8
1C40811H02	MOTOR & GEAR HOUSING ASS'Y	2
1C40811H07	SWITCHLEVER	16
1C40811H19	SWITCH SNAP ACTION	8
1C40811H20	BUMPER	24
1C40811H23	RES ADJ 100W 10% 5 OHMS	10
1C40811H27	RING RET EXT	30
1C40811H28	RES ADJ 100W 10% 10 OHMS	10
1C40811H29	RES ADJ 100W 10% 20 OHMS	10
1C40811H50	PIN ROLL .125X1.25	50
1C40811H63	VARISTOR ASS'Y	8
1C40811H64	RECTIFIER ASS'Y	8
1C40811H98	MOTOR & GEAR HOUSING ASS'Y	2
1C41229H01	CONTACT SWITCH 1)	2
1C41229H02	CONTACT SWITCH 1)	2
1C41229H03	CONTACT BLOCK 1)	4

**Appendix E-2: Spare Parts**

<b>Part No</b>	<b>Description</b>	<b>Qty</b>
1C41448H01	SWITCH - PRESSURE WAVE	8
1C41537H01	TRANSFORMER (CURRENT)	2
1C41706G01	LOGIC CRADLE FAN ASS'Y	0
1C41710H01	EL BREAKER 2 POLE	2
1C41773G07	ANTENNA INSTALLATION	2
1C41821H01	PRESSURE REGULATOR	3
1C41830H01	AD-9 AIR DRYER	2
1C41830H03	DESICCANT CARTIDGE	19
1C41830H05	PURGE VALVE MAINTENANCE KIT	38
1C41830H06	24 VOLT HEATER & THERMOSTAT ASS'Y	2
1C42642G01	DIODE ASSEMBLY	2
1C42642G02	DIODE ASSEMBLY	4
1C42875H02	MOUNTING RAIL 1)	1
1C43432H01	VIDEO DRIVER BOARD 1)	1
1C44327H01	TRANSFORMER ENCAPSULATED	2
1C44610G01	PC BOARD FLEXIBLOK VEHICLE DIG IN ASSY	2
1C44610G02	PC BOARD FLEXIBLOK VEHICLE DIG IN ASSY	2
1C44610G03	PC BOARD FLEXIBLOK VEHICLE DIG IN ASSY	2
1C44612G01	PC BOARD FLEXIBLOK REGION ATP CPU ASSY	2
1C44612G02	PC BOARD FLEXIBLOK REGION ATP CPU ASSY	2
1C44613G01	PC BOARD FLEXIBLOK REG SER COMM ASSY	2
1C44615G01	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	2
1C44615G01	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	1
1C44615G02	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	2
1C44615G03	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	2
1C44615G08	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	2
1C44615G08	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	1
1C44615G09	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	2
1C44615G10	PC BOARD FLEXIBLOK REGION DIG INPUT ASSY	2
1C44633G01	FLEXIBLOK WAYSIDE COMM PROCESSOR ASSY	2
1C44676G01	MANUAL ENABLE SWITCH PLATE ASSEMBLY	1
1C44701G01	PC BOARD FLEXIBLOK VEHICLE ATP CPU ASSY	2
1C44701G02	PC BOARD FLEXIBLOK VEHICLE ATP CPU ASSY	2
1C44702G01	PC BOARD FLEXIBLK VEH SER COM PRCSR ASSY	2
1C44810G01	WIPER MOTOR ASSEMBLY	2
1C44955G01	LIGHT PANEL ASSEMBLY	2
1C45405H06	TEMPERATURE SENSOR	4
1C45770G01	FLEXIBLOK REGION SOURCE DIG OUT PC BOARD	2
1C45770G01	PC BOARD FLEXIBLOK REGION SOURCE DIG OUT	1
1C45770G02	FLEXIBLOK REGION SOURCE DIG OUT PC BOARD	2
1C45770G03	FLEXIBLOK REGION SOURCE DIG OUT PC BOARD	2
1C45770G04	FLEXIBLOK REGION SOURCE DIG OUT PC BOARD	2
1C45771G01	FLEXIBLOK REGION SINK DIG OUT PC BOARD	2
1C45771G01	PC BOARD FLEXIBLOK REGION SINK DIG OUT	1
1C45771G02	FLEXIBLOK REGION SINK DIG OUT PC BOARD	2
1C45771G03	FLEXIBLOK REGION SINK DIG OUT PC BOARD	2
1C45771G04	FLEXIBLOK REGION SINK DIG OUT PC BOARD	2

**Appendix E-2: Spare Parts**

Part No	Description	Qty
1C45928G01	ROUTER MODULE ASSEMBLY	1
1C45928G02	ROUTER MODULE ASSEMBLY	1
1C46071G01	ALARM SWITCH ASSEMBLY	3
1C46122G01	NORMING POINT READER ASSEMBLY	1
1C46718G01	TRAIN REGISTRY 68040 CPU	1
1C46718G02	TRAIN REGISTRY 68040 CPU	1
1C46719G01	TRAIN REGISTRY SER COMM PRCSR	1
1C46720G01	TRAIN REGISTRY WAYSIDE COMM PRCSR	1
1C46831G01	FIBER OPTIC RACK ASSEMBLY	1
1D62645H01	MTG BRACKET FIBERGLASS MOLD	80
1D62645H02	MTG BRACKET FIBERGLASS MOLD - HIGH STR	16
1D62751H04	Knuckle	1
1D63190G09	VARISTOR SUPPRESSION DEVICE	2
2007E21G01	TRAIN REGISTRY CABINET	1
2007E43G01	REGION ATP VME CRADLE ASSY	1
203P516G01	PC BOARD BATTERY CHARGER & PULSE	2
203P521G02	P C BOARD BATTERY CHARGER AND PHASE	2
2125F98G02	RESISTOR ASSEMBLY	8
2127F15G03	GENL ASSEMBLY DUAL OUTPUT P-SIGNAL GEN	2
2127F15G04	GENL ASSEMBLY DUAL OUTPUT P-SIGNAL GEN	0
21D7111G01	CONTACT ASSEMBLY	8
2256F54G03	HIGH SPEED RAMP ASS'Y LEFT HANF (LEXAN)	2
2256F54G04	HIGH SPEED RAMP ASS'Y RIGHT HAND (LEXAN)	2
2257F71G03	Center Assembly, pivot beam	1
225P735G01	P C BOARD PROP. MONITOR PANEL LED ASSY	2
2263D94G01	BRUSH HOLDER ASSEMBLY	8
2263D99G01	CAPACITOR MOUNTING ANGLE AND ASSEMBLY	2
2263D99G02	CAPACITOR ASSEMBLY	4
2267D80G01	LEAF SPRING ASSEMBLY	2
226P152G02	P C BOARD DYNAMIC BRAKE GATE ASSEMBLY	2
226P174G02	PC BOARD 1 PHASE 60 HZ BATTERY CHGR ASSY	2
226P256G01	P C BOARD P SIG & BRK SIG GEN PWR ASSY	2
226P336G01	P C BOARD BATTERY CHARGER MONITOR ASSY	2
226P344G01	P C BOARD MANUAL CONTROLLER 15V	2
226P400G01	PC BOARD DOOR RECEIVER/DRIVER ASSEMBLY	3
2271D28G01	PINION SHROUD ASSEMBLY	1
2271D28H02	SHROUD 16.87 X 5.30) .062 THK STL	1
227D847H01	TRANSFORMER	2
22A8997G04	STATIONARY PART	0
24D3488H01	STD ARC HORN 1.375) .063 X 1.75 CU	6
2525F21G02	VEHICLE AIR PIPING	0
2528F96G03	GEN ASS'Y TRANS MOTOR D.C. 1460-P3	3
2531B84G02	LIGHTNING ARRESTOR ASSEMBLY	2
2531F06G01	POWER & SIGNAL RAIL MOUNTING THRU SWITCH	0
2532B34G01	RIGHT HAND BALL SOCKET ASSEMBLY	2
2532B34G02	LEFT HAND BALL SOCKET ASSEMBLY	2
2534B39H01	ADJUSTABLE PRESSURE SWITCH #604G1	2

**Appendix E-2: Spare Parts**

Part No	Description	Qty
2534B39H02	ADJUSTABLE PRESSURE SWITCH #604G11	6
2534B78H02	MANUAL VALVE FULL PORT	2
2534B78H03	MANUAL VALVE FULL PORT	2
2535F20G01	BATTERY BOX ASSEMBLY	0
2536B52H03	HUBODOMETER SIZE 10 X 22.5 MICHELIN	2
2537B93G01	RESISTOR ASSEMBLY	2
2538B14H01	WINDOW GLAZING RBR EXTRN 160.00+/-2.00)	32
2538B23G01	RESISTOR ASSEMBLY	3
2538B23G02	RESISTOR ASSEMBLY	2
2539B87H01	DUST SHIELD FR .06 THK HALF HARD AL SHT	2
2559A61H06	GROMMET .50 ID .06 PNL	20
2559B24G01	TEMPERATURE SENSOR	2
2560B11G01	DRIVE SHAFT ASSEMBLY	2
2560B16H02	EXTINGUISHER (FIRE)	4
267P636G01	PC BOARD DUAL P. SIGNAL GENERATOR ASSY	2
267P680G01	PC BOARD TRANSMITTER ASSEMBLY	3
267P858G02	PC BOARDPOWER SUPPLY ASSEMBLY	2
267P926G01	PC BOARD OVERVOLTAGE CIRCUIT ASSEMBLY	2
2682F59G01	TOP DOOR TRACK R/H	0
2682F59G02	TOP DOOR TRACK L/H	0
2682F59H03	CAP RETAINER .125 THK STL	50
2687F29G01	CURRENT COLLECTOR ASSY. (R/HAND)	8
2687F29G02	CURRENT COLLECTOR ASSY (L/HAND)	8
2688F16G03	I.D. RECEIVE ANTENNA ASSEMBLY	2
2688F16G04	I.D. TRANSMIT ANTENNA ASSEMBLY	2
2688F17G01	TYPE XMA-559 MANUAL CONTROLLER	3
268P052G01	PC BOARD BRUSH DETECTOR	2
268P060G01	PC BOARD ATC CRADLE MOTHERBOARD ASSEMBLY	1
2698A54H05	MAGNETIC HALL EFFECT SENSOR	5
2973A52G03	DIODE ASSEMBLY	3
2973A52G04	DIODE ASSY	2
3437C83G02	RADIUS ROD ASSEMBLY	2
3437C85H03	TIRE 10R-22.5 TRANSTEEL RADIAL	304
3437C97G01	SWITCH BOARD ASSEMBLY	0
3911C41H03	PRESSURE RELIEF	4
3925A65H01	RELIEF VALVE	4
3925A66H04	AIR CHECK VALVE	4
3925A67H03	VALVE QUICK RELEASE	12
3925A67H04	REBUILD KIT QUICK RELEASE VALVE	12
3925A67H05	SEALING RING QUICK RELEASE VALVE	12
3925A67H06	DIAPHRAGM QUICK RELEASE VALVE	12
3925A67H07	INSERT QUICK RELEASE VALVE	12
3925A86H02	RELAY VALVE	4
3925A87H01	VALVE PRESSURE HOLDING	2
3926A37H01	TRANSFORMER SIGNAL OR PULSE	3
3926A72H01	RESISTOR 10 OHMS 11W 5% TYPE 99	2
3926A89H01	TRANSFORMER SIGNAL OR PULSE	3

**Appendix E-2: Spare Parts**

Part No	Description	Qty
3927A03H21	CAPACITOR 1.0 UF 100 V +-5%	2
3927A06H41	RESISTOR 120 1/4W 5% RC07	4
3927A06H67	RESISTOR 1.5K 1/4W 5% RC07	2
3927A08H56	RESISTOR 510 OHMS 1W 5% TYPE RC 32	2
3927A22H01	TRANSFORMER	2
3930A47H04	TRANSFORMER POWER	4
3968C17H04	PUSHBUTTON (S.P.D.T.) CAT#OT1C1A	2
3968C50G02	ARMATURE ASSEMBLY	0
3972C53G01	GATE LEAD PANEL	4
3972C86H01	RIM (PAINTED)	8
3973C13H01	CHOKER	2
3973C14H01	TRANSFORMER 575/36/36	2
3973C86H12	KEYSWITCH	2
3973C86H13	PUSHBUTTON	2
3A62819H01	DISK DRIVE	1
3A63290H29	PIN COTTER .125 X 1.00 LG ZINC YEL CRMT	200
3A63290H31	PIN COTTER .125 X 1.50 LG ZINC YEL CRMT	100
3A63407G01	CAPACITOR W/MTG BRACKETS (660 VOLT)	4
3A63565H03	CAPACITOR 50UF 370VA	1
3A63565H03	CAPACITOR 50UF 370VA	1
3A63565H04	FUSE 1/2A 500VAC TIM	2
3A63565H04	FUSE 1/2A 500VAC TIME DELAY	2
3A63565H05	FUSE 2A 500VAC TIME DELAY	2
3A63565H05	FUSE 2A 500VAC TIME DELAY	2
3A63565H06	FAN MAJOR 115VAC 50/	1
3A63565H06	FAN MAJOR 115VAC 50/60HZ	1
3A63565H11	THERMAL PAD MOD 3.70X 1.89	2
3A63565H11	THERMAL PAD MOD 3.70X 1.89	2
3A63565H13	IGBT DUAL 600V 300A	1
3A63921H67	RESISTOR 1.5K OHM 2W +/-5% TOL	4
3A63921H67	RESISTOR 1.5K OHM 2W +/-5% TOL	1
3A64787G01	WIRELIST-TRAIN REGISTRY CABINET	1
3A64788G01	WIRELIST-TRAIN REGISTRY CABINET-A4 CRADLE	1
3D15179G01	LEVELING VALVE ASSEMBLY	4
3D15257G01	GATE CONTROL TRANSFORMER	2
3D15323H01	LEVELING VALVE	8
3D15403G01	Hard Ground Assy	6
3D15632G01	SPEED SENSOR ASSEMBLY	4
3D15632G02	SPEED SENSOR ASSEMBLY	2
3D15698G02	SWAY BAR ASSEMBLY	2
3D15968H01	Controller Model 7K	1
3D51640G03	PANEL ASSEMBLY	1
3D52075H02	MOTOR OPERATOR 120 VAC	2
3D99578G01	SWITCH HYDRAULIC UNIT	0
3D99727G01	HYDRAULIC POWER UNIT	1
3D99727H02	GEAR PUMP	2
3D99727H12	LEVEL GAGE (LHA)	1

**Appendix E-2: Spare Parts**

Part No	Description	Qty
3D99727H20	MOTOR 2HP 230/460 3PH. W/MTO	1
3D99914G01	LOW SPEED RAMP ASSEMBLY	1
404P102H74	TRANSFORMER	2
404P104H31	RESISTOR .20 OHM 10 WATT	2
404P111H54	CAPACITOR 52000 MFD-30 WVDC	3
404P112H92	POWER SUPPLY 85-264VAC QUAD OUT 350W	2
404P112H92	POWER SUPPLY 85-264VAC QUAD OUT 350W	1
404P112H93	POWER SUPPLY 24VDC IA 120VAC IN	2
404P115H06	L.E.D. (RED)	100
404P115H19	DIODE SPECIAL 100A 300V RECTIFIER	2
404P115H38	LED RED	10
404P117H95	RELAY 1300 OHM 16-24VDC 6FB STD.	2
404P117H96	RELAY GEN PURP 24DC 2A 6PDT 430 ohm	2
404P127H96	MODEM L/HAUL 1300 NM WFT-12 STAND ALONE	1
404P135H26	RESISTOR ADJUSTABLE 12 WATT WIRE WOUND	2
404P135H27	RESISTOR ADJUSTABLE 12 WATT WIRE WOUND	2
404P155H10	CAPACITOR	4
404P157H63	RESISTOR 50 WATT 33.2 OHM 1%	8
404P157H72	RESISTOR 1K OHMS 10.0W 1% RH10	2
404P157H90	RESISTOR 2W 1.5K OHM CARBON FILM	10
404P175H44	CLAMP KIT W/RETAINER 50 PIN	8
404P175H44	CLAMP KIT W/RETAINER 50 PIN	8
404P175H45	CLAMP KIT W/RETAINER 9 PIN	4
404P175H45	CLAMP KIT W/RETAINER 9 PIN	4
404P228H06	RESISTOR 2.2K OHMS 1W 5% RG1/2	14
404P290H13	1/2" Auto Aris, Vari-Focal CCTV Camera Lens	4
404P290H15	Video Switcher Controller Keyboard	1
404P290H18	20" Color Monitor	1
404P290H39	9832VIO Quad Video I/O	1
404P290H40	9832VDA Quad Video Decoder	1
404P290H41	9832VEA Quad Video Encoder	1
404P290H42	9832RF Fiber Repeater	1
404P290H43	9832FT Fiber Transceiver	1
404P290H44	9832PS3 Power Supply	2
404P290H45	9832PS7 Power Supply	2
404P291H09	CONVERTER RS232 TO RS485	2
404P291H09	RS-422 / RS-485 Converter with Enclosure and 9VDC Supply	1
404P305H05	STRAIGHT SWIVEL	100
404P313H01	HOSE -04	200
404P313H02	HOSE .31 ID X .61 OD	1000
404P313H03	HOSE -08	500
404P313H05	HOSE -12	100
404P313H12	TEFLON HOSE	100
404P313H13	HOSE	200
404P313H14	TEFLON HOSE	100
404P313H15	TEFLON HOSE	100
404P332H03	SWITCH MOMENTARY ACTION	1

**Appendix E-2: Spare Parts**

Part No	Description	Qty
404P335H48	SWITCH	1
404P335H49	SWITCH	1
404P336H05	ROTARY SWITCH	2
404P341H04	TERMINAL BLOCK UKK 5-DIO	3
404P341H04	TERMINAL BLOCK UKK 5-DIO	2
404P348H09	BLOCK CONTACT-N.O.	2
404P348H10	STD CONTACT BLOCK	2
404P356H17	RELAY RP 1-1/2 PCB	2
404P356H17	RELAY RP 1-1/2 PCB	1
404P356H19	RELAY EJECTOR	1
404P356H19	RELAY EJECTOR	1
404P357H02	LIGHT INDICATOR	11
404P357H04	LAMP	20
404P357H55	LED 12VDC RED	2
404P357H56	LED 12VDC GREEN	2
404P357H57	LED 12VDC AMBER	2
404P360H21	LED GREEN 24/28V	4
404P360H22	LED YELLOW 24/28V	4
404P360H38	LAMP INDICATOR LED MF YELLOW 24V	8
404P360H40	LAMP INDICATOR LED MF GREEN 24V	4
404P394H01	MOUSE INTELLIPOINT VERSION 2.0 COMBO	1
404P394H29	COMPUTER COMPONENT - KEYBOARD	1
404P394H45	LAPTOP TERMINAL 133 MHZ PENTIUM	1
404P394H71	MONITOR 22" DIAMOND PRO 2060 DESKTOP	1
404P394H72	17 PAGE PER MINUTE LASERJET PRINTER	1
404P402H03	SPRING	8
404P405H07	SPEAKER	4
404P405H09	SPEAKER	2
404P405H14	SPEAKER	2
404P405H22	SPEAKER 2.5	2
404P419H03	LAMP FLUORESCENT	90
404P419H11	LAMP FLUORESCENT 32 WATT 48 LG	100
404P419H14	LAMP FLUORESCENT 25 WATT 36.00 IN LG	20
404P427H05	FUSE 25 AMP	10
404P437H34	SPRING CONTACT (14-16 AWG)	100
404P437H34	SPRING CONTACT (14-16 AWG)	84
404P437H51	RELAY 9-30 VDC ADJ. TIMER 125 OHM	2
404P437H56	RELAY O.A. BIASED 400 OHM 6FB	4
404P437H56	RELAY O.A. BIASED 400 OHM 6FB	1
404P437H64	RELAY O.A. BIASED 1000/250 OHM	1
404P437H96	VITAL RELAY 12-14 VDC 800 OHM	6
404P437H97	RELAY TIME DELAY 24 VDC 11 PIN INTERVALON	4
404P437H98	COUPLER PARTS CENTER PLATE	2
404P438H09	DIODE	4
404P439H74	RESISTOR 2 WATTS 50 OHM N-MALE	2
404P443H02	RELAY SOCKET 8 PIN	2
404P443H07	RELAY SOCKET	2



## Appendix E-2: Spare Parts

Part No	Description	Qty
404P443H12	RELAY	3
404P443H16	RELAY	2
404P443H57	SPRING HOLD DOWN	40
404P443H67	RELAY SOCKET	3
404P443H92	RELAY 48 VDC 10 AMP 2 POLE	2
404P449H06	Spring, Contract SST	8
404P478H03	PRESS CONTROL 0/100 PSI W/0-10V OUTPUT	4
404P480H03	CONTACTOR	3
404P480H33	CONTACTOR	2
404P480H35	CONTACTOR INTERLOCK	2
404P485H28	4" Waterproof PA Speaker with 70 Volt / 4 Watt Transformer	10
404P488H22	BREAKER 2 POLE 4 AMP 240 VAC	4
404P488H22	BREAKER 2 POLE 4 AMP 240 VAC	20
404P488H32	CIRCUIT BREAKER GFI DIN MOUNTED	2
404P488H37	CIRCUIT BREAKER	2
404P491H27	AUDIO MATCHING TRANSFORMER	1
404P498H10	SWITCH PRESSURE	2
404P500H07	AMPLIFIER 6 WATT AUDIO POWER	1
404P500H09	MICROPHONE PREAMPLIFIER MODULE	1
404P500H10	1/8 DIN LCD GREEN BACKLIT DISPLAY	4
404P501H07	LINE AMPLIFIER ASSY W/LONWORKS CONNECTOR	1
404P501H08	LINE AMPLIFIER ASSY W/LONWORKS CONNECTOR	1
404P501H12	PA Amplifier 2 Channel x 100 Watt	1
404P502H34	FUSE 2.0 AMP 250 VOLTS 5X20 MM	10
404P502H35	FUSE 4 AMP 250V 5X20 MM	12
404P502H35	FUSE 4 AMP 250V 5X20 MM	3
404P502H36	FUSE 6.3 AMP 250 V 5X20 MM	6
404P502H36	FUSE 6.3 AMP 250 V 5X20 MM	2
404P506H02	SWITCH TOGGLE	4
404P506H05	SWITCH	2
404P506H11	TOGGLE SWITCH SPST 6A/250V	1
404P506H38	SWITCH TURN POSITION KEY	2
404P513H03	POTENTIOMETER	2
404P513H11	POTENTIOMETER	2
404P513H16	POTENTIOMETER 8 OHM	2
404P513H16	POTENTIOMETER 8 OHM	1
404P513H34	POTENTIOMETER 5K 2W PLASTIC W/LKG BSHG	1
404P532H02	SWITCH 2 PORT KVM	1
404P532H58	SWITCH KEY OPERATED 6 POLES	2
404P532H76	SWITCH ROTARY 45 DEG DETENT W/KNOB	1
404P532H82	SWITCH ROTATIONAL 3 POS LEAD-TRAIL	2
404P533H11	GROOVE PIN .125 DIA .875 LG STL	100
404P538H47	SPRING	12
404P538H57	SPRING .480 OD 1.50 FREE .045 WIRE	50
404P538H74	CONTACT SPRING AWG 18-20	8
404P538H74	CONTACT SPRING AWG 18-20	4
404P546H01	BEARING CUP	40

## Appendix E-2: Spare Parts

Part No	Description	Qty
404P546H02	BEARING CONE	40
404P546H03	BEARING CUP	40
404P546H04	BEARING CONE	40
404P547H04	SEAL	50
404P547H07	SEAL	50
404P547H46	TORQUE SEAL ORANGE	50
404P548H01	KEYED WASHER	8
404P549H01	GREASE CAP	8
404P551H01	CASTLE NUT	8
404P551H06	WHEEL STUD .500-20 1.31 LG	40
404P551H07	WHEEL NUT .500-20 NYLON RINGLOCK	40
404P554H22	FUSE	8
404P564H05	Bearing	4
404P567H14	SENSOR TIRE MONITOR KIT	8
404P585H14	FUSE 1.0 AMP 600 V 4 C 500 V DC	15
404P594H01	VARISTOR	8
404P594H24	VARISTOR 127 VDC	4
404P595H08	AB BREAKER 15 AMP	11
404P595H09	AB BREAKER 20 AMP	4
404P595H80	BREAKER MAGNETIC HYDRAULIC 5.0 AMPS	2
404P595H84	BREAKER 1 POLE 277 VAC 15A	4
404P595H87	BREAKER 1 POLE 277 VAC 30A	2
404P595H90	BREAKER 1 POLE 277 VAC 70A	2
404P598H04	POTENTIOMETER 10K OHM 3 WATTS	1
404P598H05	POTENTIOMETER 1K OHM 3 WATTS	1
404P600H35	WASHER .382 ID .750 OD .032 T SST	100
404P611H50	CAPACITOR 20 UF 370VAC	2
404P617H48	BREAKER 40A 227 VAC 1 POLE	2
404P630H15	RELAY 24VDC	2
404P630H22	RELAY 24VDC 2 DPDT 10 AMP	4
404P630H25	RELAY MODULE UMK22-REL12/21-21	1
404P649H02	FILTER	4
404P649H28	FAN 24 VDC BALLBEARING 35CFM	2
404P649H40	FAN TRAY ASSEMBLY 115VAC 192CMH X3 FANS	1
404P649H40	FAN TRAY ASSEMBLY 115VAC 192CMH X3 FANS	1
404P650H16	BUMPER 1.00 DIA .69 LONG RUBBER	16
404P659H01	RELAY LIGHTING	10
404P660H01	BALLAST SINGLE LAMP	8
404P660H02	BALLAST DOUBLE LAMP	8
404P661H01	LAMP SOCKET FLOURESCENT SIDE INSERT	8
404P663H06	RF SWITCH 4-POS N-M CABLE HARNESS	2
404P681H30	FLANGE BEARING .502 I.D. .691 O.D. .75 LG	1
404P682H01	CONTROL RELAY	2
404P682H02	CONTROL RELAY	2
404P682H21	RELAY GERMAN SIGNAL (6NO/2NC)	20
404P682H22	RELAY GERMAN SIGNAL (4NO/4NC)	4
404P682H23	HEAVY DUTY DC CONTROL RELAY	2

**Appendix E-2: Spare Parts**

<b>Part No</b>	<b>Description</b>	<b>Qty</b>
404P683H08	THYRISTOR 200V 70A	3
404P690H01	End, Right Hand Rod	1
404P690H02	End, Left Hand Rod	1
404P690H03	End, Right Hand Rod	1
404P690H04	End, Left Hand Rod	1
404P694H06	INDICATING LIGHT	4
404P694H12	PUSHBUTTON FLUSH 2-NO 2-NC WHITE	2
404P694H13	PUSHBUTTON FLUSH 2-NO 2-NC BLUE	2
404P697H36	BATTERY GEL CELL 97 AMP HR 12V	2
404P699H01	SOLENOID VALVE	2
404P700H01	DOUBLE CHECK VALVE	2
404P701H09	LOW POWER LINE FILTER 3A	2
404P703H07	TOGGLE SWITCH.	2
404P703H55	SWITCH TOGGLE	2
404P703H67	SWITCH TOGGLE	1
404P703H72	SWITCH SUB MINIATURE PUSHBUTTON	2
404P708H54	115 VAC Power Supply	1
404P708H65	POWER SUPPLY	1
404P709H11	TRANSMITTER CARTRIDGE	2
404P709H60	DIGITAL VOICE ANNOUNCEMENT UNIT	1
404P709H74	RADIO EQUIPMENT MDR 18-32 VDC	1
404P709H75	RADIO EQUIPMENT BDR RACK MOUNT	1
404P709H78	N-CONNECTOR, EPOXY SEAL	1
404P709H79	2-4 GHZ, EPOXY SEAL	4
404P709H80	2-4 GHZ, EPOXY SEAL	2
404P709H81	2-4 GHZ, EPOXY SEAL	1
404P709H83	POWER DIVIDER, 1-4 GHZ	2
404P709H85	DIRECTIONAL COUPLER	1
404P709H90	DOUBLE RF HYBRID	1
404P732H10	ANTENNA 902-928 MALE TAG READER	2
404P747H18	SWITCH ASSY W/CONNECTOR MS3112E-12-8P	1
404P747H23	FDDI BYPASS SWITCH SC-SC-DB9 RACK-2M	2
404P747H25	SWITCH FDDI BYPASS SC-SC-MDIN RACK-2M	1
404P765H10	RESISTOR MTG HDW 210-1000	2
404P765H11	RESISTOR MTG HDW 210-12 WATT	2
404P810H03	VALVE PRESSURE RELIEF	2
404P810H04	SOLENOID VALVE	2
404P810H05	SOLENOID VALVE	2
404P810H06	SOLENOID VALVE	2
404P810H22	VALVE 1/4 3 WAY DIRECT ACTING	2
404P810H24	VALVE REPAIR KIT FOR 404P810H22	4
404P813H18	FILTER	4
404P813H19	CHECK VALVE .38-14 NPTF DRY SEAL	2
404P820H22	FILTER ELEMENT (10B)	4
404P829109	MONITOR 37 INCH SVGA	1
404P829118	OTR-150 Optical Transceiver	1
404P829126	HARD DISK DRIVE 2.5 GBYTES	1

**Appendix E-2: Spare Parts**

Part No	Description	Qty
404P829I28	250 WATT COMPUTER POWER SUPPLY	2
404P837H01	SONALERT 10-48 VDC 4500 HZ	1
404P837H02	SONALERT 10-48 VDC 1900 HZ	1
404P837H03	SONALERT	1
404P840H01	PRESSURE GAUGE	1
404P840H11	PRESSURE GAGE 0-160PSI BK MOUNT	4
404P840H12	PRESSURE GAGE 0-300PSI BK MOUNT	4
404P840H13	PRESSURE GAGE 0-60PSI BACK CONN.	2
404P903H44	CONTACT BLOCK SPST N.O.	2
404P930H02	BELT	4
404P931H07	FLTR MEDIA 12.88 X 13.88 X .75 THK FOAM	8
404P949H07	BOOT	8
404P949H08	SHOCK ABSORBER 1.38 BORE .63 ROD	8
404P963H30	POWER SUPPLY 12 VDC	1
404P963H32	POWER SUPPLY 115 VAC PLUG-IN	1
404P963H36	POWER SUPPLY 115VAC - 9VDC PLUG-IN	1
404P968H10	HAND PUMP SINGLE PISTON	1
404P988H85	SWITCH TYPE UK5-MTK-P/P	2
404P988H89	TERMINAL BLOCK FUSED W/LED 15-30V	4
404P988H89	TERMINAL BLOCK FUSED W/LED 15-30V	5
404P988H97	FUSE PLUG 5-15V AC/DC W/LIGHT	10
404P988H98	FUSE PLUG 15-30V AC/DC W/LIGHT	8
404P996H02	VALVE IN-LINE CHECK	2
404P996H03	CHECK VALVE	2
404P996H06	TOGGLE VALVE .25 M/.25 M .125 ORIFICE	4
404P996H08	Valve, Bleeder	1
4077B45H02	D C AMMETER 1)	2
4077B76G02	SWITCH ASS'Y	2
4078B16H01	VOLTMETER	1
4078B51H01	THYRISTOR	4
4078B74G01	STD. INTERLOCK MOVING PART ASSEMBLY	8
4078B89H01	SWITCH TEMPERATURE LEVEL	1
409P033H98	TRANSPONDER INTERROGATOR - VEH 10 CHAR	2
409P034H04	REDUNDANT MODBUS PLUS OPTION ADAPTER	3
409P034H07	MODULE I/O BASE	2
409P034H37	MODICON PLC COMPACT CONTROLLER 984-120	2
409P034H43	DEP 218 INPUT MODULE 115 VAC	4
409P034H45	SERIAL ADAPTER LONTALK SLTA-10	1
409P071H02	Digital Sound Processor	1
409P084H04	CBX SLA16 Subscriber Line Analog Module	1
409P084H04	CBX PSUI Power Supply Unit.	1
409P084H05	CCF Operator Display Telephone	1
409P084H05	MSF Office Telephone	1
409P084H06	Wall Mount Telephone	1
409P084H07	Passenger Station Emergency Telephone	1
409P084H08	Blue Light Telephone with AE700 Surface Mount Enclosure	1
409P119H52	POWER SUPPLY RACK MOUNTABLE	2

**Appendix E-2: Spare Parts**

Part No	Description	Qty
409P119H91	POWER SUPPLY ASSEMBLY (#S10833)	1
409P129H23	AIR CONDITIONER MOISTURE INDICATOR	6
409P176H05	SMOKE ALARM RELAY BASE	4
409P177H28	AUDIO AMPLIFIER UNIT	1
409P177H34	BEAM POWERED TRANSPORTATION TAG	2
409P177H34	BEAM POWERED TRANSPORTATION TAG	4
409P177H35	TRANSPONDER INTERROGATOR - WAYSIDE	2
409P180100	RS232 TO RS485 OPTICAL ISOLATED MODEM	1
409P180102	3 PCI 2 CPU 8 ISA SLOT BACKPLANE	1
409P180H98	DISPLAY TERMINAL TOUCH SCREEN	2
409P188103	8.4 GBYTE HARD DISK DRIVE	1
409P188110	120MBYTE REMOVABLE DISK DRIVE	1
409P188H26	RESISTOR TERMINATOR CAPS BNC 50 OHM	2
409P188H26	RESISTOR TERMINATOR CAPS BNC 50 OHM	2
409P188H27	TRANSCIVE CONNEX MINI BNC	2
409P188H27	TRANSCIVE CONNEX MINI BNC	2
409P189H01	CONTROLLER 1.5 K	1
409P189H02	POWER SUPPLY 120 VAC 24 VDC	3
409P189H03	EEPROM CARD 8 K BYTE	2
409P189H04	SUBRACK PRIMARY	1
409P189H05	SUBRACK SECONDARY	1
409P189H06	CABLE BUS EXTENSION	1
409P189H08	OUTPUT MODULE 8 PT RELAY	4
409P189H11	INPUT MODULE 16 POINT 24 VDC	2
409P189H20	CONTROLLER MOMENTUM PROCESSOR	3
409P191105	RECEIVER 62.5 MULTIMODE 10 DB BUDGET	1
409P191106	TRANSMITTER 62.5 MULTIMODE 10 DB BUDGET	1
409P191111	FIBER OPTIC/RF CONVERTER BASE UNIT	1
409P191125	FIBER OPTIC SYSTEM	2
409P196H43	MODEL 857 10 SLOT CARDFILE W BACK PLANE	1
409P196H70	1/3" CCD Color CCTV Camera (120VAC)	4
409P197H24	PCI GRAPHICS CARD	1
409P197H25	DIGI 8 PORT SERIAL BOARD	1
409P197H75	144 MBYTE STATIC RAM DISK DRIVE	1
409P197H80	40X CD ROM DRIVE	1
409P198H24	COMPUTER COMPONENTS	1
409P199143	Digital to Analog Audio Converter	1
409P199H39	ETHERNET LAN 12 PORT HUB	1
409P199H52	SEC SERIAL PORT/PS2 MOUSE CABLE & KIT	1
409P199H62	CONTROL MODULE - CPM 6400	1
409P199H63	POWER SUPPLY FOR MATRIX SWITCH RACK	1
409P199H65	8-PORT I/O MODULE (RS-232) - CPM 6400	1
409P199H93	SUPERSTACK II SWITCH 2200	1
409P199H99	56 Kbps INTERNAL FAXMODEM	1
409P210H17	HIGH RESOLUTION VIDEO CONVERTER	1
409P210H18	VIDEO MONITOR - 20	1
409P210H19	KEYBOARD VIDEO CONTROLLER	1

**Appendix E-2: Spare Parts**

Part No	Description	Qty
409P210H20	TIME LAPSE VIDEO RECORDER	1
409P219H12	RING SEAL	4
409P236H10	RELAY	2
409P236H13	TERMINAL BLOCK TYPE UKK5	10
409P237H05	LOWER PLATE	2
409P237H06	UPPER PLATE	2
409P237H11	COUPLER PARTS RUBBER BUFFER	4
409P237H16	DUST CAP	2
409P237H17	ROLL PIN 8 X 45	4
409P237H19	RUBBER BUMPERS	2
409P241H01	GASKET COUPLER	4
409P241H02	GASKET COUPLER	4
409P241H05	PIN CENTER	2
409P241H06	NUT CENTER PIN	2
409P241H07	RING RUBBER	4
409P241H09	BUSHING UPPER CENTER	2
409P241H10	BUSHING LOWER CENTER	2
409P248H75	PC BOARD 10 SLOT VME J1 BACKPLANE	1
409P248H75	PC BOARD 10 SLOT VME J1 BACKPLANE	2
409P248H76	PC BOARD 7 SLOT VME J1 BACKPLANE	1
409P248H77	PC BOARD 5 SLOT VME J1 BACKPLANE	1
409P248H79	PC BOARD 2200 DAS PCI FIBER FDDI ADAPTER	1
409P248H88	48 Power Supply and Ringing Generator (48V/25Hz)	1
409P249101	12-Port Analog Voice Interface Card (12LVOI-P)	1
409P249102	High Quality Audio / Public Address Interface Card (HQAUD-M)	1
409P249102	High Quality Audio / Public Address Interface Card (HQAUD-S)	1
409P249103	4-Wire E&M Interface Card	1
409P249104	BORA Common Logic Module	1
409P249105	RS 422 Interface Card	1
409P249106	RS-485 interface Card	1
409P249107	RS 232 Interface Card	1
409P249110	12-Port Analog Voice Interface Card (12LVOI-T)	1
409P250H94	FILTER ASSEMBLY	35
409P262H24	PA Ambient Noise Sensing Controller	1
409P276H13	WIPER BLADE ASSEMBLY (31.5)	4
409P301H01	Hi-Tech Spare Parts Kit Includes: 1 Complete Dynamic Message Si	1
409P302H61	MOTOR, 2HP, 480V, 1800RPM, 56C	1
409P302H62	BEARING CARBON GRAPHITE, 1.5"	1
409P302H63	BEARING - 4 BOLT FLANGE, 1"	6
409P302H64	1" BORE, #1610 TAPER LOCK BUSHING	2
409P302H65	FUSE AJT30	2
409P302H66	FUSE GGM-4	2
409P302H67	FUSE FRN-R-5	1
409P302H68	RECEIVER EYE IR-M12-15M	1
409P302H69	MANUAL AMO/TIMER ISG-N34-115V	1
409P302H70	TRANSMITTER EYE IT M12 35M	1
4166A87H01	RELAY TYPE B	3

**Appendix E-2: Spare Parts**

Part No	Description	Qty
4227B27G01	CONTACT STUD ASSEMBLY	32
4227B59G01	CAM SHUNT	8
4567B03H07	CAPACITOR 1 UF 660 VAC	6
4675C15G04	BRAKE TRANSFORMER	0
4677C95G09	VARISTOR ASSEMBLY	4
4677C95G28	VARISTOR SUPPRESSION DEVICE	3
4678C64G01	TRANSFORMER & POTENTIOMETER PANEL ASSY	2
4680C29G04	AAR RACK ASSEMBLY	0
4680C65H01	AIRSIDE SPRING	8
4682C17G02	BRUSH HOLDER PIN	32
4722A43H02	BOLT .500-13 X 1.25 HEX HD STL	100
4766A18G02	VARISTOR ASSEMBLY	6
4766A18G05	VARISTOR ASSEMBLY	4
4766A18G08	VARISTOR ASSEMBLY	6
4766A40G06	DIODE ASSEMBLY	4
4766A40G11	DIODE ASSEMBLY	2
4766A40G12	DIODE ASSEMBLY	2
4766A40G13	DIODE ASSEMBLY	8
4766A40G16	DIODE ASSEMBLY	3
4766A40G18	DIODE ASSEMBLY	4
4767A67G01	LIGHTNING ARRESTER	14
4767A86H12	BALL VALVE	2
4767A86H15	Valve, Check	1
4767A90G01	STD. CONTACT INTERLOCK FINGER	8
4768A05H11	CRITICAL RELAY 4 FORM C 24V	4
4768A30H01	TRANSFORMER	4
4776A87H01	FUSE BLOCK #3519 0-60 AMPS 600V	4
4778A79G01	STD. FINGER INTERLOCK	10
4893B70H02	GAUGE	3
4894B90H01	SPRING .0747 THK SST	16
4896B59H01	SWIVEL STEM 3.50) .375 DIA STL	16
4896B60H01	SPACER .505) .375 DIA 1/2 HARD BRS	8
4898B19G06	LIGHTNING ARRESTER ASSEMBLY	8
4898B19G07	LIGHTNING ARRESTER ASSEMBLY	8
4898B51G02	PINNED POWER RAIL INSTALLATION	0
4898B51G04	PINNED SIGNAL RAIL INSTALLATION	0
4899B59H01	PIN 3.50) .375 DIA	100
4899B64H01	EXTENSION SPRING	12
4899B65H03	ALIGNMENT PLATE 1.75 X .75) .125 THK	40
4D02279G02	TRANZORB ASSEMBLY	2
5574C12H06	Cylinder Hydraulic	1
5574C31G03	GUIDE TIRE ASSEMBLY	0
5574C31H03	TIRE	16
5574C40G01	DOOR SLIDE ASSEMBLY L.H.	2
5574C41G01	DOOR SLIDE ASSEMBLY R.H.	2
5574C95H04	Ramp	7
5574C95H05	Ramp	6

**Appendix E-2: Spare Parts**

Part No	Description	Qty
5575C64H02	SWITCH SNAP ACTION ROLLER	2
5578B62G01	BRUSH HOLDER ASSEMBLY	16
5579B40H01	FAN DC BRUSHLESS	6
5580B05G01	RESISTOR ASSY 11 K 1 W	2
5580B05G02	DIODE ASSY IN5399	2
5582B88H01	BEARING	64
5585B41H05	ADJUSTING PLUNGER ASSY 16 DEGREE ANGLE	8
5585B41H05	ADJUSTING PLUNGER ASSY 16 DEGREE ANGLE	16
5585B78H01	CHANNEL 5.00 X 1.92) .062 THK SST	20
5585B79H01	ARM 11.00) .375 DIA STL	64
5585B85H01	KEEPER 9.50) .188 X 1.00 CF STL	20
5585B93H01	BRUSH HOLDER PLUG 2.00) .625 X 1.50 BR	16
5586B24H02	SWIVEL STEM 4.25) .375 DIA STL	50
5586B62H02	CYLINDER HIGH PRESSURE	2
5586B62H03	GASKET	2
5586B62H04	CYLINDER LOW PRESSURE	2
5586B62H05	GASKET	2
5586B62H06	CAP SUCTION VALVE	2
5586B62H08	SEAL O-RING CAP	4
5586B62H09	SEAL FELT PLUNGER TO SLEEVE	4
5586B62H10	SEAL O-RING PLUNGER TO SLEEVE	4
5586B62H16	HEAD LOW PRESSURE CYLINDER	2
5586B62H17	GASKET LOW PRESSURE CYLINDER	2
5586B62H18	VALVE ASSEMBLY DISCHARGE	4
5586B62H20	VALVE ASSEMBLY SUCTION	4
5586B62H26	SEAL O-RING CAP	4
5586B62H27	SEAL FELT PLUNGER TO SLEEVE	8
5586B62H28	SEAL O-RING PLUNGER TO SLEEVE	4
5586B62H33	HEAD HIGH PRESSURE CYLINDER	2
5586B62H34	GASKET HIGH PRESSURE CYLINDER	2
5586B62H35	VALVE ASSEMBLY DISCHARGE	4
5586B62H37	VALVE ASSEMBLY SUCTION	4
5586B62H42	ELEMENT AIR CLEANER	38
5586B62H53	SPRING	2
5586B62H54	VALVE CHECK	2
5586B62H55	PIN	2
5586B62H56	SEAL PIN	2
5586B62H57	RETAINER OIL RELIEF SPRING	4
5586B62H58	SPRING OIL RELIEF	4
5586B62H60	PISTON	2
5586B62H61	DIAPHRAGM	4
5586B62H66	PISTON ASSEMBLY HIGH PRESSURE	4
5586B62H70	BALL NYLON OIL RELIEF VALVE	4
5586B62H73	SLEEVE RUBBER	4
5586B62H75	SEAL OIL FRONT	2
5586B62H81	CUP BEARING	4
5586B62H83	GASKET INTERCOOLER TUBE	8



## Appendix E-2: Spare Parts

Part No	Description	Qty
5586B62H85	VALVE ASSEMBLY SAFETY	4
5586B62H86	O-RING OIL PUMP COVER	4
5586B62H87	ROTOR OIL PUMP	2
5586B62H88	VANE OIL PUMP ROTOR	8
5586B62H89	SPRING VANE	8
5586B62H91	PIN ROLL	4
5586B62H94	PIN ROLL	4
5586B66H01	CARBON BRUSH GRADE W187	32
5587B02G01	CYLINDER AIR COMPRESSOR - HIGH PRESSURE	2
5587B02G02	CYLINDER AIR COMPRESSOR - LOW PRESSURE	2
5587B07G01	CRANKSHAFT ASSY AIR COMPRESSOR	2
5587B09G01	PISTON & CONNECTING RODS - HIGH PRESSURE	2
5587B09G02	PISTON & CONNECTING RODS - LOW PRESSURE	4
5587B11G01	INTERCOOLER AIR COMPRESSOR	2
5587B12G01	REAR RETAINER AND OIL PUMP	4
5621B15G01	HUB AND SHAFT ASSEMBLY	0
5621B16G01	BRAKE PARTS	0
5621B19G01	GENERAL ASSEMBLY DRIVE AXLE	2
5624B12H01	LEVER 1)	1
5624B19H01	MODIFIED SOCKET	8
5625B54H02	CAP EXTRUSION 90.50)	16
5625B82H01	BUMPER E.A.R. ISODAMP #C.1002.25	4
5630B48G01	MICROPHONE ASS'Y	1
570A055H31	O RING STD SIZE 210	16
577B060H33	DIODE	2
5819C58G03	FINGER ASSEMBLY	16
5824C49G01	SOLENOID VALVE	4
5827C89H04	Cylinder Hydraulic	1
5D56060H21	CAM	6
5D72149G01	PROPULSION MONITOR ASSEMBLY	0
5D72500G04	SMOKE DETECTOR ASSEMBLY (GRAPHICS)	2
5D72501G02	SMOKE DETECTOR MOUNTING BRACKET	2
5D73028G01	PC BOARD R110 CONVERTER MOTHERBD ASS'Y	2
5D73062G01	PC BOARD GEALOC POWER SUPPLY ASSEMBLY	2
5D73065G01	PC BOARD MANUAL CONTROL II ASSEMBLY	2
5D73067G02	PC BOARD MANUAL CONTROL I ASSEMBLY	2
5D73091G01	PC BOARD FRANKFURT 16 SLOT P2 BACKPLANE	1
5D73122G01	PC BOARD FRANKFURT RELAY STAT IND ASS'Y	2
5D73200G01	PC BOARD GEALOC POWER SUPPLY ASSEMBLY	1
5D73201G01	PC BOARD DIGITAL INPUT PCB ASSEMBLY	1
5D73205G02	PC BOARD GROUND LOSS DETECTION ASSY	2
5D73206G01	PC BOARD AUDIO MATRIX ASSEMBLY	1
5D73220G01	PC BOARD ATCS SYNC/VITAL DRVR INTFC ASSY	2
5D73220G02	PC BOARD ATCS SYNCHRONIZER/VITAL DRIVER	2
5D73220G03	PC BOARD ATCS SYNC VITAL DRIVER	1
5D73221G01	PC BOARD MULTI PURPOSE I/O ASSEMBLY	2
5D73221G02	PC BOARD MULTI PURPOSE I/O ASSEMBLY	2

## Appendix E-2: Spare Parts

Part No	Description	Qty
5D73222G02	PWR SUPPLY ASSY (24V IN 5V +/-12V OUT)	2
5D73299G01	PC BOARD LAS VEGAS RADIO RELAY I/O ASSY	2
5D73299G01	PC BOARD LAS VEGAS RADIO RELAY I/O ASSY	1
5D73338G01	PC BOARD DIGITAL OUTPUT ASSEMBLY	1
5D73338G02	PC BOARD DIGITAL OUTPUT ASSEMBLY	1
5D73412G01	PC BOARD RF INTERFACE ASSEMBLY	1
5D73412G02	PC BOARD RF INTERFACE ASSEMBLY	2
5D73413G01	PC BOARD 386 CPU ASSEMBLY	1
5D73449G01	PC BOARD NUMBER ONE END TERMINATION CARD	3
5D73449G02	PC BOARD NUMBER ONE END TERMINATION CARD	2
5D73452G01	PC BOARD BRAKE PROP CONTROLLER ASSY	2
5D73458G01	PC BOARD SAN FRANCISCO DOOR TX TERM ASSY	3
5D73463G01	PV BOARD SAN FRANCISCO NON-CPU M/B ASSY	1
5D73473G01	PC BOARD, DOOR TX/RX ASSEMBLY	2
5D73479G01	PC BOARD MANUAL SPEED LIMITER ASSEMBLY	2
5D74294H01	MOTOR 115 VAC 60 HZ	1
5D74330G03	FLAG ASSEMBLY TRIP STOP	1
5D74457G16	VEHICLE RADIO ASSEMBLY	0
5D74649G01	PHASE VOLTAGE RELAY GEN ASSY	2
5D74671G01	GUIDE WHEEL HUB ASSEMBLY	2
5D74715H01	COMPRESSOR	1
5D74715H07	VALVE-CHECK	4
5D74716H02	COIL - CONDENSER	2
5D74716H05	VALVE - RELIEF	4
5D74716H06	ISOLATOR - SHOCK MOUNT	8
5D74716H08	VALVE - SERVICE	2
5D74716H09	RECEIVER - LIQUID	4
5D74716H10	MOTOR - CONDENSER	2
5D74716H14	VALVE - PURGE	4
5D74716H20	VALVE - RECEIVER (INLET AND OUTLET)	3
5D74717H04	BLOWER (RH)	1
5D74717H08	MOUNT-SHOCK	16
5D74717H11	COIL-EVAPORATOR	2
5D74717H17	VALVE-LIQUID & MODULATING	2
5D74717H19	VALVE-EXPANSION	2
5D74717H23	THERMOSTAT-OVERHEAT	2
5D74717H24	BLOWER (LH)	1
5D76262H03	EQUALIZER VALVE 110 PSI	4
5D76263H22	VEHICLE RADIO 1)	1
5D77763G01	DIGITAL I/O INTERFACE MODULE PDISO-8	1
5D77773H05	ETHERNET EXPRESS PRO 10+	1
5D77773H06	ETHERNET EXPRESS PRO 10+	1
5D77998H27	FILTER DRIER CARTRIDGE	6
5D79410H01	DTE/TERM'D LINE DRIVER CARD	2
5D79410H02	DTE/UNTERM'D LINE DRIVER CARD	2
5D80189H01	CPU BOARD PENTIUM P5000HX SERIES	1
5D81178H01	ETHERNET PC LINK2 BD	1

Appendix E-2: Spare Parts

Part No	Description	Qty
5D81799G01	CENTRAL RADIO SYSTEM COMPUTER ASSEMBLY	1
60A2872G37	CAM SWITCH TYPE XCA-398	2
6157A58H04	THERMAL RELAY	2
6246D69H09	SHACKLE 7.25 X 2.75) .38 HR STL	16
6523B68H01	Magnet	4
652A103H02	DRAIN VALVE	4
652A589H03	WASHER .202) 2.375 DIA STL	50
6961C69G01	ASSEMBLY DUAL QUICK RELEASE VALVE KIT	4
6965C16H02	TRANSFORMER ENCAPSULATED	2
6967C72G02	KNUCKLE CASTING	24
6967C72G03	KNUCKLE CASTING	8
6969C55G01	PANEL ASSEMBLY	0
6971C67H02	BREAKER 3 POLE 600 VAC 15 AMP	2
6971C67H07	BREAKER 3 POLE 600 VAC 15 AMP	3
6971C68H01	BREAKER 3 POLE 600 VAC 70 AMP	3
6971C68H04	BREAKER 3 POLE 600 VAC 125 AMP	2
6972C93G01	POWER RAIL JOINT ASSEMBLY	50
6972C93G02	SIGNAL RAIL JOINT ASSEMBLY	40
6972C93G04	HALF ALIGN PLATE ASSEMBLY	20
6972C93H01	Plate, Joint	6
6972C93H02	Plate, Alignment	6
6972C93H06	Plate, Joint	6
6972C94H05	POWER COVER 5 FEET BEIGE	100
6972C94H21	POWER COVER 2.50 FEET BEIGE	6
6972C95G03	ISOLATION GAP	10
6972C97G02	POWER TERMINAL	16
6972C98G02	Expansion Joint Power	6
6973C66G02	VARISTOR ASSEMBLY	4
6973C66G07	VARISTOR ASSEMBLY	4
6973C66G10	VARISTOR ASSEMBLY	4
6973C66G14	VARISTOR ASSEMBLY	2
6974C38H01	CARBON BRUSH GRADE 933	40
6976C08G05	ROLLER BEARING ASSEMBLY	6
6D56059G01	DOOR OPERATOR R.H.	4
6D56059H21	CAM	6
6D56060G01	DOOR OPERATOR L.H.	4
6D56130G01	POWER FEED ASSEMBLY	5
6D56434G01	HEADLIGHT/TAILLIGHT ASSY (CLEAR)	0
6D56434G02	HEADLIGHT/TAILLIGHT ASSY (RED)	0
6D56434H07	LAMP - HALOGEN HI/LO	16
6D56434H08	LAMP - INCANDESCENT RED	16
6D56529G01	PROGRAM SWITCH PANEL ASSEMBLY	0
6D56575G01	A/C COMPRESSOR ASSEMBLY UNIT	1
6D56575H04	SWITCH-HIGH PRESSURE	2
6D56575H05	SWITCH-LOW PRESSURE	2
6D56575H06	SWITCH-MODULATION PRESSURE	2
6D56575H15	ISOLATOR SHOCK MOUNT	12

**Appendix E-2: Spare Parts**

Part No	Description	Qty
6D56575H18	TRANSFORMER	2
6D56575H19	CIRCUIT BREAKER - COMPRESSOR	2
6D56575H20	CIRCUIT BREAKER - CONDENSER FAN	2
6D56575H21	CIRCUIT BREAKER - OVERHEAD HEATER	2
6D56575H22	CIRCUIT BREAKER - BLOWER FAN	2
6D56575H23	CONTACTOR	4
6D56575H24	RELAY BASE OVERLOAD	2
6D56575H25	OVERLOAD	6
6D56575H26	OVERLOAD	6
6D56575H27	PC BOARD CONTROL	2
6D56576G01	HVAC EVAPORATOR ASSEMBLY	1
6D56576H02	MOTOR-BLOWER 2-SPEED	2
6D56576H07	WHEEL-BLOWER (CW)	1
6D56576H08	WHEEL-BLOWER (CCW)	1
6D56576H28	HEATER ASSEMBLY	2
6D56576H34	SWITCH-AIRFLOW	4
6D56576H36	SENSOR-RETURN AIR (NOT SHOWN)	4
6D56576H37	VARISTOR-SURGE SUPPRESSOR	4
6D56576H40	SWITCH FREEZE PROTECTION	2
6D56631G01	MANUAL CONTROLLER COMPARTMENT ASSEMBLY	0
6D56864G01	CENTRAL CONTROL COMPUTER ASSEMBLY	1
6D56865G01	FRONT END COMPUTER ASSEMBLY	1
6D56867G01	OPERATOR STATION COMPUTER ASSEMBLY	1
6D56868G01	GENERAL SYSTEM DISPLAY COMPUTER ASSEMBLY	1
6D56869G01	OFFICE NETWORK BRIDGE COMPUTER ASSEMBLY	1
6D57047G01	TERMINAL BLOCK ASSY - P24 DISTRIBUTION	1
6D57052G01	TERMINAL BLOCK PANEL - P24 DISTRIBUTION	1
6D57064G01	ATC2 CRADLE - ASSEMBLY	1
6D57226G01	ATO COMPUTER ASSEMBLY	1
6D57226G02	ATO COMPUTER ASSEMBLY	1
6D57228G01	INDUSTRY PACK BOARD ASSEMBLY	1
6D57252G01	POWER SUPPLY ASSEMBLY	1
6D57255G01	GRAPHICS FRONT END COMPUTER	1
6D57299G01	FIBER OPTIC TERMINAL BOX ASSEMBLY	1
6D57607H01	GEALOC FIELD POWER SUPPLY	2
6D57607H01	GEALOC FIELD POWER SUPPLY	1
6D57612G01	TERMINATION PANEL ASSEMBLY - JUMPER PNL	0
6D57695G01	TERM CARD CRADLE ASSEMBLY	0
6D57696G01	ATC2 CRADLE ASSEMBLY	0
6D57740G02	TERMINAL BLOCK ASSEMBLY	0
6D57761G01	SPEAKER/MICROPHONE PANEL ASSEMBLY	0
6D57762G01	SPEAKER/MICROPHONE INSTALLATION	0
6D57793G01	CONDENSER UNIT ASSEMBLY	1
6D57793H02	FAN-CONDENSER	2
6D57800G01	FIRE EXTINGUISHER INSTALLATION	0
6D57803H01	CPU BOARD	2
6D57803H02	CPU BOARD	2

Appendix E-2: Spare Parts

Part No	Description	Qty
6D57820G01	SAN FRANCISCO VEH COMMUNICATIONS CABLE 18	0
6D57825G01	VEHICLE COMMUNICATION CONTROLLER HARNESS	0
6D57827H01	DTE/TERM'D OPTO-ISOL'D LINE DRIVER BD	2
6D57827H02	DTE/UNTERM'D OPTO-ISOL'D LINE DRIVER BD	2
6D57842G01	RACKMOUNT DISPLAY COMPUTER ASSEMBLY	1
6D58053H01	CENTRAL CONTROL - PWR SUPPLY ASSY	1
6D58550G01	IONIZATION SMOKE DETECTOR (CTR LOCATION)	3
6D59447G01	LOWER DOOR GUIDE - C-100 & CX-100 VEHICLE	4
6D59447G02	LOWER DOOR GUIDE - C-100 & CX-100 VEHICLE	4
6D59563G01	DYNAMIC GRAPHICS ASSEMBLY	4
6D59669H01	SERIAL INTERFACE BOARD	1
6D59669H02	SERIAL INTERFACE BOARD	1
70310CB07C	SPRING PIN .125 DIA X .750 LG SST	100
70310CB07F	SPRING PIN .125 DIA X 1.00 LG SST	40
70310CB0BA	SPRING PIN .188 DIA X 1.00 LG SST	100
70310CB0DT	SPRING PIN .250 DIA X 1.625 LG SST	300
70500CT00Y	WASHER .375 STD STL	100
70510CV10G	LOCKWASHER .138 REG STL	100
70510CV10Q	LOCKWASHER .375 REG STL	100
70510DL10S	LOCK WASHER .500 X-DUTY STL	100
73482AP00S	FUSE 60A 250V SB	10
760C217G07	SHUNT	8
795C168G01	CONTACTOR ARC CHUTE - MOLDED	4
8368D84H26	VEHICLE GLASS	8
8368D84H27	VEHICLE GLASS	2
8368D84H28	VEHICLE GLASS	4
8368D93G06	TYPE TE-359 BTRY CHGR & DOOR SPLY G/ASSY	2
8584C27G01	HYDRAULIC HOSE ASSEMBLY	1
8584C27G02	HYDRAULIC HOSE ASSEMBLY	1
8584C27G03	HYDRAULIC HOSE ASSEMBLY	1
8584C27G05	HYDRAULIC HOSE ASSEMBLY	1
8588C18H01	SWITCH 2 POS - 12 CONTACT	2
8589C64100	SPRING BRAKE CHAMBER ASS'Y	8
8589C64100	SPRING BRAKE CHAMBER ASS'Y	8
8589C64185	SEAL ADJUSTING BOLT	16
8589C64185	SEAL ADJUSTING BOLT	32
8589C64H13	SPINDLE WHEEL BEARING	1
8589C64H14	O RING	60
8589C64H62	CONE HUB BRG. OUTER	4
8589C64H63	CUP HUB BRG. OUTER	4
8589C64H64	NUT WHEEL STUD	40
8589C64H67	CUP HUB BRG. INNER	4
8589C64H68	CONE HUB BRG. INNER	4
8589C64H69	OIL SEAL HUB BRG.	8
8589C64H71	BRAKE DRUM	4
8589C64H72	CAP SCREW	40
8589C64H74	BRAKE LINING KIT	8

**Appendix E-2: Spare Parts**

<b>Part No</b>	<b>Description</b>	<b>Qty</b>
8589C64H77	COLLET NUT - BRAKE CHAMBER	8
8589C64H77	COLLET NUT - BRAKE CHAMBER	16
8589C64H78	RIVETS	140
8589C64H79	LININGS	16
8589C64H80	BOLT ADJUSTING	16
8589C64H80	BOLT ADJUSTING	32
8589C64H86	CAP SCREW HOLD DOWN CLIP	8
8589C64H86	CAP SCREW HOLD DOWN CLIP	16
8589C64H87	SPRING - BRAKE SHOE RETURN	8
8589C64H87	SPRING - BRAKE SHOE RETURN	16
8589C64H88	BRAKE SHOE & LINING ASS'Y	8
8589C64H88	BRAKE SHOE & LINING ASS'Y	16
8589C64H90	NUT HOLD DOWN CLIP	8
8589C64H90	NUT HOLD DOWN CLIP	16
8589C64H91	CLIP HOLD DOWN	8
8589C64H91	CLIP HOLD DOWN	16
8589C64H93	WEDGE ASSEMBLY	8
8589C64H93	WEDGE ASSEMBLY	8
8589C64H94	SPIDER BRAKE	8
8589C64H94	SPIDER BRAKE	2
8591C07H01	SIGNAL COVER 5 FEET BEIGE	80
8591C07H13	SIGNAL COVER 2.50 FEET BEIGE	4
8591C09G01	SIGNAL EXPANSION JOINT ASS'Y	10
8591C12G01	SIGNAL ISOLATION JOINT	6
8592C16G03	STD. CONTACTOR 200 AMPS TYPE UMC-109A	2
8592C18G06	STD CONTACTOR AND INTERLOCKTYPE UMC-109G	2
8593C08H03	TRANSFORMER 600V/60HZ & 600V/50HZ 10VA	3
8593C21G01	CYLINDER HEAD ASSY - LOW PRESSURE	2
8593C22G01	CYLINDER HEAD ASSY - HIGH PRESSURE	2
8593C23G01	OIL PUMP COVER (WITH UNLOADERS)	2
8594C63H02	STD. FAN 24 VDC 94 CFM	3
8594C63H04	STD. FAN 12 VDC 106 CFM	3
8617A79G01	CONTACT WITH INSERT	8
8618A09G07	RESISTOR ASSEMBLY	1
8838D98H01	WHEEL HUB	2
8840D42G06	GENERAL ASSEMBLY TYPE UT-323 OVERLOAD	2
8840D61G01	RESISTOR PANEL R.H.	2
8840D61G02	RESISTOR PANEL L.H.	2
8840D61G03	RESISTOR PANEL R.H.	1
8840D61G04	RESISTOR PANEL L.H.	1
8840D97G02	INDICATOR ASSEMBLY	2
8840D97G03	PUSHBUTTON ASSEMBLY	2
8840D97G04	PUSHBUTTON ASSEMBLY	2
8840D97G05	PUSHBUTTON SWITCH ASSEMBLY	2
8840D97G07	PUSHBUTTON ASSEMBLY	2
8840D97G08	PUSHBUTTON ASSEMBLY	2
8840D97G09	PUSHBUTTON ASSEMBLY	2

**Appendix E-2: Spare Parts**

Part No	Description	Qty
8840D97G11	PUSHBUTTON ASSEMBLY	2
8840D97G12	PUSHBUTTON ASSEMBLY	2
8840D97G13	PUSHBUTTON ASSEMBLY	2
8840D97G14	PUSHBUTTON ASSEMBLY	2
8840D97G32	PUSHBUTTON ASSEMBLY	2
8840D97G38	PUSHBUTTON SWITCHES & INDICATORS	2
8840D97G44	INDICATOR ASSEMBLY	2
8840D97G83	ALARM TEST PUSBUTTON ASSEMBLY	2
8840D97G84	FLUID LEVEL INDICATOR ASSEMBLY	2
8840D97G85	PUSHBUTTON ASSEMBLY	2
8844D32G01	AIR CONTROL PKG SOLENOID VALVE	2
8844D32H02	COIL, 24 VDC	4
8844D32H03	REPAIR KIT	4
ZL145WA	Siemens Hicom CBX w/ 31E5533, 31E4405, & SLA16N	2
VideoPoster VP111	Apollo Display Technology (Video PC Boards)	4
46" LCD Display	Apollo Display Technology (46" Monitor)	8

**Appendix E-2: Tools, and Equipment List**

Item	Qty	Part No.	Location
Laser printer	2		2ND FLOOR
Laser color printer	1		2ND FLOOR
IBM compatible PCs (servers)	2		2ND FLOOR
Spectrum analyzer w/noise marker	1		ALFREDO
Tic tracer	12		ALL TECHS
Frequency/Time domain reflectometer	1		AVMET V102
Traction Motor Support Cradle	1	5D79169G01	BAY 5 WALL
Dot matrix printers	2		CENTRAL
System simulator	1		CENTRAL
Soldering/desoldering stations	2		ELEC ROOM
Soldering iron	2		ELEC ROOM
Bench VAST	1		ELEC ROOM
Portable VAST	1		Supply room
Prom programmer	1		ENG OFF
Tool, Actuation, Flat Tire System	1	401P401H14	LEAD DESK
Battery soldering iron	2		LIB
End Play Measuring Tool	2	6D55567G01	Mech Room
Guidewheel Assembly Fixture	1	6D55460G01	Mech Room
Bearing Cup Driver (Upper)	1	1C44422G01	Mech Room
Bearing Cup Driver ( Lower)	1	1C44423H01	Mech Room
Grease Seal Driver	1	1C44424H01	Mech Room
Grease Seal Driver (Lower)	1	1C44425H01	Mech Room
Dust Shield Driver	1	1C44418G01	Mech Room
Coupling Hub Hydraulic Removal Assy	1	3D51371G01	Toolcrib
Plate 11.00 X 23.63 X .25 Thk Alum (H01)	3	1C43246H01	Mech Room
Planetary Hub Bearing Cup Puller	1	5D56121G01	I108
Planetary Hub/brake Drum Cradle	1	1C43244G01	BAY 5 WALL
Planetary Ring Gear Lifting Tool	1	1C43137G01	V104
Dust Seal Driver	1	1B39122H01	Mech Room
Brake Adjustment Tool	1	1C43136H01	Mech Room
Cable W/Custom Deutsch Connector	1	404P723H32	LEAD DESK
6 channel chart recorder	1		mechrm cab
8 channel chart recorder	1		mechrm cab
Power supply, 40 V - (BK Model 6020, 0-60v)	1		mechrm cab
Digital thermometer	1		MRA3.
Track mapper	0		NA
IBM compatible PCs (work stations)	21		OFFICES
Portable IBM compatible PC	2		SUPS
Analog multimeter, portable, Simpson 260-p	1		ENG OFF
Ty wrap tool	3		TOOL WALL
Frequency counter	1		U127
Function generator	1		U127
Signal generator, Lizard portable Transmitter	1		LIB
Power meter w/power head	1		U127
Sound level meter	1		U127
Bench model DMM	1		U132
Hi-pot	1		U132
Power supply, 0-30 V, ELECTO IND. MODEL 3012A	1		U132
Fluke, 123 Scopemeter	1		V131
FLuke, 43B Power Analyser	1		V133
Meggar, 1000 V, AVO Model 210600	1		V102
Commutator Resurfacing Tool Assy	1	2255F39G01	V103
Hub Seal Driver	1	1B39123H01	V103
Grease Cap Driver	1	1C44419H01	V104
Bearing Nut Removal Tool	1	3D51373G01	V104
Bearing Cup Driver	1	1B39120H01	V104
Bearing Cup Driver	1	1B39121G01	V104
Pinion Yoke Removal/Installation Tool Set	1	5D74845G01	V104



**Appendix E-2: Tools, and Equipment List**

Item	Qty	Part No.	Location
Socket 1.75 Hex Special	1	4077B16G02	V104
Special Socket 1)	1	4724A87H02	V104
Phase sequence indicator	1		V107
Clamp-on current meter (AC/DC) FLUKE 31	1		V107
Heat gun	2		V111
Hand-held DVM	8		V112, MRA3
Force gauge	1		V117, MRA1
Clamp-on current probe	1		V131
Power supply, 20 V, Tenma 72-6628	1		V132
Resistor decade box	1		V133
10' X 20' Flat Bed Trailer	0		NR
FLUKE 863, Graphic multimeter	1		V102
O-scope probe (provided w/ scope)	2		V102
O-scope probe (provided w/ scope)	1		V117
Capacitance decade box	1		LIB
Extender boards, propulsion	3	225P748G01	A129
Extender boards, ATO	2	409P248H90	
Extender boards, wayside	3	226P338G01	ELEC ROOM
Power Supply, B&K Precision model 1715 0-60v	1		mechrm cab
Notch Filter	1		NA
Fluke Thermal Imager, Model TI-30, s/n 89720099	1		LIB
Fluke Power Quality Analyser, Model 434,	1		LIB
Special Coupler Tool Set	1		mechroomcab
Adhesive Back Sandpaper for Orbital Sander	1	2D709	BACK WALL
7" Grinder disc	10	3VP30	back wall
4 1/2" Grinder disc	20	3VX05	back wall
14" Cut-off blades	6	4A896	back wall
6' X 8' Welding Screen	1	3T970	Bay 1 bot
Drum dollies	3	3KR53	bay 5
25' Extension Cord	4	2W566	bay floor
High Pressure Steam Cleaner	1	5GH72	BOT FLOOR
Micrometer Set 0-6"	1	5C675	Library
Wheel Chauks	2	4W941	Load dock
5" Bench vise	2	1ATH0	mech room
14" Cut-off saw, Milwaukee	1	2AC06	MECH ROOM
Rechargeable Latern	3	2V837	MECH ROOM
Rechargeable Flashlight	3	2V888	mech room
8" Bench Grinder	1	4Z909	Mech room
8" Bench vise	2	5C804	Mech room
9-Speed 20" Floor drill press	1	6W281	Mech room
15" Floor Standing Band Saw	1	6Y002	Mech room
Wheel bearing packer	1	6Y907	Mech room
Heavy duty industrial workbench	6	7W087	MECH ROOM
12 ton Hydraulic press and H frame	1	7Z820	MECH ROOM
Shop Stools	6	2W175	mech room fir
12" Dial Caliper	1	5C665	MRA1
5/16" - 6" Internal Micrometer	1	5C717	MRA1
6" Dial Caliper	1	5C667	MRA1.U122
6" Digital Caliper	2	5C672	MRA1.U122
Degreaser transfer pump	1	2P683	sh floor
9" long Hex 3/8" drive ratchet	1	1AF34	shift toolbox
Metal Tool Bax	2	2W019	Shop floor
Oil Waste Can	1	2W560	Shop floor
Hydraulic Lift Table	2	3KR47	Shop floor
3 Ton Gantry	1	3KR62	Shop floor
Crane Trolley	1	3TP86	shop floor
Platform Truck	2	3W077	shop floor
8' Stepladder	2	3W142	shop floor

**Appendix E-2: Tools, and Equipment List**

<b>Item</b>	<b>Qty</b>	<b>Part No.</b>	<b>Location</b>
3" Fiberglass Step Stool	6	3W332	shop floor
12' Stepladder	1	3W422	shop floor
Grease pail doily	1	4F987	shop floor
Drum Containment Platform Ramp	1	4RF65	shop floor
Drum Containment Platform	2	4YF76	shop floor
Heavy Duty Roll Around Tool Box	2	6A575	shop floor
Oil dispenser, air operated	1	6Y820	shop floor
Grease Gun Handle Style	2	6Y826	shop floor
Grease Gun Pistol Style	2	6Y829	shop floor
12" Flexible Hose	6	6Y835	shop floor
Oil dispenser, Hand operated	1	6Y881	shop floor
Air operated grease gun	2	6Y885	shop floor
Oil drain pan	1	6Y902	shop floor
Oil drain pan	1	6Y903	shop floor
Drain pan funnel	1	6Y910	shop floor
50' Water Hose	3	1P649	SHOP FLR
9" long Hex 1/2" drive ratchet	1	3R747	shop tool box
Bins for storage cabinets	32	2W779	storeroom
Bins for storage cabinets	96	2W780	storeroom
2 3/4 Ton Pallet Jack	1	3KR84	storeroom
Plate Dolly	2	3W218	storeroom
1000lb Floor Scale	1	3W494	storeroom
Fire safety cabinet, safety yellow	2	4T196	storeroom
Sliding drawer units	2	5W885	storeroom
1 3/4" Cup Brush	5	3A203	supply shelf
1/2" Spiral Wire Brush	2	4F727	Supply shelf
1" Spiral Wire Brush	2	4F731	supply shelf
Maintenance Free Respirators	2	4JG05	Supply shelf
Band saw blades	6	4L226	Supply shelf
Band Saw Blades	6	4L236	Supply shelf
Disposable Ear Plugs	1	4T147	Supply shelf
Dust / Mist Respirator	2	4T823	Supply shelf
8" Bench grinding wheels	4	6A091	Supply shelf
Funnel	4	6Y806	Supply shelf
Utility Knife	6	5R685	tool bxs
Tot Bag for Tools	6	4A670	Toolcrib
12" Hacksaw	2	4K799	Toolcrib wall
Carpenter Square	1	5W189	Toolcrib wall
50foot Extension Cord	2	5W576	Toolcrib wall
100' Extension Cord	2	5W577	Toolcrib wall
48" Straight Edge	2	6C233	Toolcrib wall
Combination Square 12"	2	6X996	Toolcrib wall
24" Straight Edge	2	2H406	Toolcrib wall 1
Freon Recovery System	1	1Z861	TOP SHELF
A/C Pressure Vacum Gauge Set	1	3T078	U115
Freon Leak Detector	1	3T449	U115
Hole Saw Kit	1	4L638	U118
Pneumatic Rivet Gun	1	4Z913	U118
Manual Rivet Gun Kit	2	6A644	U118
Chain Hoist 3 Ton	1	3KR22	U119
4 ton Hydraulic ram system	1	3ZC68	U119
Chain Hoist	1	4Z312	U119
3/8" 18V battery powered drill with keyless chuck	2	4PD94	U121
Circular saw, 7 1/2" blade, Milwaukee	1	4Z372	U121
Circular saw blades	2	5G890	U121
Depth Gauge 0"-6"	1	5C723	U122
1/2" Electric impact wrench, Dewalt DW291	1	4JB74	U123
1/2" Hammer drill, Milwaukee	1	6Z040	U123

**Appendix E-2: Tools, and Equipment List**

<b>Item</b>	<b>Qty</b>	<b>Part No.</b>	<b>Location</b>
8' Nylon Sling	4	1A598	U124
Shackle	6	2G796	U124
Chain Hooks	12	3X692	U124
3/8" Chain (Bucket)	1	3Z940	U124
Chain Slings	2	4X461	U124
Portable band saw stand	1	1Y335	U126
Portable variable speed band saw, Deep cut,	1	6Z345	U126
1/4" Die Grinder Milwaukee	1	1Y068	U128
1/2" Electric drill with keyless chuck, Milwaukee	2	4A937	U128
6 ft. Nylon sling	2	1A597	U129
10' Nylon Sling	2	6A259	U129
Electric angle grinder 4 1/2", Milwaukee	1	4A942	U133
Electric 2" die grinder, Milwaukee	1	4Z818	U133
Welding Helmet	1	1N782	V105
Welding Vest	2	2AG83	V105
Welding Gloves	2	4JF98	V105
Deluxe Drum Wrench	1	6A240	V108
Cable Cutter 24" Long	1	2G996	V113
8" Bench grinder stand	1	4Z154	V114
9" Suction Cups	4	6A987	V115
Air operated blow gun, regulated to 30psi	4	5X786	V116
6" Cross vise	1	6Z848	V119
Oil transfer pumps	2	1P893	V120.sh floor
Hand Stamps, Letter & Numbers	1	1F113	V121
Stencil set	1	6A231	V121
HVLP Spray Gun	1	4TH37	V125
Motor for Band Saw	1	6K639	V125
Drill Bit Set 8 Piece (9/16" -1")	1	1A050	V126
Drill Bit Set 118 Piece (1/16" -1/2")	2	1A522	V126
3/4" Dewalt Impact Gun	1	3MJ17	V128
Orbital Sander Milwaukee	1	3W786	V128
Electric angle grinder 7", sander Milwaukee	1	4Z819	V128
3/8" Electric right angle drill, Milwaukee	1	6Z037	V128
Battery charger	1	2Z556	V131
Portable Lite Stands	3	83998	back wall
18 Piece Hex Key T Handle Set	1	46288	box 4 floor
13 Piece Ball Hex Key Set	2	46754	bx 4 floor
110V Mig Welder	1	20418	I103
16 Gallon Shop Vacuum	1	17703	mech room
Ignition Wrench Sets	2	43109	mech room an
3 Piece Channel Lock Set	2	45439	mra2.mrd1. 2nd
3lb Sledge Hammer	2	38311	mra4
16oz Rubber Mallet	2	45787	mra4.mrd3
16oz Claw Hammer	2	38127	mra4.tocribwa
5 Piece Pry Bar Set	2	43067	mra4.tocribwa
10" Pipe Wrench	1	30841	MRB2
Ratchet Wrench Sets (1/4"-7/8")	2	42160	mrb2
5 Piece Adjustable Wrench Set	1	44036	mrb2.mrd1.2nd
7 Piece Plier Set	2	45225	mrc2
13 Piece Vise Grip Set	1	45634	U109
3 Piece Extra Large Adjustable Wrench Set	1	44916	mrd3. tc wall
3/8" X25' Air Hose	3	16203	shop floor
3/8" X 50' Air Hose	6	16204	shop floor
3/8" X 50' Hose Reels	6	18644	shop floor
Halogen Drop Lights	6	83895	shop floor
Flourescent Drop Lights on Reels	12	83912	shop floor
15" Hand Saw	1	36071	tool crib
18" Pipe Wrench	1	30843	tool crib wall

**Appendix E-2: Tools, and Equipment List**

Item	Qty	Part No.	Location
14 Piece Clamp Set	1	31470	tool crib wall
Oxy / Accet Cutting Torch	1	20170	tool crib.
Hand Held Vacum 3 Gallon	2	17768	tool crib, shop
Portable Air Compressor	1	16735	tool shed
25 Piece File Set	2	31233	U103, various
20 Piece Screwdriver Sets	2	47452	u105, bx 4
Stubby Wrench Set	2	44138	u106, mrb1
Extra Large Wrench Set (1 1/16"-11/2")	2	45965	u106.mrb1
Ratcheting (5/6"-1/2") Tap Holder	1	4064	U108
Ratcheting (0"-1/4") Tap Holder	1	4065	U108
58 Piece Tap and Die Set	1	52311	u108
8 Piece File Set w/Handles	2	31326	bx 4 floor
259 Piece Standard Mechanic Tool Set	4	33758	shop floor
5 Piece Hammer Set	2	38074	toolcrib wall
Offset Ratchet Wrench Sets	2	43375	mrb2
9 Piece PlierSet	2	45311	2nd shift 2a
10 Piece Vise Grip Set	1	45635	MRD2
3 Piece Folding Hex Key Set	2	46287	bx 4 floor
Offset Ratcheting Driver Set	1	YA487	BX 4 FLR
Mag Base Dial Indicator	1	GA3645	GUIDE CAB
Tire Infaltor w/Gauge	4	YA258	Mech floor
3/8" 6 pt. Impact Standard Socket Set	1	212IMFY	mechroom wa
3/8" 6 pt. Impact Deep Socket Set	1	212SIMFY	mechroom wa
1/2" 6pt Impact Standard Socket Set	1	320IMY	mechroom wa
1/2" 6 pt Impact Deep Socket Set	1	320SIMY	mechroom wa
3/4" 6 pt Drive deep well impact socket set	2	420SIMY	mechroom wa
3/4" 6 pt Shallow Thin Wall Socket Set	2	422IMFSY	mechroom wa
3/4" 6 pt. Drive impact socket set	2	427IMY	mechroom wa
3/8" Drive Torque Wrench 40-200inch Ib	1	QC2R200	MRA3
1/2" Drive Crows Foot Set	1	314SCO	MRB2
1/2" Spline Socket Torque Adapter	1	SRES306	MRB2
Spline Wrench Set (7/32"-1")	1	XDES608A	MRB2
Valve Stem Core Removcal Tool	2	TR1170	MRC2
3" Cut Off Saw	1	AT15	MRC3
1/4" Drive Impact ratchet	2	AT200D	MRC3
1/2" Drive impact gun	2	AT500E	MRC3
3/8" Drive impact ratchet	2	AT700E	MRC3
3/8" Right Angle Air Drill	1	AT81	MRC3
3/8" Drive impact gun	2	IM31	MRC3
3/8" Air Drill	1	PDR3A	MRC3
Screw Starter Flat Tip	2	SSM5A	MY CAB
Torque Multiplier	1	GA184A	PIN TOOL BX
General Purpose Puller Set	1	CJ2000SB	STORE WALL
3/4" 12 pt Standard Socket Set	2	414AHD	U100
Ratcheting Bit Set	1	CRA180PV	U101
6" Divider	1	PMF129	U102
1/4" Drive Torque Wrench 40-200inch Ib	1	QC1R200	U102
Punch and Chiesel Holder	2	PPC5A	U102, MRA3
1/4" Drive Torque Wrench 10-50inch Ib	2	QC1R50	U102, U107
6 Piece Long Roll Pin Set	2	PPCL60AK	U103
12 Piece Rool Pin Set	2	PPR712K	U103
Retaining Ring Plier Set	1	PRO625	U108
Hole Punch Set	1	PGH8A	U108
3/8" Drive Torque Wrench 20-1 OOf t Ib	2	QC2R100	U108, MRA3
1/2" Drive Torque Wrench 50-250ft Ib	2	QC3R250	U117
3/4" Drive Torque Wrench 120-600ft Ib	2	QC4R600A	U117, MRA3
Rivet insert kit, Threadsetter Set	1	HP650	U118
Cotter Pin Pullers	4	CP3B	V103

**Appendix E-2: Tools, and Equipment List**

Item	Qty	Part No.	Location
Safety Wire Pliers	2	WTRW6	V106
Safety Wire Pliers	2	WTRW9	V106
Thermometer	4	ACT83	V116
Bent Feeler Gauge Set	2	FB300A	V116.BX4FLR
Pneumatic Orbital Sander	1	PSF100	V118
Air Nibbler	1	AT18	V118
3/4" Drive impact gun	2	AT77	V123.MRC3
Carbon Scrapper Set	2	CSA300	
Feeler Gauge Set	2	FBL325A	BX 4 FLR
Stick Style Tire Pressure Gauges	2	GA246	V113
Screw Starter Phillips Tip	2	GA260A	BX 4 FLR
Tread Depth Gauge	2	GA599	
3/4" Drive Breaker Bar	1	L872RM	
Scrapper Set	2	PK500	
1/8"-1/2" Reamer	2	R120	PEG DRAW
1/2"-1" Reamer	2	R121	PEG DRAW
Refrigeration Wrench	2	R404	
1/2" Drive Long Handle Ratchet	2	SL832	MRA3
Xantrex Power Supply, model # XDL56-4P	1		JEFF
RAD Torque Machine, model RAD.550SL	1		shop floor
Micro-Ohmmeter, model# LOM-510A	1		JEFF
Vericom Brake rate Tester	1		Eric
Tyco Electronics Die Crimp# 2 for large Crimper	1		shop floor
QC2FR75 TORQUE WRENCHES	3	QC2FR75	2 on U112, 1 MRA3
Sandyjet Abrasive Sand Blaster	1		3RD FLOOR
Genie Lift Truck,	2		3RD FLOOR Bay 2
Alcatel Vacuum Pump	2		back wall
12 FT extension Ladders	2		Bay 2 bot level
Louisville Ladder /ramp	1		Bay 2 bot level
6' Fiberglass Ladder, 6JJ82	1	6JJ82	Bay 2 bot level
28 ' Ladder 3W140	2	3W140	Bay 2 bot level
MRV Fuel Tank	1		Bay 5
12' Cotterman Ladder	1		bay 5
4 ' Cotterman Ladder	1		bay 5
Microair Vacuum System	1		bay 5
Tractmax hepa Vacuum	1		bay 5
Wesco Lift Dolly, DPL-54-2222	1	DPL-54-2222	Bay 5
Rolling Bin Carts	1		Bay 5
Lincoln electronic meter assy, quarts, 6WB36	1	6WB36	Bay 5
Ridgid KJ-99 Jack Stands	2	KJ-99	bay 5
3/4 ton Wheel Dolly ATD-7227	1	ATD-7227	Bottom Floor
Wire Spool Spindle Rack	1		Bottom Floor
Pipe Rack	1		Bottom Floor
Yellow containment Drums 55 gallon	4		Bottom Floor
Black 4 way special pallets	1		Bottom Floor
Yellow Battery Containment pallet	1		Bottom Floor
Orange Pallet Grabber	1		Bottom Floor
8 FT Loading Ramp walkway	1		Bottom Floor
Speed Scrub 2601 Power Floor Cleaner	1	2601	Bottom Floor
Saber WINDSOR Floor Cleaner	1		Bottom Floor
Large Capacity Plastic Liquid storage Tank	1		Bottom Floor
Yellow Lift cage for Forklift	1		Bottom Floor
Ridgid Tristand 1/8 to 6 n460	1	n460	Bottom Floor 2nd Isle
Yamaha 4D4600 Gas Generator	1	4D4600	Bottom floor 2nd Isle Back
36" floor Fans Qty 3 used fair	4		Bottom floor 2nd isle back
Uline Hand Stretch wrapper Model h-88	3	h-88	Bottom Floor 1st Isle Back
Programmable Logic Controller, plc guide switch	1		Electronic Room
Ridgid Battery operated Sawsall	1		Electronic Room

**Appendix E-2: Tools, and Equipment List**

Item	Qty	Part No	Location
Portable Scunsi Steam machine	1		Electronic Room
SPECTOLINE EPROM Eraser	1		LB
Streppel Glasfaser 110 vac	1		LIB
Dewalt Cordless rt angle drill kit, DW960	1	DW960	LIB
Ridgid cordless rt angle drill, R82233	1	R82233	LIB
Amp Crimper, 59824-1	1	59824-1	LIB
AF8 VEAM CRIMPER	1		LIB
Pyle National crimping tool kit	1		LIB
Litton Veam Connector assy kit dmc2	2	dmc2	LIB
RYCOM 3111A Selective Voltmeter, QTY 2	2	3111A	LIB, T129
Tektronix P5200 HIGH VOLTAGE Probe	1	P5200	LIB
Mitoyo Caliper 505-705	1	505-705	LIB
MITOYO CALIPER 2904F	1	2904F	LIB
Dial Indicator, chicago dial	1		LIB
AMP Crimper f0026	1	f0026	LIB
AWS PSI- 8031 Indicator	1	PSI- 8031	LIB
Burndy HYTOOL M8ND Crimper	1	M8ND	LIB
Fluke Current Transformer 801600a	1	801600a	LIB
Textronics probe, P6113B	1	P6113B	LIB
FLUKE 850/1300 FIBER OPTIC SOURCE	1	FLUKE 850/1300	LIB
Fluke 52 Thermometer	1	Fluke 52	LIB
FLUKE 87 MULTIMETER	1	FLUKE 87	LIB
FLUKE 77 MULTIMETERS	3	FLUKE 77	LIB
Sencore Capacitor inductor Analyzer lc76	1	lc76	LIB
Simpson Sound Meter System 886-2, type 2	1	886-2, type 2	LIB
NOYES MLP MULTIMODE LIGHT PACK	1		LIB
Anritzu Spectrum Analyzer mp 1550a	1	mp 1550a	LIB
General Radio capacitor decade Box	1		LIB
Yokogawa 2786 Decade Resistance Box	1	Yokogawa 2786	LIB
Proto Torque Wrench, 6006a 10-80 ft	1	6006a	LIB
proto Torque Wrench, 6003 PB 10-100 ft	1	6003 PB	LIB
Snap-on flex head torque Wrench TQFR250	1	TQFR250	LIB
MONARCH RPM GUN	1		LIB
SNAP-ON TORQUE QC1R50	1	QC1R50	LIB
SNAP-ON TORQUE QT1R50	2	QT1R50	LIB
SNAP-ON TORQUE WRENCH, QD1R50	1	QD1R50	LIB
SNAP-ON TORQUE WRENCH, QC1200	1	QC1200	LIB
PROTO TORQUE WRENCH 6062A	1	6062A	LIB
GRAPHTEC Thermal array Chart Recorder, WR	1	WR 8000	LIB
Snap-on QC5R1000 Torque Wrench	1	QC5R1000	LIB
Electro Physik Thickness Gauge, Minitest 600	1	Minitest 600	LIB
Tire Cage	1		Loading Dock
Skidmore Wilham Calibration Tool	1		Mechroom
Kar Products Hardware storage Cabinets	1		mechroom
Bird, Digital Power Meter, model 5000ex	1	5000ex	MECHROOM CAB
Battery tester 6/12/ volt	1		MECHROOM CAB
Guidewheel Assy Fixture, 6D55460G01	1	6D55460G01	MECHROOM FLOOR
QC3R250 TORQUE WRENCH	1	QC3R250	MRA3
Long QCR250 TORQUE WRENCH	1	QCR600A	MRA3
QCR600A Torque Wrench	1		MRA3
pneumatic Calking Gun	1		MRC4
Dayton Wet/dry Vacuum model # 1D456D	1	1D456D	PDS Room
Black Rolling Cart, 3 shelf Bretford	1		PDS Room
10 ft Ladder fiberglass Model # FS1510	1	FS1510	PDS Room
8 FT fiberglass ladder	1		Pds Room
Green flat Hand Cart 2 x 4	2		PDS Room, by spools
System Drawings, 1 Pallet,	1		SF1307
Extra Metal shelving units, 1 Pallet	1		SF1415

**Appendix E-2: Tools, and Equipment List**

Item	Qty	Part No.	Location
AQUAWORKS Parts Cleaning Machines	1		shop floor
2 shop fans 24"	1		shop floor
10' Ladder M7110-1 type 1A	1	M7110-1 type 1A	STOREROOM
Uline Banding Cart and tools	1		Storeroom
Forklift Extensions, 8 FT,	1	6XX16	Storeroom back wall
Fire Safety Cabinets	4		storeroom, Janitorial, BAY 5
Air Operated Calking gun 3M BP 480-85 MIX PAC	1	BP 480-85	Storreroom back shelf
Spectroline DC-3300A Eprom/waiver Eraser	1	DC-3300A	T126
Tektronix 314 storage Oscilloscope	1	Tektronix 314	T126
Astromed MT9500 Chart Recorder	1	MT9500	T128
HP 6274B DC Power Supply	1	HP 6274B	T128
Lambda LRA-17 Rack Power Supply	1		T128
Milwaukee Mag Drill,	1		Tool crib cage floor
Craftsman 150 psi 3 hp 4 gal air compressor	1		Tool crib cage floor
Portatorch, Lincoln	1		toolcrib floor
Dayton Battery Charge 40/2 amp	1		toolcrib floor
Battery powered grease gun, Lincoln	1		toolcrib floor
48 " Straight Edge	2		toolcrib wall
MEASURING DISTANCE WHEEL, Lufkin	1		top shelf toolcrib
BEX bluepoint BEX13 Bolt Extractor Set	1	BEX13	U113
LCD Vacuum Gauges	2	69070	U115
Freon Leak Detector	1		U115
Hydraulic Rivet Gun	1		U118
Hole saw Kit, Westward	1	4wx60	U118
Electric Winch3VJ64	1		U119
4 TON HYDRAULIC RAM SET	1		U119
Chain Hoist 3 ton	1		U119
Vari speed Jigsaw	1		U120
6" DIAL Calipers, nsk	1		U122
Starett Micrometer model	2	230p	U122,,MRA1
Hilti Hammer Drills	2	TE-6A	U125
HILti Hammer Drills	1	TE15	U125
Portable Variable band saw Milwaukee	1		U126
1/4" Die Grinder Milwaukee	1		U128
Greenlee Hydraulic Knockout Set 7506, 1/2 - 2"	1	7506	U130
Hilti Hammer Drill	1	TE-55	U130
David White auto level	1		U131
Tripod, David White mod 9045	1	9045	U131
Measuring stick, David White	1		U131
PLS-5 Lazar Level	1	PLS-5	U131
Audio Visual VOLTAGE Detector, Salisbury	1		U132
Mag Drill, Hougén rotor broach	1		U133
ULTRA -LOK self Ratcheting Lifeline & Harness	3		U134
Tie Downs	6	3kn70	U134
Cross Needle SWR and power meter	1	cn-1031	V101
Diode removal tool,	1	577B060H33	V103
Radius Rod Removal Tools	2		V103
Submersible Pump	4	5RV54	V119
Extech Lazer photo/contact Tachometer	1		V122
Transfer Pump	1	6Y881	V125
Dewalt Grinder 4 1/2 "	1		V128
Special Seismic tool Measuring Kits	2		V129
Complete Mechanics tool Sets with tool box	46		shop floor
(SFO Owned) Toyota Sitdown Forklift, Propane op.	1		1st Floor
Fluke 179 multimeter	1		JROW
OUTDOOR STORAGE SHED	1		BY CARWASH
OIL HEATER	1		CONFERENCE ROOM
Honda Generator	1		Bay 2

**Appendix E-2: Tools, and Equipment List**

<b>Item</b>	<b>Qty</b>	<b>Part No.</b>	<b>Location</b>
Carpet Loader Attachment for Forklift	1		bottom floor
UTICA, ts-100 Torque limit Screwdriver, mc	1	8554a25	victor
MCARR Digital torque wrench,	1	CD2250A	VICTOR
McCarr Digital torque wrench,	1	CD280fr	victor
McCarr proto Hex Bit Ball Set 7 pc	1		Victor
AMP PRO CRIMPER,	2	90869-1	VICTOR
AMP EXTRACTION TOOLS,	2	318831-1	VICTOR
Daniels SAAFE T Cable tool,	1	SCT323	ERIC
UNION SWITCH RELAY TEST STAND,	1	PN150	ALFREDO
UNION SWITCH RELAY TEST STAND, GRS B1	1		ALFREDO
Xantrex Power Supply, model # XDL56-4P	1		JEFF
RAD Torque Machine, model RAD 550SL	1		shop floor
Micro-Ohmmeter, model# LOM-510A	1		JEFF
Vericom Brake rate Tester	1		Eric
Tyco Electronics Die Crimp# 2 for large Crimper	1		shop floor



## Appendix G

### Task 5: AirTrain Vehicle Tri-Handle Stanchion Replacement

#### General Project Scope:

Contractor will provide all material, labor, tools, engineering, vehicle drawing updates/configuration management associated with the supply and installation of 190 new tri-handle stanchion assemblies into the AirTrain vehicles at the San Francisco International Airport.

#### Installation:

Currently each vehicle is outfitted with five (5), single pole stanchions along the center line of the vehicle and two (2) stanchions that are offset near the door opening. To increase the number of locations within the center portion of the vehicle that passengers can hold themselves steady during vehicle movement, Contractor will replace the five (5), single pole, center-line stanchions with tri-handle stanchions. Replacement of the single stanchion design with a tri-handle stanchion design will improve passenger experience on the AirTrain system and increase the safety level inside the vehicle while traversing the system.

Retrofits will be performed during normal station door maintenance inspections and will not impact normal AirTrain operations.

#### Final Acceptance:

The following will be performed to verify final acceptance:

- Once units arrive on site, a quality assurance inspection will be performed prior to installation.
- After QA inspection, the installation of each unit will begin. Installation process will be inspected to confirm proper mounting.
- Contractor to ensure any debris from project has been removed from all areas upon completion of job.

#### Warranty

Each unit will carry a standard warranty of 1 year on all parts from date of purchase.

#### Cost of Project:

The firm fixed price for the combined scope as described is broken down as follows:

• Contractor Labor Charges – Includes:	\$56,280.00
o Project Management	
o Engineering	
o Configuration Management	
o Drafting	
o Installation (38 Vehicles)	
• Qty (190) – Tri-Handle Stanchion Post @ \$875.85/ea.:	\$166,411.50
• Qty (190) – Bottom Plate @ \$138.25/ea.:	\$26,267.50
• Qty (185) – Trim Ring @ \$69.68/ea.:	\$12,890.80
• Miscellaneous installation hardware and adhesives:	\$5,967.38
• CA Sales Tax on Materials (8.75%):	\$18,509.50
• <u>Material Shipping:</u>	<u>\$5,332.70</u>
<b>TOTAL:</b>	<b>\$291,659.38</b>

## Appendix G

### Task 5: AirTrain Vehicle Tri-Handle Stanchion Replacement

**Payment Terms:** The following payment schedule is proposed for this project:

- 15% of order value to be invoiced upon receipt of authorized notice to proceed
- 10% of order value to be invoiced upon completion of material order
- 25% of order value to be invoiced upon 1st car installation and acceptance by the customer
- 25% of order value to be invoiced upon delivery of remaining material to SFO
- 25% of order value to be invoiced upon completion and testing of all units

## Appendix G

### Task 6: AirTrain Station Door Auto-Lock Replacement

#### General Project Scope:

This project will replace 122 automatic station door auto-lock assemblies located at the various AirTrain stations. The project scope includes the following:

- Contractor will provide all necessary project management, engineering, drafting and material supply for retrofitting one hundred and twenty-two (122) station doors plus four (4) spare Auto-Lock systems and a complete Spare Parts kit.
- Contractor SDC Staff will be responsible for installation and testing of the new auto-lock equipment, on a schedule to be mutually agreed to by SFO and Contractor.

#### Installation:

Retrofits will be performed during normal overnight shutdown periods recognizing that installation and testing activities, whenever possible, must not impact normal AirTrain operations.

#### Final Acceptance:

The following will be performed to verify final acceptance:

- Once units arrive on site a quality assurance inspection will be performed prior to installation.
- After QA inspection the installation of each unit will begin. Installation process will be inspected to confirm proper mounting.
- A final test of each unit will be performed after installation to ensure secure close and lock is achieved.
- Contractor to ensure any debris from project has been removed from all areas upon completion of job.

#### Warranty:

Each unit will carry a standard warranty of 1 year on all parts from date of purchase.

#### Cost of Project:

The firm fixed price for the Auto-Lock retrofit is as follows:

• Bombardier Labor Charges – Includes:	\$27,560.00
o Project Management & Scheduling	
o Engineering	
o Planning	
o CADD/Drafting	
o Installation (126 assemblies)	
• Qty (126) – Auto-Lock Assemblies @ \$1,264.65/ea:	\$159,345.90
• Qty (1) – Set of Alignment Tools:	\$1,030.54
• Qty (1) – Spare Parts Kit:	\$3,727.59
• CA Sales Tax on Materials (8.75%):	\$14,259.10
• Freight:	\$4,137.05
• <u>Optional Services (on-site training, calibration of tooling, etc.):</u>	<u>\$3,795.00</u>
<b>TOTAL:</b>	<b>\$213,953.93</b>

## Appendix G

### Task 6: AirTrain Station Door Auto-Lock Replacement

#### Payment Terms:

- 15% of order value to be invoiced upon receipt of authorized notice to proceed
- 10% of order value to be invoiced upon completion of material order
- 25% of order value to be invoiced upon 1st station door installation and acceptance
- 25% of order value to be invoiced upon delivery of remaining material to SFO
- 25% of order value to be invoiced upon completion and testing of all units

**City and County of San Francisco  
Airport Commission  
P.O. Box 8097  
San Francisco, California 94128**

**Modification No. 2**

THIS MODIFICATION (this "Modification") is made as of May 20, 2014, in San Francisco, California, by and between **Bombardier Transportation (Holdings) USA Inc.** ("Contractor"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Airport Commission or the Commission's designated agent, hereinafter referred to as "**Commission.**"

RECITALS

WHEREAS, City and Contractor have entered into the Agreement (as defined below); and

WHEREAS, City and Contractor desire to amend the Agreement on the terms and conditions set forth herein to address the replacement of obsolete equipment; and

WHEREAS, the Commission awarded this contract to Contractor on September 16, 2008, pursuant to an agreement to settle a dispute among the City and County of San Francisco, Bombardier Transportation (Holdings) USA, Inc., and Factory Mutual Insurance Company which was filed in the United States District Court for the Northern District of California, case number C 04-5307 PJH, and further pursuant to Resolution No. 08-0173; and

WHEREAS, pursuant to San Francisco Charter Section 9.118, the Board of Supervisors by its Resolution No. 266-08, adopted November 18, 2008, approved the contract to Contractor; and

WHEREAS, Commission approved Modification No. 1 pursuant to Resolution No. 13-0156 on July 23, 2013; and

WHEREAS, pursuant to San Francisco Charter Section 9.118, the Board of Supervisors by its Resolution No. 0429-13, adopted December 10, 2013, approved the modification to the Agreement; and

WHEREAS, Commission approved this Modification No. 2 pursuant to Resolution No. 14-0104 on May 20, 2014; and

WHEREAS, pursuant to San Francisco Charter Section 9.118, the Board of Supervisors by its Resolution No. 328-14, adopted September 9, 2014, approved the modification to the Agreement but reduced the not to exceed amount by \$4,340 for a new not-to-exceed amount of \$100,543,834; and

NOW, THEREFORE, Contractor and the City agree as follows:

1. **Definitions.** The following definitions shall apply to this Amendment:

a. **Agreement.** The term "Agreement" shall mean the Agreement dated September 16, 2008 between Contractor and City, as amended by the:

Modification No. 1, dated August 1, 2013.

**b. Other Terms.** Terms used and not defined in this Modification shall have the meanings assigned to such terms in the Agreement.

2. **Section 4. Services Contractor Agrees to Perform** of the Agreement is amended to address the replacement of obsolete equipment as detailed in the New Appendix G, Tasks 1-4.

3. **Section 5. Compensation** is hereby amended to increase the total compensation payable by an amount not to exceed One Million Eight Hundred Forty Three Thousand Eight Hundred Thirty Four Dollars (1,843,834) for a new total not to exceed amount of One Hundred Million Five Hundred Forty Three Thousand Eight Hundred Thirty Four Dollars (100,543,834).

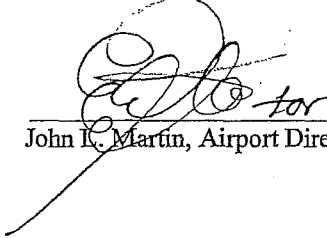
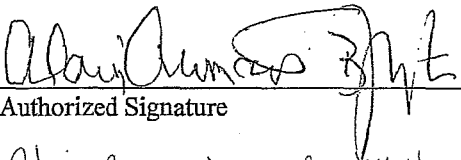
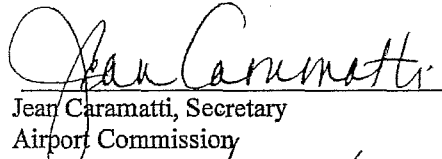
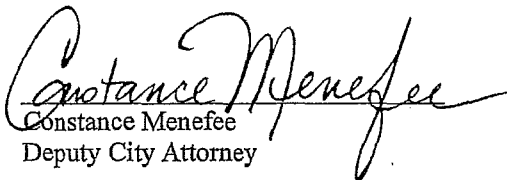
4. **Appendix E. Spare Parts, Tools, and Equipment List** is hereby replaced in its entirety with the new Appendix E-1.

5. **New Appendix G. Appendix G** is hereby added to the Agreement to address replacement of obsolete equipment covered under the contract. Performance of the Tasks in Appendix G is subject to mutually agreeable terms and conditions, which shall be established prior to the start of each task.

6. **Effective Date.** Each of the modifications set forth in Section 2 shall be effective on and after May 20, 2014.

7. **Legal Effect.** Except as expressly modified by this Modification, all of the terms and conditions of the Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, Contractor and City have executed this Amendment as of the date first referenced above.

CITY	CONTRACTOR
AIRPORT COMMISSION CITY AND COUNTY OF SAN FRANCISCO	
By:  John L. Martin, Airport Director	 Authorized Signature Alain Aumais B Jill Hampton Printed Name
Attest:	
By:  Jean Caramatti, Secretary Airport Commission	VP VP Title Bombardier Transportation (Holdings) USA Inc. Company Name
Resolution No: 14-0104	40554 City Vendor Number
Adopted on: May 19, 2014	1501 Lebanon Church Road Address
Approved as to Form:	Pittsburgh, PA 15236 City, State, ZIP
Dennis J. Herrera City Attorney	(412) 655-5700 Telephone Number
By:  Constance Menefee Deputy City Attorney	25-1579550 Federal Employer ID Number

## Appendix G

### Task 2: AirTrain UPS Replacement

#### General Project Scope

Contractor will replace 128 light-emitting diode (LED) signs currently used at all AirTrain stations with 46' liquid-crystal display (LCD) monitors using existing support beams and infrastructure.

The LCD sign replacements shall be fully compatible with the current RS-422 serial network. The signs shall be fully addressable and controlled by the Bombardier supplied Computer Interface Control System (CICS) already installed.

The signs shall be mounted to the existing support beams at each AirTrain station using off-the-shelf mounting hardware and in a fashion that allows for easy replacement. The signs shall operate fully on the existing signal and power wiring. Contractor shall perform over-site of all phases of the installation.

#### Mechanical

Contractor will replace the current double-sided LED signs with two single sided 46" LCD signs. Both signs must be identical; they must be configured with the same RS-422 address and content look-up table currently used by the Bombardier CICS in order to display identical content.

- LCD: 46"
- Resolution: 1920 X 1080
- Brightness: 700 Nits
- Weight: 35KG

#### Electrical Components

- RS422-to-RS232 Serial Adapter with daisy chain out and surge suppression.
- 120/240VAC Power Supply with standard 3-prong AC Plug input, IEC-320-C14.  
Power consumption: -120W per display

#### Software Requirements

Contractor will load each unit with customizable VideoPoster-111 firmware running on Windows based software, which is required to generate the content and playlists for the retrofit signs. The playlist will be a "bit map (BMP)-trigger content lookup table". The software will allow the user to generate a playlist and specify a specific file in the playlist using a BMP-trigger. This playlist and a BMP-trigger data will be uploaded to the VideoPoster-111 via USB flash drive.

#### Installation

The following will be done at each display location:

- Remove existing LED sign, disconnect AC power, and remove two support tubes from bottom of 8" x 4" horizontal support arm.
- Install AC junction box to bottom of support arm
- Install Peerless SLT646 mount to each side of support arm using (4) Hillman W' Strap-toggles per mount.
- Displays will be located as high as possible off the floor.
- AC for displays will be hardwired in the AC junction box.
- Connect data cable.



## Appendix G

### Task 2: AirTrain UPS Replacement

- Old LED signs will be removed from each station.

**Final Acceptance:**

The following will be performed to verify final acceptance:

- Upon final completion of software design the contractor will provide one complete LCD sign unit to the SFO site for demonstration purposes.
- Demonstration unit must be operating on final design software.
- Demonstration unit will be connected to the sign controller to verify proper functionality.
- Demonstration unit must fully recognize and properly display both automated and operator generated text from CICS sign controller.
- Demonstration sign will operate continuously without failure for 14 days to verify software design.
- Upon completion and approval from AirTrain management of the above functions contractor will proceed with manufacturing all units.
- Once units arrive on site a quality assurance inspection will be performed prior to installation.
- After QA inspection the installation of each unit can begin. Installation process will be inspected to confirm proper mounting.
- A final test of each unit will be performed after installation to ensure communication with existing sign controller.
- Contractor to ensure any debris from project has been removed from all areas upon completion of job.

**Warranty**

Each unit will carry a standard warranty of 1 year on all parts from date of purchase.

**Task Cost**

Software Engineering and Development	\$48,000
Mechanical Design of Enclosure	\$7,500
On Site Demonstration - LCD and controller to confirm functionality	\$2,000
Complete two LCD set with controller and enclosure for Demonstration (material)	\$10,000
128 units plus 4 spares (material)	\$357,600
CA Sales Tax- 8.75% on material only	\$32,165
FCC Certification Testing	\$5,000
Installation labor and LCD mounting hardware	\$70,000
Onsite training and commissioning	\$8,000
Shipping of material to site	\$5,000
Develop Graphic Content – Illium Co.	\$25,000
Bombardier Project Management Fee (15%)	\$80,715
CA Sales tax - 8.75% on Mark-up	\$7,063
<b>Total Task 1 Cost</b>	<b>\$658,043</b>

## Appendix G

### Task 2: AirTrain UPS Replacement

#### General Project Scope

Contractor will replace 13 obsolete UPS units used to supply back-up power to vital AirTrain equipment. UPS locations and sizes are as follow:

Location	Equipment Description	Manufacturer	Model
Bldg. 679 PDS	10kVA IPM UPS	IPM	BPII-30-2020
Bldg. 679 PDS	10kVA IPM UPS	IPM	BPII-10-2020
Lot C	20kVA IPM UPS	IPM	BPII-10-2020
Bldg. 679 Control Center	20kVA IPM UPS	IPM	BPII-25-2020
Westfield Road	10kVA IPM UPS	IPM	BPII-25-2020
Int. Garage - A	10kVA IPM UPS	IPM	BPII-30-2020
Int. Terminal - A	10kVA IPM UPS	IPM	BPII-25-2020
Rental Car Center	20kVA IPM UPS	IPM	BPII-25-2020
Terminal - 1 Garage	10kVA IPM UPS	IPM	BPII-25-2020
Terminal - 2 Garage	10kVA IPM UPS	IPM	BPII-25-2020
Terminal - 3 Garage	10kVA IPM UPS	IPM	BPII-25-2020
Int. Terminal - G	10kVA IPM UPS	IPM	BPII-25-2020
Int. Garage - G	10kVA IPM UPS	IPM	BPII-25-2020

The UPS replacements shall be fully compatible with current power and network requirements. The UPS shall be able to communicate current operating and alarm conditions to the Bombardier supplied Computer Interface Control System (CICS). The UPS units shall have maintenance by-pass switches allowing complete bypass of each unit for maintenance purposes. Under a loss of input power condition, each UPS unit shall have the ability to supply power to all connected equipment for a minimum of 120 minutes.

The UPS units shall be mounted onto existing maintenance pads using standard hardware. UPS unit shall operate using existing power input voltage and existing communication wiring. Contractor shall perform oversight of all phases of the installation.

#### Technical Specifications

Contractor shall properly mount each UPS unit onto existing maintenance pad provided at each location. Each unit shall utilize maintenance free batteries and have adequate ventilation to keep batteries at proper operating temperatures. Each UPS units shall meet the following criteria:

- Efficiency – better than 90% at full load and 85% at half load.
- Be Field Upgradable
- Inverter/Rectifier – Transformer Free IGBT with PWM
- Audible Noise – Less than 50db
- Battery – Maintenance free with external battery cabinet
- Charging Method – ABM Technology
- Integrated maintenance bypass switch
- Comply with the following standards – IEC 6204-1, IEC 60950-1, IEC 62040-2, IEC 62040-3
- X Slot – 2 Communication Bays
- Serial Ports – 1

## Appendix G

### Task 2: AirTrain UPS Replacement

- Relay Input/output Ports – 2 programmable

#### Electrical Components

- Input wiring – 3phase
- Input Voltage – 208/380 at 50.60hz configurable
- Frequency – 45–60HZ
- Input THD – Less than 45%
- Soft Start Capability
- Internal Back-up Protection
- Output wiring – 3phase
- Output Voltage – 208/380 at 50/60hz

#### Installation

At each UPS location, Contractor will:

- Re-configure power around existing UPS units to allow the AirTrain system continued operation without interruption while UPS unit is being replaced.
- Remove existing UPS units and all batteries.
- Install new UPS unit onto existing maintenance pads.
- Install maintenance bypass switch
- Test each unit to confirm communication with CICS.
- Load test unit battery operation to confirm 120 minute run time
- Remove old UPS unit and batteries from site.

#### Final Acceptance:

The following will be performed to verify proper function of each UPS unit.

- Inspect each UPS unit to verify all technical specifications have been met.
- Inspect each unit to confirm build quality:
- Inspect each unit for proper mounting to existing maintenance pad.
- Inspect each units wiring for proper termination upon final connection.
- Test each unit under full load conditions to verify it meets the 120 minute run time requirement.
- Test each unit to ensure proper transmission of operating status and alarm conditions to control center.
- Verify proper disposal of all old UPS units and all batteries.

#### Warranty:

Each unit will carry the following on-site warranty: 90 days labor and 1 year parts from date of purchase.

**Appendix G**

**Task 2: AirTrain UPS Replacement**

**Cost of Project**

Item	Qty	Description	Unit	Price
1	3	Eaton 9355 Powerware Series 20kVA/18kW 3-Phase UPS System with Internal Batteries, 18 Minute Runtime At Full Load, Input/Output 208V/208V, Unit Is Scalable To 30kVA with Connect UPS-X Web/SNMP Card Part #KB201310000010. For locations, Lot C, Bldg. 679 Control Center and Rental Car Center	\$15,300	\$45,900
2	6	9355 20kVA 4 String Line & Match Extended Battery Cabinet and Batteries. Two EBC72's Per UPS In Addition To Internal Batteries Will Achieve 114 Minutes Of Run Time At Full Load Part#103004868. For locations, Lot C, Bldg. 679 Control Center and Rental Car Center	\$8,999	\$53,994
3	10	Eaton 9355 Powerware Series 10kVA/9kW 3-Phase UPS System With Internal Batteries, 8 Minute Runtime At Full Load, Input/Output 208V/208V, Unit Is Scalable To 15kVA With Connect UPS-X Web/SNMP Card Part#KA101110000010. For Locations Bldg. 679 PDS, Bldg. 679 PDS, Westfield Road, Int., Garage - A, Int. Terminal A, Terminal 1 Garage, Terminal 2 Garage, Terminal - 3 Garage, Int. Terminal - G, Int. Garage - G	\$10,271	\$102,710
4	20	9355 10kVA 2-High Line & Match Extended Battery Module And Batteries. Two EBM96's Per UPS In Addition To Internal Batteries Will Achieve 124 Minutes Of Run Time At Full Load Part #103004193-5501. For Locations Bldg. 679 PDS, Bldg. 679 PDS, Westfield Road, Int. Garage - A, Int. Terminal A, Terminal 1 Garage, Terminal 2 Garage, Terminal - 3 Garage, Int. Terminal - G, Int. Garage - G	\$5,849	\$116,980
5	13	Maintenance Bypass Panels For PW9355 10kVA And 20kVA	\$1,648	\$21,424
6	13	Remove Old UPS Systems, Batteries and Battery Rack	\$1,879	\$24,427
7	1	Three Phase 480 to 208 30kVA Transformer For 20kVA UPS At Lot C	\$1,947	\$1,947
8	13	Labor - UPS Electrical Installation. This includes work that can be completed during regular business hours as well as work performed after hours. Also includes all electrical materials. Current electrical box attached to lower back of existing UPS units will be used and properly installed to the existing pad as an Input/Output box.	\$3,900	\$50,700

**Appendix G**

**Task 2: AirTrain UPS Replacement**

Item	Qty	Description	Unit	Price
9	13	Factory Startup & 1-Year Warranty (During Regular Business Hours)	-	Included
10	1	Freight (Cost Based On Complete Shipment – No Split Shipments)	-	\$9,992
11	1	Labor - Removal from Site and proper Disposal of UPS units and all batteries	-	\$12,000
12	1	CA Sales Tax on material at 8.75%	-	\$32,146
13	1	Project Management – Bombardier (15%)	-	\$66,011
14	1	CA Sales tax - 8.75% on Mark-up	-	\$5,776
		<b>Total Task 2 Cost</b>		<b>\$544,007</b>

## Appendix G

### Task 3: AirTrain Vehicle Flooring Replacement

#### General Project Scope

Contractor will replace worn flooring in all 38 AirTrain vehicles. Contractor shall use the following product for all vehicles:

- **Dura-Tile LT-50**, Manufactured by the Pawling Corporation
- **Height:** 3/8" (+1/8"-0")
- **Size:** 12" x 12" tiles
- **Installation:** Glue-down using waterproof marine based glue
- **Material:** 100% Recycled Rubber
- **Color:** Blue
- **Construction:** Rugged tire cord bonded to fiberglass backing
- **Static Coefficient of Friction Ratio:** Dry 0.67, Wet 0.89 (ASTM D-2047)
- **Flammability:** Exceeds (FF-1-70) flammability rating

#### Installation

Contractor will perform the following on each vehicle:

- Demolition and disposal of existing flooring and upholstery material (recycle where possible).
- Clean and prepare floor for new material.
- Installation of 270 Sqft of 12" X 12" LT-50 carpet tiles per vehicle.
- Replace existing carpet on both end compartments with customer supplied carpet.
- Quotation based on the availability of two (2) vehicles at a time.

#### Final Acceptance

- Each vehicle will be inspected by AirTrain manager to ensure installation quality prior to vehicle being released from the shop.

#### Warranty

Each vehicle will carry the following on-site warranty: 90 days labor and 1 year on material from date of purchase.

#### Task Cost

AirTrain Flooring Installation x 38 Vehicles (Includes Freight)	\$166,585
CA Sales Tax- 8.75% on Material	\$14,576
Labor to Remove and Install Flooring	\$111,430
Labor to Install Side Wainscoting	\$17,100
Bombardier Project Management Fee (10%)	\$29,511
CA Sales tax - 8.75% on Mark-up	\$2,582
<b>Total Task 3 Cost</b>	<b>\$341,784</b>

## Appendix G

### Task 4: Replacement of Worn or Obsolete Equipment

#### Scope

As indicated in Appendix B General Requirements, 7.0 Repair and Replacement of Parts, Components or Materials, Contractor when necessary will replace parts, components, or materials associated with the operation and maintenance of the AirTrain that have either become worn beyond repair or obsolete and can no longer be serviced.

#### Total Task 4 Cost

Contractor shall promptly repair or replace the equipment at a not-to-exceed cost of \$300,000 over the three-year contract term.

City and County of San Francisco  
Airport Commission  
P.O. Box 8097  
San Francisco, California 94128

Agreement between the City and County of San Francisco and  
Bombardier Transportation (Holdings) USA Inc.

Contract No. 8838

This Agreement is made this 16th day of September, 2008, in the City and County of San Francisco, State of California, by and between: **Bombardier Transportation (Holdings) USA Inc., 1501 Lebanon Church Road, Pittsburgh, PA 15236**, hereinafter referred to as "Contractor," and the City and County of San Francisco, a municipal corporation, hereinafter referred to as "City," acting by and through its Airport Commission or the Commission's designated agent, hereinafter referred to as "Commission."

Recitals

WHEREAS, Commission wishes to enter into a contract with the Contractor to provide operation and maintenance services for the AirTrain system; and,

WHEREAS, Commission is authorized to enter into all contracts which relate to matters under its jurisdiction; and

WHEREAS, Commission awarded this contract to Contractor on **September 16, 2008**, pursuant to an agreement to settle a dispute among the City and County of San Francisco, Bombardier Transportation (Holdings) USA, Inc., and Factory Mutual Insurance Company which was filed in the United States District Court for the Northern District of California, case number C 04-5307 PJH, and further pursuant to Resolution No. 08-0173; and

WHEREAS, Approval for said Agreement was obtained from the Board of Supervisors pursuant to Resolution ~~INSERT RESOLUTION NUMBER~~ on ~~INSERT DATE~~; and  
*ORDINANCE No. 266-08 on November 25, 2008*

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

Now, THEREFORE, the parties agree as follows:

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

- A. 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 the City's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization.



- B. This Agreement will terminate without penalty, liability, or expense of any kind to the 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.
- C. The City has no obligation to make appropriations for this Agreement in lieu of appropriations for new or other agreements. The City budget decisions are subject to the discretion of the Mayor and the Board of Supervisors. The 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

- A. Subject to Section 1, the term of this Agreement shall begin upon the Airport's provision of a notice to proceed and shall continue for a period of five (5) years beginning March 1, 2009, unless terminated sooner as provided in Article 21, Termination for Convenience of this Agreement.
- B. At the end of the initial five (5)-year term, as identified above, the Airport will extend the contract for an additional three (3)-year term, provided the Contractor meets all contractual obligations under the Contract and the following performance criteria measured ninety (90) days prior to the end of the current contract term: (i) averaged system availability rating of ninety-nine and one-half percent (99.5%) or higher for the prior twelve (12) month period, (ii) verification that all Airport owned spares, tools and equipment, as identified in "Appendix E - Spares, Tools, and Equipment" and as amended from time to time during the active term of the Contract, is accounted for and in good working condition, (iii) training certifications are up-to-date for appropriate Contractor's staff, and (iv) the preventative maintenance program meets or exceeds the requirements as stated in "Appendix A, Section B.5 - Adherence to Maintenance Schedule."
- C. If the Contractor fails to meet the above criteria, the Airport shall have the option, at its sole discretion, to either extend, modify or terminate the Contract by giving written notice thereof to the Contractor at least ninety (90) days prior to the end of the original or extended term.
- D. Further, at the end of the three (3) year term the Airport reserves the right to extend the contract for two (2) additional option years. The Airport also reserves the right to re-negotiate the contract terms, by reducing in whole or in part the Contractor's scope of services. The Airport will provide the Contractor with written notice of intent to extend and/or re-negotiate the contract terms at least one-hundred and eighty (180) days prior to the start of each option year.
- E. The prices to be paid for each yearly extension shall be those included in the Contractor's Contract Price Proposal, for this Agreement, escalated according to Section 4.1 - Economic Price Adjustment of the General Conditions attached hereto, or as amended by any change orders.

**3. Effective Date of Agreement**

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

**4. Services Contractor Agrees to Perform**

The Contractor agrees to perform the services provided for in the General Requirements and Appendix A, Services to be Provided by the Contractor attached hereto and incorporated by reference as though fully set forth herein.

**5. Compensation**

- A. Compensation shall be made in accordance with the terms and conditions set forth in Article 4.3 of the General Requirements. In no event shall the amount of this Agreement exceed Fifty-six Million Five Hundred Thousand Dollars (\$56,500,000), except as modified pursuant to the terms of this Agreement. The breakdown of costs associated with this Agreement appears in Appendix B , "Calculation of Charges/Determination of Monthly Payments," attached hereto and incorporated by reference as though fully set forth herein.
- B. No charges shall be incurred under this Agreement nor shall any payments become due to the Contractor until reports, services, or both, required under this Agreement are received from Contractor and approved by the AirTrain Manager as being in accordance with this Agreement. The 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.
- C. The Controller is not authorized to pay invoices submitted by the Contractor prior to the Contractor's submission of HRC Progress Payment Form. If the Progress Payment Form is not submitted with the Contractor's invoice, the Controller will notify the department, the Director of HRC and the Contractor of the omission. If the Contractor's failure to provide HRC Progress Payment Form is not explained to the Controller's satisfaction, the Controller will withhold twenty percent (20%) of the payment due pursuant to that invoice until the HRC Progress Payment Form is provided.
- D. Following the City's payment of an invoice, the Contractor has ten (10) days to file an affidavit using the HRC Payment Affidavit verifying that all subcontractors have been paid and specifying the amount.

**6. Guaranteed Maximum Costs**

- A. 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.
- B. 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.

- C. 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.
- D. 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**

- A. Invoices furnished by the Contractor under this Agreement must be in a form acceptable to the Controller, and must include a unique invoice number. All amounts paid by the City to the Contractor shall be subject to audit by the City.
- B. Payment shall be made by the City to the Contractor at the address specified in the section entitled "Notices to the Parties."

**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 (3) 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 Ten Thousand Dollars (\$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: (i) knowingly presents or causes to be presented to an officer or employee of the City a false claim or request for payment or approval; (ii) 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; (iii) conspires to defraud the City by getting a false claim allowed or paid by the City; (iv) 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 (v) 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 - Left blank by agreement of the Parties. No state or federal funds involved.**

**10. Taxes**

- A. 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 the Contractor.
- B. The 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:

- 1) The Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that the Contractor, and any permitted successors and assigns, may be subject to real property tax assessments on the possessory interest;
- 2) The 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. The 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.
- 3) The 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). The 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.
- 4) The 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 the City, or the receipt thereof by the Contractor, shall in no way lessen the liability of the 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 the City and in such case must be replaced by the 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 the Contractor. The Contractor will comply with the City's reasonable requests regarding assignment of personnel, but all personnel, including those assigned at the City's request, must be supervised by the Contractor. The Contractor shall commit adequate resources to complete the project within the project schedule specified in this Agreement.

#### **13. Responsibility for Equipment**

- A. The 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 the Contractor, or by any of its employees, even though such equipment be furnished, rented, or loaned to the Contractor by the City.
- B. The acceptance or use of such equipment by the Contractor or any of its employees shall be construed to mean that the Contractor accepts full responsibility for and agrees to exonerate, indemnify, defend and save harmless the City from and against any and all claims for any damage

or injury of any type arising from the use, misuse or failure of such equipment, whether such damage be to the Contractor, its employees, City employees or third parties, or to property belonging to any of the above.

- C. The Contractor shall be totally responsible for the design and installation of all temporary structures such as shoring that may be required to perform work under this Contract. The Contractor shall also perform its work under this Contract so as not to load or overload any structural, electrical or HVAC System in any way which might endanger its present or future integrity or capacity.
- D. Subject to the Limitation of Liability set forth in Article 17 herein, the Contractor shall be totally responsible for the risk of loss or damage to any property owned by the Commission, its tenants or other third parties arising out of the careless or negligent acts or omissions of the Contractor's officers, agents, employees, or subcontractors. The Contractor shall forthwith repair, replace, and make good any such loss or damage without cost to the Commission or, at the option of the Commission, the Contractor shall reimburse the Commission for the reasonable cost of such repairs and replacements which the Commission elects, in its sole discretion, to perform.
- E. Subject to the limitation of liability set forth in article 17 herein, the Contractor shall be totally responsible for the risk of (i) all claims made by third persons or all fines or penalties assessed by courts or governmental agencies or other entities against the Contractor or the Commission, on account of injuries (including wrongful death), losses and damages, and (ii) all liability of any kind whatsoever, arising or alleged to arise out of or in connection with the willful misconduct or negligent performance of this contract by the Contractor or out of or in connection with the Contractor's operations or presence at or in the vicinity of the Commission's premises (including claims against the Contractor or the Commission for the payment of workers' compensation) whether such fines or penalties are made or assessed and whether such claims for injuries, damages, losses are sustained and liability for them imposed at any time both before and after the completion of the services provided herein.

#### **14. Independent Contractor; Payment of Taxes and Other Expenses**

##### **A. Independent Contractor**

- 1) The Contractor or any agent or employee of the 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 the City under this Agreement. The Contractor or any agent or employee of the Contractor shall not have employee status with the City, nor be entitled to participate in any plans, arrangements, or distributions by the City pertaining to or in connection with any retirement, health or other benefits that the City may offer its employees. The Contractor or any agent or employee of the Contractor is liable for the acts and omissions of itself, its employees, and its agents. The 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 the Contractor's performing services and work, or any agent or employee of the Contractor providing same. Nothing in this Agreement shall be construed as creating an employment or agency relationship between the City and the Contractor or any agent or employee of the Contractor.

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

**B. Payment of Taxes and Other Expenses.**

- 1) Should the 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 the 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 the Contractor which can be applied against this liability). The City shall then forward those amounts to the relevant taxing authority.
- 2) Should a relevant taxing authority determine a liability for past services performed by the Contractor for the City, upon notification of such fact by the City, the Contractor shall promptly remit such amount due or arrange with the City to have the amount due withheld from future payments to the Contractor under this Agreement (again, offsetting any amounts already paid by the Contractor which can be applied as a credit against such liability).
- 3) 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, the Contractor shall not be considered an employee of City. Notwithstanding the foregoing, should any court, arbitrator, or administrative authority determine that the Contractor is an employee for any other purpose, then the Contractor agrees to a reduction in the City's financial liability so that the City's total expenses under this Agreement are not greater than they would have been had the court, arbitrator, or administrative authority determined that the Contractor was not an employee.

**15. Insurance**

- A. Without in any way limiting the Contractor's liability pursuant to the "Indemnification" section of this Agreement, the Contractor must maintain in force, during the full term of the Agreement, insurance in the following amounts and coverages:
  - 1) Workers' Compensation, in statutory amounts, with Employers' Liability Limits not less than \$1,000,000 each accident, injury, or illness; and
  - 2) 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
  - 3) Commercial Automobile Liability Insurance with limits not less than \$1,000,000 (\$2,000,000 if used on Airfield) each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Owned, Non-Owned and Hired auto coverage, as applicable.
- B. Commercial General Liability and Commercial Automobile Liability Insurance policies must provide the following:

- 1) Name as Additional Insured the City and County of San Francisco, its Officers, Agents, and Employees.
  - 2) That such policies are primary insurance to any other insurance available to the Additional Insureds, 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.
- C. All policies shall provide thirty (30) days' advance written notice to City of reduction or nonrenewal of coverages or cancellation of coverages for any reason. Notices shall be sent to the following address:
- Lee Mitchell  
SFO AirTrain Manager  
AirTrain Administration  
San Francisco International Airport  
P.O. Box 8097  
San Francisco, CA 94128
- Email: [lee.mitchell@flysfo.com](mailto:lee.mitchell@flysfo.com)
- D. Should any of the required insurance be provided under a claims-made form, the Contractor shall maintain such coverage continuously throughout the term of this Agreement and, without lapse, for a period of three (3) 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.
- E. 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.
- F. 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.
- G. Before commencing any operations under this Agreement, the Contractor shall do the following: (i) furnish to the City certificates of insurance and additional insured policy endorsements with insurers with ratings comparable to A-, VIII or higher, that are authorized to do business in the State of California, and that are satisfactory to the City, in form evidencing all coverages set forth above, and (ii) furnish complete copies of policies promptly upon City request. Failure to maintain insurance shall constitute a material breach of this Agreement.
- H. Approval of the insurance by the City shall not relieve or decrease the liability of the Contractor hereunder.

- I. 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.
- J. If the Contractor is unable to continue to provide the required insurance coverage as outlined in Article 15.A of this Agreement at the expiration of the initial five (5) year term, the Contractor agrees to pay to the City and County of San Francisco Four Hundred Thousand Dollars (\$400,000) in annual funding for the purchase of insurance coverage as outlined in Section 15.A of this agreement. Payment to the City and County of San Francisco shall be prior to the expiration date of the initial five (5) year term of the agreement. Said funding will be used toward the purchase of insurance as outlined in Section 15 of this agreement, with any required amount over \$400,000 to be the responsibility of the City. The City will refund to Contractor any part of the \$400,000 that is not required to fund the insurance. The City will reserve the right to procure the insurance or delegate the procurement responsibility to the Contractor. The City will reserve the right to modify the insurance requirement(s) outlined in Section 15 of this agreement in consultation with Contractor in the event the Contractor annual funding contribution of Four Hundred Thousand Dollars (\$400,000) is inadequate to procure historical limits and coverage.

#### 16. Indemnification

- A. The Contractor shall indemnify and save harmless the 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 the Contractor or loss of or damage to property, to the extent arising from the Contractor's negligent performance of this Agreement, including, but not limited to, the Contractor's use of facilities or equipment provided by the City or others. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, consultants and experts and related costs and the City's costs of investigating any claims against the City.
- B. In addition to the Contractor's obligation to indemnify the City, the Contractor specifically acknowledges and agrees that it has an immediate and independent obligation to defend the City from any claim arising from the Contractor's negligent performance of this Agreement and 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 the Contractor by the City and continues at all times thereafter.
- C. The Contractor shall indemnify and hold the 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 the City, or any of its officers or agents, of articles or services to be supplied by the Contractor in the performance of this Agreement.

#### 17. Incidental and Consequential Damages & Limitation of Contractor's Liability

- A. The Contractor shall be responsible for incidental and/or consequential damages resulting in whole or in part from the Contractor's performance of services under this Agreement. However, the Contractor will not be liable for any claim for incidental and/or consequential damages from



the Airport, Airport tenants, and/or AirTrain passengers for loss of opportunities, revenues, and/or profits. The Contractor's liability for incidental and/or consequential damages will be limited, in the aggregate, to One Million Dollars (\$1,000,000). The Contractor agrees that it will be responsible for any claim initiated by the Airport for costs incurred to operate bus services resulting from a loss of use of the AirTrain for any single incident exceeding four (4) hours to the extent arising from the Contractor's performance of this Agreement and that such claim is not subject to the One Million Dollar (\$1,000,000) cap on incidental and/or consequential damages. Further, except claims for personal injury, including wrongful death, and the costs of repair or replacement of damaged property of third parties, and costs of repair or replacement of damaged property of the Airport resulting from the gross negligence, recklessness or intentional misconduct of the Contractor, the Contractor's liability under this agreement will be limited, in the aggregate, to Ten Million Dollars (\$10,000,000).

- B. To the extent of a failure caused from the Contractor's performance of services under this Agreement that renders the system unavailable for revenue service for more than fifteen (15) consecutive days, the Airport may suspend payment to the Contractor. The Airport shall resume payment to the Contractor once the system is returned to revenue service; however, the Airport shall not be responsible for reimbursing any cost or expense whatsoever to the Contractor during the time that the system was unavailable. Any moneys withheld pursuant to this paragraph are subject to the Ten Million Dollar (\$10,000,000) cap on the Contractor's liability identified in Section 17.A. above.

#### 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 - Left blank by agreement of the Parties.

#### 20. Default; Remedies

- A. Each of the following shall constitute an event of default ("Event of Default") under this Agreement:
- 1) The 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, 37, 53, 55, 57, or 58.
  - 2) The 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 ten (10) days after written notice thereof from the City to the Contractor.

- 3) The 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 the Contractor or of any substantial part of the Contractor's property or (v) takes action for the purpose of any of the foregoing.
  - 4) A court or government authority enters an order (i) appointing a custodian, receiver, trustee or other officer with similar powers with respect to the Contractor or with respect to any substantial part of the 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 the Contractor.
- B. The Contractor shall first be given an opportunity to cure any Event of Default. The Contractor shall have ten (10) days in which to cure the Event of Default or propose a plan for cure if a ten (10) day period is not a reasonable time to cure. If the Contractor fails to cure the Event of Default or if the City is not satisfied with the Contractor's proposed plan for curing the Default, the 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, if the Contractor is unable to cure the Event of Default as set forth above, the City shall have the right (but no obligation) to cure (or cause to be cured) any Event of Default; the Contractor shall pay to the City on demand all costs and expenses incurred by the City in effecting such cure, with interest thereon from the date of incurrence at the maximum rate then permitted by law. The City shall have the right to offset from any amounts due to the Contractor under this Agreement or any other agreement between the City and the Contractor all damages, losses, costs or expenses incurred by the City as a result of such Event of Default and any liquidated damages due from the Contractor pursuant to the terms of this Agreement or any other agreement.
- C. 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

- A. The 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. The City shall exercise this option by giving the Contractor at least thirty (30) days written notice of termination. The notice shall specify the date on which termination shall become effective.
- B. Upon receipt of the notice, the Contractor shall commence and perform, with diligence, all actions necessary on the part of the Contractor to effect the termination of this Agreement on the date specified by the City and to minimize the liability of the Contractor and the City to third parties as a result of termination. All such actions shall be subject to the prior approval of the City. Such actions shall include, without limitation:

- 1) Halting the performance of all services and other work under this Agreement on the date(s) and in the manner specified by the City.
  - 2) Not placing any further orders or subcontracts for materials, services, equipment, or other items.
  - 3) Terminating all existing orders and subcontracts.
  - 4) At the City's direction, assigning to the City any or all of the Contractor's right, title, and interest under the orders and subcontracts terminated. Upon such assignment, the 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.
  - 5) Subject to the City's approval, settling all outstanding liabilities and all claims arising out of the termination of orders and subcontracts.
  - 6) Completing performance of any services or work that the City designates to be completed prior to the date of termination specified by the City.
  - 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 the Contractor and in which the City has or may acquire an interest.
- C. Within thirty (30) days after the specified termination date, the Contractor shall submit to the City an invoice, which shall set forth each of the following as a separate line item:
- 1) The reasonable cost to the Contractor, including profit as set forth in subsection 2) below, for all services and other work the City directed the Contractor to perform prior to the specified termination date, for which services or work the City has not already tendered payment. Reasonable costs may include a reasonable allowance for actual overhead, not to exceed a total of ten percent (10%) of Contractor's direct costs for services or other work. Any overhead allowance shall be separately itemized. The Contractor may also recover the reasonable cost of preparing the invoice.
  - 2) A reasonable allowance for profit on the cost of the services and other work described in the immediately preceding subsection 1), provided that the Contractor can establish, to the satisfaction of the City, that the 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 ten percent (10%) of such cost.
  - 3) The reasonable cost to the Contractor of handling material or equipment returned to the vendor, delivered to the City or otherwise disposed of as directed by the City.
  - 4) A deduction for the cost of materials to be retained by the Contractor, amounts realized from the sale of materials and not otherwise recovered by or credited to the City, and any other appropriate credits to the City against the cost of the services or other work.
- D. In no event shall the City be liable for costs incurred by the Contractor or any of its subcontractors after the termination date specified by the City, except for those costs specifically

enumerated and described in the immediately preceding subsection C, which shall also include post-termination employee salaries and post-termination administrative expenses and overhead, in accordance with but not exceeding those amounts required to be paid by the Contractor to its employees, as per the Contractor's Collective Bargaining Agreement and the Contractor's employee severance program. Such non-recoverable costs include, but are not limited to, 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 C.

- E. In arriving at the amount due to the Contractor under this Section, the City may deduct: (i) all payments previously made by the City for work or other services covered by the Contractor's final invoice; (ii) any claim which the City may have against the Contractor in connection with this Agreement; (iii) any invoiced costs or expenses excluded pursuant to the immediately preceding subsection D; and (iv) 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 the City's estimate of the reasonable cost of performing the invoiced services or other work in compliance with the requirements of this Agreement.
- F. The City's payment obligation under this Section shall survive termination of this Agreement.

## **22. Rights and Duties upon Termination or Expiration**

- A. 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, 27, 28, 48, through 52, 56, and 57.
- B. Subject to the immediately preceding subsection A, 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. The Contractor shall transfer title to the City, and deliver in the manner, at the times, and to the extent, if any, directed by the 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 the City. This subsection shall survive termination of this Agreement.

## **23. Conflict of Interest**

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

## **24. Proprietary or Confidential Information**

The Parties hereto understand and agree that, in the performance of the work or services under this Agreement or in contemplation thereof, one Party may have access to private or confidential information which may be owned or controlled by the other Party and that such information may contain proprietary or confidential details, the disclosure of which to third parties may be damaging to

the owner of the information. The Parties therefore agree that all information disclosed by one Party to the other shall be held in confidence and used only in performance of the Agreement. The Parties shall exercise the same reasonable standard of care to protect such information as they would use to protect their 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, e-mail or by fax, and shall be addressed as follows:

To City: Lee Mitchell  
SFO AirTrain Manager  
AirTrain Administration  
San Francisco International Airport  
P.O. Box 8097  
San Francisco, CA 94128  
FAX: (650) 821-7664  
Email: [lee.mitchell@flysfo.com](mailto:lee.mitchell@flysfo.com)

To Contractor: Lee LayPort  
SYSTEMS – General Manager Western Region  
Bombardier Transportation (Holdings) USA Inc.  
P.O. Box 281317  
San Francisco, CA 94128-7343  
FAX: (650) 821-7371  
Email: [lee.layport@us.transport.bombardier.com](mailto:lee.layport@us.transport.bombardier.com)

Any notice of default must be sent by registered mail.

## 26. Ownership of Results

- A. Any drawings, plans, specifications, blueprints, studies, reports, memoranda, computation sheets, computer files and media or other documents ("Information") prepared by the Contractor or its subcontractors in connection with services to be performed under this Agreement, shall become the property of and will be transmitted to the City. However, it is understood that the Contractor retains the right in the intellectual property contained in the Information and may use the Information for any purpose whatsoever, whether related to this Agreement or otherwise. It is also understood that any and all proprietary information of the Contractor, as defined under the Base Contract, shall be included in the escrow agreement previously agreed upon between the City and the Contractor for a period of twenty (20) years from the date of execution of such escrow agreement.
- B. The Commission shall have the non-exclusive right to use or permit the use of the Information only for the sole purpose of operating and maintaining the System, without additional compensation. The obligations of confidentiality set forth in Article 24.A above shall apply to the Commission's use of these materials.
- C. Proprietary software for products, components, subsystems and other items shall be protected and restricted as provided herein. All "proprietary" Software shall be provided to a Trustee under a

Trust Agreement entered into by the Commission, the Contractor, and the Trustee. The basic terms of said Trust Agreement shall be as follows:

- 1) The Trustee shall be a trust company qualified to do business in California or a bank authorized to engage in a trust business in California. The bank or trust company shall be mutually acceptable to both the Commission and the Contractor.
  - 2) All proprietary Software shall be placed with the Trustee for safekeeping.
  - 3) If the Contract is terminated for default in accordance with the General Conditions herein, the Trustee, upon receipt of written notice from the Commission shall turn over to the Commission all proprietary software in its possession, and which has not already been deposited into escrow under the original Trust Agreement, within a sixty (60)-day period from the date of receipt of such notice.
  - 4) At such time the proprietary Software is turned over to the Commission by the Trustee, the Commission shall have the right and license to use said Software without restrictions for the System and any future re-supply, expansion, or extension of the System. However, the Commission may not sell said proprietary Software or allow any party to use same for any other project without the Contractor's written consent. The Contractor shall continue to have the full and complete right to use any and all duplicates or other originals of said Software in any manner it chooses and without restriction.
  - 5) The Trust Agreement shall automatically terminate after twenty (20) years and all such proprietary Software shall be turned over to the Commission. Upon termination of the Trust Agreement, the Commission shall have the right and license to utilize the proprietary Software for its own use only for the Automated Rail Transit (ART) and its expansion but not for the purposes of building another separate ART. However, title to any designs shall remain with the Contractor.
- D. Subject to the provisions regarding the use of the materials stated in paragraph 26.C above, all materials to become part of the System including but not limited to, spare parts, tools, equipment, expendables, and consumables inventory shall be and become the property of the Commission upon delivery or upon being especially adapted for use in or as part of the System, whichever may first occur.
- E. The Contractor shall promptly furnish to the Commission such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such materials, free of encumbrances and shall mark or otherwise identify all such materials as the property of the Commission.

## 27. Copyright of Original Works

If, in connection with services performed under this Agreement, the 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 ("Works"), such Works shall not be considered works for hire as it is defined under Title 17 of the United States Code, rather such Works shall be considered instruments of service of the

Contractor and the Contractor shall grant to the City a non-exclusive, royalty-free license to use the Contractor's Works. It is expressly agreed that any such use of the Contractor's Works by the City shall be limited to the sole purpose of operating and maintaining the System. All copyrights in these Works shall remain with the Contractor.

#### **28. Audit and Inspection of Records**

The Contractor agrees to maintain and make available to the City, during regular business hours, accurate books, and accounting records relating in any way to its work under this Agreement. The 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. The Contractor shall maintain such data and records in an accessible location and condition for a period of not less than five (5) 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 the City by this Section.

#### **29. Subcontracting**

The Contractor is prohibited from subcontracting this Agreement or any part of it unless such subcontracting is first approved by the 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 the 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 the City by written instrument executed and approved in the same manner as this Agreement.

#### **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. Earned Income Credit (EIC) Forms**

A. Administrative Code section 120 requires that employers provide their employees with IRS Form W-5 (The Earned Income Credit Advance Payment Certificate) and the IRS EIC Schedule, as set forth below. Employers can locate these forms at the IRS Office, on the Internet, or anywhere that Federal Tax Forms can be found.

B. The Contractor shall provide EIC Forms to each Eligible Employee at each of the following times: (i) within thirty (30) days following the date on which this Agreement becomes effective (unless Contractor has already provided such EIC Forms at least once during the calendar year in

which such effective date falls); (ii) promptly after any Eligible Employee is hired by the Contractor; and (iii) annually between January 1 and January 31 of each calendar year during the term of this Agreement.

- C. Failure to comply with any requirement contained in subparagraph A of this Section shall constitute a material breach by the Contractor of the terms of this Agreement. If, within thirty (30) days after the Contractor receives written notice of such a breach, the Contractor fails to cure such breach or, if such breach cannot reasonably be cured within such period of thirty (30) days, the Contractor fails to commence efforts to cure within such period or thereafter fails to diligently pursue such cure to completion, the City may pursue any rights or remedies available under this Agreement or under applicable law.
- D. Any Subcontract entered into by the Contractor shall require the subcontractor to comply, as to the subcontractor's Eligible Employees, with each of the terms of this section.
- E. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Section 120 of the San Francisco Administrative Code.

### **33. Local Business Enterprise Utilization; Liquidated Damages**

#### **A. The LBE Ordinance**

The Contractor, shall comply with all the requirements of the Local Business Enterprise and Non-Discrimination in Contracting Ordinance set forth in Chapter 14B of the San Francisco Administrative Code as it now exists or as it may be amended in the future (collectively the "LBE Ordinance"), provided such amendments do not materially increase the Contractor's obligations or liabilities, or materially diminish the Contractor's rights, under this Agreement. Such provisions of the LBE Ordinance are incorporated by reference and made a part of this Agreement as though fully set forth in this section. The Contractor's willful failure to comply with any applicable provisions of the LBE Ordinance is a material breach of the Contractor's obligations under this Agreement and shall entitle the City, subject to any applicable notice and cure provisions set forth in this Agreement, to exercise any of the remedies provided for under this Agreement, under the LBE Ordinance or otherwise available at law or in equity, which remedies shall be cumulative unless this Agreement expressly provides that any remedy is exclusive. In addition, the Contractor shall comply fully with all other applicable local, state and federal laws prohibiting discrimination and requiring equal opportunity in contracting, including subcontracting.

#### **B. Compliance and Enforcement**

##### **1) Enforcement**

- a) If the Contractor willfully fails to comply with any of the provisions of the LBE Ordinance, the rules and regulations implementing the LBE Ordinance, or the provisions of this Agreement pertaining to LBE participation, the Contractor shall be liable for liquidated damages in an amount equal to the Contractor's net profit on this Agreement, or ten percent (10%) of the total amount of this Agreement, or One Thousand Dollars (\$1,000), whichever is greatest. The Director of the City's Human Rights Commission or any other public official authorized to enforce the LBE Ordinance (separately and



collectively, the "Director of HRC") may also impose other sanctions against the Contractor authorized in the LBE Ordinance, including declaring the Contractor to be irresponsible and ineligible to contract with the City for a period of up to five (5) years or revocation of the Contractor's LBE certification. The Director of HRC will determine the sanctions to be imposed, including the amount of liquidated damages, after investigation pursuant to Administrative Code §14B.17.

- b) By entering into this Agreement, the Contractor acknowledges and agrees that any liquidated damages assessed by the Director of the HRC shall be payable to the City upon demand. The Contractor further acknowledges and agrees that any liquidated damages assessed may be withheld from any monies due to the Contractor on any contract with the City.
- c) The Contractor agrees to maintain records necessary for monitoring its compliance with the LBE Ordinance for a period of three (3) years following termination or expiration of this Agreement, and shall make such records available for audit and inspection by the Director of HRC or the Controller upon request.

## 2) Subcontracting Goals

- a) The LBE subcontracting participation goal for this contract is **five percent (5%)**. The Contractor shall fulfill the subcontracting commitment made in its bid or proposal. Each invoice submitted to the City for payment shall include the information required in the HRC Progress Payment Form and the HRC Payment Affidavit. Failure to provide the HRC Progress Payment Form and the HRC Payment Affidavit with each invoice submitted by the Contractor shall entitle the City to withhold twenty percent (20%) of the amount of that invoice until the HRC Payment Form and the HRC Subcontractor Payment Affidavit are provided by the Contractor.
- b) The Contractor shall not participate in any back contracting to the Contractor or lower-tier subcontractors, as defined in the LBE Ordinance, for any purpose inconsistent with the provisions of the LBE Ordinance, its implementing rules and regulations, or this Section.

## 3) Subcontract Language Requirements

- a) The Contractor shall incorporate the LBE Ordinance into each subcontract made in the fulfillment of the Contractor's obligations under this Agreement and require each subcontractor to agree and comply with provisions of the ordinance applicable to subcontractors.
- b) The Contractor shall include in all subcontracts with LBEs made in fulfillment of the Contractor's obligations under this Agreement, a provision requiring the Contractor to compensate any LBE subcontractor for damages for breach of contract or liquidated damages equal to five percent (5%) of the subcontract amount, whichever is greater, if the Contractor does not fulfill its commitment to use the LBE subcontractor as specified in the bid or proposal, unless the Contractor received advance approval from the Director of HRC and contract awarding authority to substitute subcontractors or to otherwise

modify the commitments in the bid or proposal. Such provisions shall also state that it is enforceable in a court of competent jurisdiction.

- c) Subcontracts shall require the subcontractor to maintain records necessary for monitoring its compliance with the LBE Ordinance for a period of three (3) years following termination of this contract and to make such records available for audit and inspection by the Director of HRC or the Controller upon request.

#### **4) Payment of Subcontractors**

- a) The Contractor shall pay its subcontractors within three (3) working days after receiving payment from the City unless the Contractor notifies the Director of HRC in writing within ten (10) working days prior to receiving payment from the City that there is a bona fide dispute between the Contractor and its subcontractor and the Director waives the three-day payment requirement, in which case the Contractor may withhold the disputed amount but shall pay the undisputed amount.
- b) The Contractor further agrees, within ten (10) working days following receipt of payment from the City, to file the HRC Payment Affidavit with the Controller, under penalty of perjury, that the Contractor has paid all subcontractors. The affidavit shall provide the names and addresses of all subcontractors and the amount paid to each. Failure to provide such affidavit may subject the Contractor to enforcement procedure under Administrative Code §14B.17.

### **34. Nondiscrimination; Penalties**

#### **A. Contractor Shall Not Discriminate**

In the performance of this Agreement, the 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.

#### **B. Subcontracts**

The 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 the City) and shall require all subcontractors to comply with such provisions. The Contractor's failure to comply with the obligations in this subsection shall constitute a material breach of this Agreement.

#### **C. Nondiscrimination in Benefits**

The 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.

**D. Condition to Contract**

As a condition to this Agreement, the 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.

**E. 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. The 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, the Contractor understands that pursuant to §§12B.2 (h) and 12C.3 (g) of the San Francisco Administrative Code, a penalty of Fifty Dollars (\$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 the Contractor and/or deducted from any payments due the Contractor.

**35. 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 the Contractor acknowledges and agrees that he or she has read and understood this section.

**36. Tropical Hardwood 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.

**37. Drug-Free Workplace Policy**

The 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. The Contractor agrees that any violation of this prohibition by the Contractor, its employees, agents or assigns will be deemed a material breach of this Agreement.

#### **38. Resource Conservation**

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

#### **39. Compliance with Americans with Disabilities Act**

The 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. The 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. The Contractor agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under this Agreement and further agree that any violation of this prohibition on the part of the Contractor, its employees, agents, or assigns will constitute a material breach of this Agreement.

#### **40. 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 the 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.

#### **41. Public Access to Meetings and Records**

If the Contractor receives a cumulative total per year of at least Two Hundred Fifty Thousand Dollars (\$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, the 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. The 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.

#### **42. Limitations on Contributions**

Through execution of this Agreement, the 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 (i) 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, (ii) a candidate for the office held by such individual, or (iii) 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 (6) months after the date the contract is approved. The 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 Fifty Thousand Dollars (\$50,000) or more. The 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 twenty (20) percent in the Contractor; any subcontractor listed in the bid or contract; and any committee that is sponsored or controlled by the Contractor. Additionally, the Contractor acknowledges that the Contractor must inform each of the persons described in the preceding sentence of the prohibitions contained in Section 1.126.

43. **Requiring Minimum Compensation for Covered Employees** - This section omitted pursuant to San Francisco Administrative Code Chapter 12P, section 12P.2(e)(4), exempting contracts entered into pursuant to a settlement of a legal proceeding.
44. **Requiring Health Benefits for Covered Employees** - This section omitted pursuant to San Francisco Administrative Code Chapter 12Q, section 12Q.2.4(b)(3), exempting contracts entered into pursuant to a settlement of a legal proceeding.
45. **First Source Hiring Program**

**A. Incorporation of Administrative Code Provisions by Reference**

The provisions of Chapter 83 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. The Contractor shall comply fully with, and be bound by, all of the provisions that apply to this Agreement under such Chapter, including but not limited to the remedies provided therein. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 83.

**B. First Source Hiring Agreement**

As an essential term of, and consideration for, any contract or property contract with the City, not exempted by the FSHA, the Contractor shall enter into a first source hiring agreement ("agreement") with the City, on or before the effective date of the contract or property contract. Contractors shall also enter into an agreement with the City for any other work that it performs in the City. Such agreement shall:

- 1) Set appropriate hiring and retention goals for entry level positions. The employer shall agree to achieve these hiring and retention goals, or, if unable to achieve these goals, to establish good faith efforts as to its attempts to do so, as set forth in the agreement. The agreement shall take into consideration the employer's participation in existing job training, referral, and/or brokerage programs. Within the discretion of the FSHA, subject to appropriate modifications, participation in such programs may be certified as meeting the requirements of

this Chapter. Failure either to achieve the specified goal or to establish good faith efforts will constitute noncompliance and will subject the employer to the provisions of Section 83.10 of this Chapter.

- 2) Set first source interviewing, recruitment and hiring requirements, which will provide the San Francisco Workforce Development System with the first opportunity to provide qualified economically disadvantaged individuals for consideration for employment for entry level positions. Employers shall consider all applications of qualified economically disadvantaged individuals referred by the System for employment; provided however, if the employer utilizes nondiscriminatory screening criteria, the employer shall have the sole discretion to interview and/or hire individuals referred or certified by the San Francisco Workforce Development System as being qualified economically disadvantaged individuals. The duration of the first source interviewing requirement shall be determined by the FSHA and shall be set forth in each agreement, but shall not exceed ten (10) days. During that period, the employer may publicize the entry level positions in accordance with the agreement. A need for urgent or temporary hires must be evaluated, and appropriate provisions for such a situation must be made in the agreement.
- 3) Set appropriate requirements for providing notification of available entry level positions to the San Francisco Workforce Development System so that the System may train and refer an adequate pool of qualified economically disadvantaged individuals to participating employers. Notification should include such information as employment needs by occupational title, skills, and/or experience required, the hours required, wage scale and duration of employment, identification of entry level and training positions, identification of English language proficiency requirements, or absence thereof, and the projected schedule and procedures for hiring for each occupation. Employers should provide both long-term job need projections and notice before initiating the interviewing and hiring process. These notification requirements will take into consideration any need to protect the employer's proprietary information.
- 4) Set appropriate record keeping and monitoring requirements. The First Source Hiring Administration shall develop easy-to-use forms and record keeping requirements for documenting compliance with the agreement. To the greatest extent possible, these requirements shall utilize the employer's existing record keeping systems, be nonduplicative, and facilitate a coordinated flow of information and referrals.
- 5) Establish guidelines for employer good faith efforts to comply with the first source hiring requirements of this Chapter. The FSHA will work with City departments to develop employer good faith effort requirements appropriate to the types of contracts and property contracts handled by each department. Employers shall appoint a liaison for dealing with the development and implementation of the employer's agreement. In the event that the FSHA finds that the employer under a City contract or property contract has taken actions primarily for the purpose of circumventing the requirements of this Chapter, that employer shall be subject to the sanctions set forth in Section 83.10 of this Chapter.
- 6) Set the term of the requirements.
- 7) Set appropriate enforcement and sanctioning standards consistent with this Chapter.

- 8) Set forth the City's obligations to develop training programs, job applicant referrals, technical assistance, and information systems that assist the employer in complying with this Chapter.
- 9) Require the developer to include notice of the requirements of this Chapter in leases, subleases, and other occupancy contracts.

**C. Hiring Decisions**

The Contractor shall make the final determination of whether an Economically Disadvantaged Individual referred by the System is "qualified" for the position.

**D. Exceptions**

Upon application by the Employer, the First Source Hiring Administration may grant an exception to any or all of the requirements of Chapter 83 in any situation where it concludes that compliance with this Chapter would cause economic hardship.

**E. Liquidated Damages**

The Contractor agrees:

- 1) To be liable to the City for liquidated damages as provided in this section;
- 2) To be subject to the procedures governing enforcement of breaches of contracts based on violations of contract provisions required by this Chapter as set forth in this section;
- 3) That the Contractor's commitment to comply with this Chapter is a material element of the City's consideration for this contract; that the failure of the Contractor to comply with the contract provisions required by this Chapter will cause harm to the City and the public which is significant and substantial but extremely difficult to quantify; that the harm to the City includes not only the financial cost of funding public assistance programs but also the insidious but impossible to quantify harm that this community and its families suffer as a result of unemployment; and that the assessment of liquidated damages of up to Five Thousand Dollars (\$5,000) for every notice of a new hire for an entry level position improperly withheld by the Contractor from the first source hiring process, as determined by the FSHA during its first investigation of a Contractor, does not exceed a fair estimate of the financial and other damages that the City suffers as a result of the Contractor's failure to comply with its first source referral contractual obligations.
- 4) That the continued failure by a Contractor to comply with its first source referral contractual obligations will cause further significant and substantial harm to the City and the public, and that a second assessment of liquidated damages of up to Ten Thousand Dollars (\$10,000) for each entry level position improperly withheld from the FSHA, from the time of the conclusion of the first investigation forward, does not exceed the financial and other damages that the City suffers as a result of the Contractor's continued failure to comply with its first source referral contractual obligations;

- 5) That in addition to the cost of investigating alleged violations under this Section, the computation of liquidated damages for purposes of this section is based on the following data:
  - a) The average length of stay on public assistance in San Francisco's County Adult Assistance Program is approximately 41 months at an average monthly grant of Three Hundred Forty-eight Dollars (\$348) per month, totaling approximately Fourteen Thousand Three Hundred Seventy-nine Dollars (\$14,379); and
  - b) In 2004, the retention rate of adults placed in employment programs funded under the Workforce Investment Act for at least the first six (6) months of employment was 84.4%. Since qualified individuals under the First Source program face far fewer barriers to employment than their counterparts in programs funded by the Workforce Investment Act, it is reasonable to conclude that the average length of employment for an individual whom the First Source Program refers to an employer and who is hired in an entry level position is at least one (1) year; therefore, liquidated damages that total Five Thousand Dollars (\$5,000) for first violations and Ten Thousand Dollars (\$10,000) for subsequent violations as determined by FSHA constitute a fair, reasonable, and conservative attempt to quantify the harm caused to the City by the failure of a Contractor to comply with its first source referral contractual obligations.
- 6) That the failure of Contractors to comply with this Chapter, except property contractors, may be subject to the debarment and monetary penalties set forth in Sections 6.80 et seq. of the San Francisco Administrative Code, as well as any other remedies available under the contract or at law; and
- 7) That in the event the City is the prevailing party in a civil action to recover liquidated damages for breach of a contract provision required by this Chapter, the Contractor will be liable for the City's costs and reasonable attorneys fees.
- 8) Violation of the requirements of Chapter 83 is subject to an assessment of liquidated damages in the amount of Five Thousand Dollars (\$5,000) for every new hire for an Entry Level Position improperly withheld from the first source hiring process. The assessment of liquidated damages and the evaluation of any defenses or mitigating factors shall be made by the FSHA.

#### **F. Subcontracts**

Any subcontract entered into by the Contractor shall require the subcontractor to comply with the requirements of Chapter 83 and shall contain contractual obligations substantially the same as those set forth in this Section.

#### **46. Prohibition on Political Activity with City Funds**

In accordance with San Francisco Administrative Code Chapter 12.G, the 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. The 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 the 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 the Contractor from bidding on or receiving any new City contract for a period of two (2) years. The Controller will not consider Contractor's use of profit as a violation of this section.

#### **47. Preservative-treated Wood Containing Arsenic**

The 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, chromated copper arsenate preservative, ammoniacal copper zinc arsenate preservative, or ammoniacal copper arsenate preservative. The 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 the 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.

#### **48. 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 in the same manner as this Agreement. The Contractor shall cooperate with the Department to submit to the Director of HRC any amendment, modification, supplement, or change order that would result in a cumulative increase of the original amount of this Agreement by more than twenty percent (20%) (HRC Contract Modification Form).

#### **49. Administrative Remedy for Agreement Interpretation**

Should any question arise as to the meaning and intent of this Agreement, the question shall, prior to any other action or resort to any other legal remedy, be referred to Purchasing who shall decide the true meaning and intent of the Agreement.

#### **50. 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.

#### **51. Construction**

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

**52. 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 48.

**53. Compliance with Laws**

The 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. Notwithstanding anything contained herein to the contrary, if a change in any local codes, ordinances, regulations or applicable state or federal laws, including any changes in law related to the oversight of the California Department of Occupational Safety and Health ("DOSH"), which cause an increase to the Contractor's scope of services or an increase in the Contractor's costs to perform its services, the Contractor may seek equitable adjustment from the City and if agreed to by the City, any such equitable adjustment shall be treated as a change order under this Agreement.

**54. 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.

**55. Supervision of Minors - Left Blank by Agreement of the Parties – Contract Does Not Involve Supervision of Minors.**

**56. 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 (i) the validity of other provisions of this Agreement shall not be affected or impaired thereby, and (ii) 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.

**57. Protection of Private Information**

The 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. The Contractor agrees that any failure of the 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.

## 58. Graffiti Removal

- A. Graffiti is detrimental to the health, safety, and welfare of the community in that it promotes a perception in the community that the laws protecting public and private property can be disregarded with impunity. This perception fosters a sense of disrespect of the law that results in an increase in crime; degrades the community and leads to urban blight; is detrimental to property values, business opportunities and the enjoyment of life; is inconsistent with the City's property maintenance goals and aesthetic standards; and results in additional graffiti and in other properties becoming the target of graffiti unless it is quickly removed from public and private property. Graffiti results in visual pollution and is a public nuisance. Graffiti must be abated as quickly as possible to avoid detrimental impacts on the City and County and its residents, and to prevent the further spread of graffiti.
- B. The Contractor shall remove all graffiti from any real property owned or leased by the Contractor in the City and County of San Francisco within forty eight (48) hours of the earlier of Contractor's (i) discovery or notification of the graffiti or (ii) receipt of notification of the graffiti from the Department of Public Works. This section is not intended to require a Contractor to breach any lease or other agreement that it may have concerning its use of the real property. The term "graffiti" means any inscription, word, figure, marking or design that is affixed, marked, etched, scratched, drawn or painted on any building, structure, fixture or other improvement, whether permanent or temporary, including by way of example only and without limitation, signs, banners, billboards and fencing surrounding construction sites, whether public or private, without the consent of the owner of the property or the owner's authorized agent, and which is visible from the public right-of-way. "Graffiti" shall not include: (iii) any sign or banner that is authorized by, and in compliance with, the applicable requirements of the San Francisco Public Works Code, the San Francisco Planning Code or the San Francisco Building Code; or (iv) any mural or other painting or marking on the property that is protected as a work of fine art under the California Art Preservation Act (California Civil Code Sections 987 et seq.) or as a work of visual art under the Federal Visual Artists Rights Act of 1990 (17 U.S.C. §§ 101 et seq.).
- C. Any failure of the Contractor to comply with this section of this Agreement shall constitute an Event of Default of this Agreement.

## 59. Food Service Waste Reduction Requirements

Effective June 1, 2007, the Contractor agrees to comply fully with and be bound by all of the provisions of the Food Service Waste Reduction Ordinance, as set forth in San Francisco Environment Code Chapter 16, including the remedies provided, and implementing guidelines and rules. The provisions of Chapter 16 are incorporated herein by reference and made a part of this Agreement as though fully set forth. This provision is a material term of this Agreement. By entering into this Agreement, the Contractor agrees that if it breaches this provision, the City will suffer actual damages that will be impractical or extremely difficult to determine; further, the Contractor agrees that the sum of One Hundred Dollars (\$100) liquidated damages for the first breach, Two Hundred Dollars (\$200) liquidated damages for the second breach in the same year, and Five Hundred Dollars (\$500) liquidated damages for subsequent breaches in the same year is reasonable estimate of the damage that the City will incur based on the violation, established in light of the circumstances existing at the time this Agreement was made. Such amount shall not be considered a penalty, but rather agreed monetary damages sustained by the City because of the Contractor's failure to comply with this provision.

**60. Slavery Era Disclosure - Left Blank by Agreement of the Parties – Contract Not for Insurance or Applicable Financial Services or Textiles.**

**61. Dispute Resolution Procedure**

- A. Any disputes arising under this Agreement shall first be dealt with between members of the Contractor's and the City's senior management. If the dispute is not resolved, the Contractor and the City agree to submit themselves to non-binding mediation. The Parties may then choose to arbitrate or litigate any unresolved dispute. Rules for arbitration shall be those set forth under the guidelines of the American Arbitration Association. Venue for arbitration or litigation shall be California.
- B. Either Party shall have sixty (60) days from the date of discovery that a claim exists to begin the dispute resolution procedure as against the other Party. This sixty (60) day time frame may be increased upon mutual agreement of the Parties.
- C. If the Contractor has a claim against the City, within sixty (60) days (or within an additional time frame, as mutually agreed upon by the Parties) the Contractor shall submit to the City a formal claim and all arguments, justifications, cost or estimates and detailed documentation supporting its position. The Contractor shall submit the claim justification in the following format:
- 1) Cover letter and certification that the claim is made in good faith;
  - 2) Summary of the claim, including:
    - a) Underlying facts;
    - b) Entitlement;
    - c) Calculations;
    - d) Contract provisions supporting relief, if applicable;
  - 3) List of documents relating to the claim;
  - 4) Chronology of events and correspondence;
  - 5) Analysis of claim merit;
  - 6) Analysis of claim cost; and
  - 7) Any attachments required to support the claim.
- D. If the City has a claim against the Contractor, within sixty (60) days (or within an additional time frame, as mutually agreed upon by the Parties) the City shall submit to the Contractor a written notification of the claim, including a detailed description of the claim and all relevant supporting documentation.
- E. The Parties agree that any claims not raised in a timely manner by written notice, as set forth above, and not first dealt with between the Parties' senior management, may not be asserted in any Government Code Claim, subsequent litigation, or legal action.

## 62. Airport Intellectual Property

Pursuant to Resolution No. 01-0118, adopted by the Airport Commission on April 18, 2001, the Airport Commission affirmed that it will not tolerate the unauthorized use of its intellectual property, including the SFO logo, CADD designs, and copyrighted publications. All proposers, bidders, contractors, tenants, permittees, and others doing business with or at the Airport (including subcontractors and subtenants) may not use the Airport intellectual property, or any intellectual property confusingly similar to the Airport intellectual property, with the Airport Director's prior consent.

## 63. Labor Peace / Card Check Rule

Without limiting the generality of other provisions herein requiring the Contractor to comply with all Airport Rules, the Contractor shall comply with the Airport's Labor Peace / Card Check Rule, adopted on February 1, 2000, pursuant to Airport Commission Resolution No. 00-0049 (the "Labor Peace / Card Check Rule"). Capitalized terms not defined in this provision are defined in the Labor Peace/Card Check Rule. To comply with the Labor Peace/Card Check Rule, the Contractor shall, among other actions: (i) Enter into a Labor Peace/Card Check Rule Agreement with any Labor Organization which requests such an agreement and which has registered with the Airport Director or his / her designee, within thirty (30) days after Labor Peace/Card Check Rule Agreement has been requested; (ii) Not less than thirty (30) days prior to the modification of this Agreement, the Contractor shall provide notice by mail to any Labor Organization or federation of labor organizations which have registered with the Airport Director or his / her designee (registered labor organization"), that the Contractor is seeking to modify or extend this Agreement; (iii) Upon issuing any request for proposals, invitations to bid, or similar notice, or in any event not less than thirty (30) days prior to entering into any Subcontract, the Contractor shall provide notice to all registered Labor Organizations that the Contractor is seeking to enter into such Subcontract; and (iv) the Contractor shall include in any subcontract with a Subcontractor performing services pursuant to any covered Contract, a provision requiring the Subcontractor performing services pursuant to any covered Contract, a provision requiring the Subcontractor to comply with the requirements of the Labor Peace/Card Check Rule. If Airport Director determines that the Contractor violated the Labor Peace/Card Check Rule, the Airport Director shall have the option to terminate this Agreement, in addition to exercising all other remedies available to him / her.

## 64. Force Majeure

Neither Party under this Agreement shall be liable to the other for any failure, delay or interruption of the performance of its obligations hereunder due to causes or conditions beyond the control of that Party, including, without limitation, acts of God, explosions, fire and other accidents, including those resulting from seismic activity. The Contractor shall have the ability to request an equitable adjustment for both time and cost as it relates to an event of force majeure and the City's approval of such equitable adjustment shall not be unreasonably withheld.

## 65. Warranty

A. The Contractor represents and warrants that it is and will be at all times fully qualified and capable of performing every phase of the work and shall complete the work in accordance with the terms of the Contract Documents. The Contractor warrants that all work and related services shall be performed in accordance with generally accepted professional standards of good and

sound transit industry practices and all requirements of the Contract Documents. Subject to the last sentence of this paragraph, the Contractor warrants that the work, including but not limited to each item of materials and equipment incorporated therein, shall be new, shall be of suitable grade of its respective kind for its intended use, shall be free from defects in design, engineering, materials, construction and workmanship, and shall conform in all respects with all applicable requirements of federal, state and local laws, licenses, and permits, the Drawings and Specifications and all descriptions set forth therein, applicable construction codes and standards, and all other requirements of the Contract Documents. Notwithstanding the foregoing, the Contractor shall not be responsible for the negligence of others in the specification of specific equipment, materials, design parameters, means, or methods of construction where that it is shown and expressly required by the Contract Documents.

- B. The Contractor further warrants that operation and maintenance methods and procedures employed on the AirTrain shall have in the past proven to be suitable for the results expected. If the Contractor proposes to use an unproven and untried (i) operation of maintenance method or procedure or, (ii) part, material or component, the Commission must be advised of that fact, in advance and in writing. The Commission may permit experimentation, but it may require special guarantees of the Contractor to cover the work produced by the new and untried method or the part, material or component. Any Commission approved experimentation that requires special guarantees by the Contractor will be incorporated into the Contract by a Contract modification.

The Contractor shall provide all of the labor, parts, materials and components which are required to repair or replace any work which does not satisfy the quality of work warranty described above and shall replace and install any parts, materials or components which do not comply with the Contractor's warranty for a period of one (1) year after the repair or replacement is completed at no cost to the Commission. In the event that the Contractor is no longer performing Operation & Maintenance (O&M) of the system within the warranty period, the Airport must demonstrate that equipment has been maintained in accordance with the Contractor's written procedures as provided to the Airport.

#### 66. Contract Documents

The Contract Documents which comprise the entire agreement between the Commission and the Contractor concerning the Work consist of the following documents, including all changes, addenda, and modifications thereto:

- A. Agreement between the City and County of San Francisco and Bombardier Transportation (Holdings) USA Inc.; Contract 8838
- B. General Requirements
- C. Appendix A – Services to be Provided by the Contractor
- D. Appendix B – Calculation of Charges/Determination of Monthly Payments
- E. Appendix C – Incident Grace Period Table
- F. Appendix D – K Factor Table

G. Appendix E – Spare Parts, Tools and Equipment List


H. Appendix F – Base Contract Price Breakdown

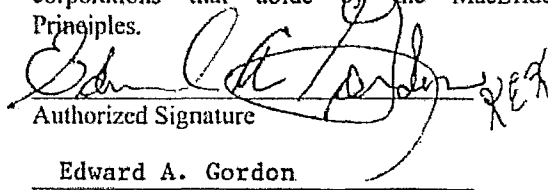
IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day first mentioned above.

CITY  
AIRPORT COMMISSION  
CITY AND COUNTY OF  
SAN FRANCISCO

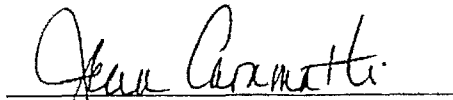
CONTRACTOR

By signing this Agreement, I certify that I have read and understood paragraph 35, the City's statement urging companies doing business in Northern Ireland to move towards resolving employment inequities, encouraging compliance with the MacBride Principles, and urging San Francisco companies to do business with corporations that abide by the MacBride Principles.

By:  John L. Martin, Airport Director

  
Authorized Signature  
Edward A. Gordon  
Printed Name

Attest:

  
Jean Caramatti, Secretary  
Airport Commission

Vice President  
Title

  
Authorized Signature

Resolution No: 08-0173

Michael E. Fetsko  
Printed Name

Adopted on: September 16, 2008

Vice President  
Title

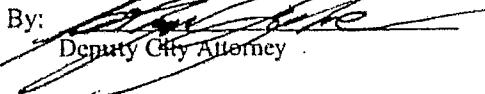
Approved as to Form:

Dennis J. Herrera  
City Attorney

Bombardier Transportation (Holdings) USA Inc.  
Company Name

40554  
City Vendor Number

1501 Lebanon Church Road  
Address

By:   
Deputy City Attorney

Pittsburgh, PA 15236  
City, State, ZIP

(412) 655-5700  
Telephone Number

25-1579550  
Federal Employer ID Number



**City and County of San Francisco  
Airport Commission  
P.O. Box 8097  
San Francisco, California 94128**

**First Amendment**

THIS AMENDMENT (this "Amendment") is made as of August 1, 2013, in San Francisco, California, by and between **Bombardier Transportation (Holdings) USA Inc.** ("Contractor"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Airport Commission or the Commission's designated agent, hereinafter referred to as "**Commission.**"

RECITALS

WHEREAS, City and Contractor have entered into the Agreement (as defined below); and

WHEREAS, City and Contractor desire to amend the Agreement on the terms and conditions set forth herein to exercise the three-year contract extension and provide funding for the budget shortfall from escalation and bonus adjustments for the initial contract term; and

WHEREAS, the Commission awarded this contract to Contractor on September 16, 2008, pursuant to an agreement to settle a dispute among the City and County of San Francisco, Bombardier Transportation (Holdings) USA, Inc., and Factory Mutual Insurance Company which was filed in the United States District Court for the Northern District of California, case number C 04-5307 PJH, and further pursuant to Resolution No. 08-0173; and

WHEREAS, Commission approved this Amendment 1 pursuant to Resolution No. 13-0156 on July 23, 2013; and

WHEREAS, pursuant to San Francisco Charter Section 9.118, the Board of Supervisors by its Resolution No. 266-08, adopted November 18, 2008, approved the contract to Contractor; and

WHEREAS, pursuant to San Francisco Charter Section 9.118, the Board of Supervisors by its Resolution No. 0429-13, adopted December 10, 2013, approved the amendment to the Agreement; and

WHEREAS, the Commission desires to amend the Agreement for administrative changes required by recently enacted San Francisco contracting ordinances; and

NOW, THEREFORE, Contractor and the City agree as follows:

**1. Definitions.** The following definitions shall apply to this Amendment:

**a. Agreement.** The term "Agreement" shall mean the Agreement dated September 16, 2008 between Contractor and City.

**b. Other Terms.** Terms used and not defined in this Amendment shall have the meanings assigned to such terms in the Agreement.

**2. Section 2. Term of the Agreement** is hereby amended to extend the term of the contract for an additional three year term for a new ending date of February 28, 2017.

3. **Section 5. Compensation** is hereby amended to increase the total compensation payable by an amount not to exceed \$42,200,000 for a new total not to exceed amount of \$98,700,000.

4. **New Section 8. Submitting False Claims; Monetary Penalties** is hereby replaced in its entirety to read as follows:

**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 the statutory penalties set forth in that section. The text of Section 21.35, along with the entire San Francisco Administrative Code is available on the web at:

<http://www.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:sanfrancisco.ca>. 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.

5. **New Section 45. First Source Hiring Program** is hereby replaced in its entirety to read as follows:

**45. First Source Hiring Program**

**a. Application of Administrative Code Provisions by Reference.** The provisions of Chapter 83 of the San Francisco Administrative Code apply to this Agreement. Contractor shall comply fully with, and be bound by, all of the provisions that apply to this Agreement under such Chapter, including but not limited to the remedies provided therein. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 83.

**b. First Source Hiring Agreement.** As an essential term of, and consideration for, any contract or property contract with the City, not exempted by the FSHA, the Contractor shall enter into a first source hiring agreement ("agreement") with the City, on or before the effective date of the contract or property contract. Contractors shall also enter into an agreement with the City for any other work that it performs in the City. Such agreement shall:

(1) Set appropriate hiring and retention goals for entry level positions. The employer shall agree to achieve these hiring and retention goals, or, if unable to achieve these goals, to establish good faith efforts as to its attempts to do so, as set forth in the agreement. The agreement shall take into consideration the employer's participation in existing job training, referral and/or brokerage programs. Within the discretion of the FSHA, subject to appropriate modifications, participation in such programs maybe certified as meeting the requirements of this Chapter. Failure either to achieve the specified goal or to establish good faith efforts will constitute noncompliance and will subject the employer to the provisions of Section 83.10 of this Chapter.

(2) Set first source interviewing, recruitment and hiring requirements, which will provide the San Francisco Workforce Development System with the first opportunity to provide qualified economically disadvantaged individuals for consideration for employment for entry level positions. Employers shall consider all applications of qualified economically disadvantaged individuals referred by the System for employment; provided however, if the employer utilizes nondiscriminatory screening criteria, the employer shall have the sole discretion to interview and/or hire individuals referred or certified by the San Francisco Workforce Development System as being qualified economically disadvantaged individuals. The duration of the first source interviewing requirement shall be determined by the FSHA and shall be set forth in each agreement, but shall not exceed 10 days. During that period, the employer may publicize the entry level positions in accordance with the agreement. A need for urgent or temporary hires must be evaluated, and appropriate provisions for such a situation must be made in the agreement.

(3) Set appropriate requirements for providing notification of available entry level positions to the San Francisco Workforce Development System so that the System may train and refer an adequate pool of qualified economically disadvantaged individuals to participating employers. Notification should include such information as employment needs by occupational title, skills, and/or experience required, the hours required, wage scale and duration of employment, identification of entry level and training positions, identification of English language proficiency requirements, or absence thereof, and the projected schedule and procedures for hiring for each occupation. Employers should provide both long-term job need projections and notice before initiating the interviewing and hiring process. These notification requirements will take into consideration any need to protect the employer's proprietary information.

(4) Set appropriate record keeping and monitoring requirements. The First Source Hiring Administration shall develop easy-to-use forms and record keeping requirements for documenting compliance with the agreement. To the greatest extent possible, these requirements shall utilize the employer's existing record keeping systems, be nonduplicative, and facilitate a coordinated flow of information and referrals.

(5) Establish guidelines for employer good faith efforts to comply with the first source hiring requirements of this Chapter. The FSHA will work with City departments to develop employer good faith effort requirements appropriate to the types of contracts and property contracts handled by each department. Employers shall appoint a liaison for dealing with the development and implementation of the employer's agreement. In the event that the FSHA finds that the employer under a City contract or property contract has taken actions primarily for the purpose of circumventing the requirements of this Chapter, that employer shall be subject to the sanctions set forth in Section 83.10 of this Chapter.

(6) Set the term of the requirements.

(7) Set appropriate enforcement and sanctioning standards consistent with this Chapter.

(8) Set forth the City's obligations to develop training programs, job applicant referrals, technical assistance, and information systems that assist the employer in complying with this Chapter.

(9) Require the developer to include notice of the requirements of this Chapter in leases, subleases, and other occupancy contracts.

c. **Hiring Decisions.** Contractor shall make the final determination of whether an Economically Disadvantaged Individual referred by the System is "qualified" for the position.

d. **Exceptions.** Upon application by Employer, the First Source Hiring Administration may grant an exception to any or all of the requirements of Chapter 83 in any situation where it concludes that compliance with this Chapter would cause economic hardship.

e. **Liquidated Damages.** Contractor agrees:

(1) To be liable to the City for liquidated damages as provided in this section;

(2) To be subject to the procedures governing enforcement of breaches of contracts based on violations of contract provisions required by this Chapter as set forth in this section;

(3) That the contractor's commitment to comply with this Chapter is a material element of the City's consideration for this contract; that the failure of the contractor to comply with the contract provisions required by this Chapter will cause harm to the City and the public which is significant and substantial but extremely difficult to quantify; that the harm to the City includes not only the financial cost of funding public assistance programs but also the insidious but impossible to quantify harm that this community and its families suffer as a result of unemployment; and that the assessment of liquidated damages of up to \$5,000 for every notice of a new hire for an entry level position improperly withheld by the contractor from the first source hiring process, as determined by the FSHA during its first investigation of a contractor, does not exceed a fair estimate of the financial and other damages that the City suffers as a result of the contractor's failure to comply with its first source referral contractual obligations.

(4) That the continued failure by a contractor to comply with its first source referral contractual obligations will cause further significant and substantial harm to the City and the public, and that a second assessment of liquidated damages of up to \$10,000 for each entry level position improperly withheld from the FSHA, from the time of the conclusion of the first investigation forward, does not exceed the financial and other damages that the City suffers as a result of the contractor's continued failure to comply with its first source referral contractual obligations;

(5) That in addition to the cost of investigating alleged violations under this Section, the computation of liquidated damages for purposes of this section is based on the following data:

A. The average length of stay on public assistance in San Francisco's County Adult Assistance Program is approximately 41 months at an average monthly grant of \$348 per month, totaling approximately \$14,379; and

B. In 2004, the retention rate of adults placed in employment programs funded under the Workforce Investment Act for at least the first six months of employment was 84.4%. Since qualified individuals under the First Source program face far fewer barriers to employment than their counterparts in programs funded by the Workforce Investment Act, it is reasonable to conclude that the average length of employment for an individual whom the First Source Program refers to an employer and who is hired in an entry level position is at least one year; therefore, liquidated damages that total \$5,000 for first violations and \$10,000 for subsequent violations as determined by FSHA constitute a fair, reasonable, and conservative attempt to quantify the harm caused to the City by the failure of a contractor to comply with its first source referral contractual obligations.

(6) That the failure of contractors to comply with this Chapter, except property contractors, may be subject to the debarment and monetary penalties set forth in Sections 6.80 et seq. of the San Francisco Administrative Code, as well as any other remedies available under the contract or at law.

Violation of the requirements of Chapter 83 is subject to an assessment of liquidated damages in the amount of \$5,000 for every new hire for an Entry Level Position improperly withheld from the first source hiring process. The assessment of liquidated damages and the evaluation of any defenses or mitigating factors shall be made by the FSHA.

f. **Subcontracts.** Any subcontract entered into by Contractor shall require the subcontractor to comply with the requirements of Chapter 83 and shall contain contractual obligations substantially the same as those set forth in this Section.

6. **New Section 63. Labor Peace / Card Check Rule** is hereby replaced in its entirety to read as follows:

**63. Labor Peace / Card Check Rule.** Without limiting the generality of other provisions herein requiring Contractor to comply with all Airport Rules, Contractor shall comply with the Airport's Labor Peace / Card Check Rule, adopted on February 1, 2000, pursuant to Airport Commission Resolution No. 00-0049 (the "Labor Peace / Card Check Rule"). Capitalized terms not defined in this provision are defined in the Labor Peace/Card Check Rule. To comply with the Labor Peace/Card Check Rule, Contractor shall, among other actions: (a) Enter into a Labor Peace/Card Check Rule Agreement with any Labor Organization which requests such an agreement and which has registered with the Airport Director or his / her designee, within thirty (30) days after Labor Peace/Card Check Rule Agreement has been requested; (b) Not less than thirty (30) days prior to the modification of this Agreement, Contractor shall provide notice by mail to any Labor Organization or federation of labor organizations which have registered with the Airport Director or his / her designee (registered labor organization"), that Contractor is seeking to modify or extend this Agreement; (c) Upon issuing any request for proposals, invitations to bid, or similar notice, or in any event not less than thirty (30) days prior to entering into any Subcontract, Contractor shall provide notice to all registered Labor Organizations that Contractor is seeking to enter into such Subcontract; and (d) Contractor shall include in any subcontract with a Subcontractor performing services pursuant to any covered Contract, a provision requiring the Subcontractor performing services pursuant to any covered Contract, a provision requiring the Subcontractor to comply with the requirements of the Labor Peace/Card Check Rule. If Airport Director determines that Contractor violated the Labor Peace/Card Check Rule, Airport Director shall have the option to terminate this Agreement, in addition to exercising all other remedies available to him / her.

7. **New Section 67. Cooperative Drafting** is hereby added to the Agreement, as follows:

**67. 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.

8. **New Section 68. Federal Non-Discrimination Provisions** is hereby added to read as follows:

**68. Federal Non-Discrimination Provisions.** Contractor for itself, its personal representatives, successors in interest, and assigns, as part of the consideration hereof, does hereby covenant and agree that Contractor shall maintain and operate the Airport facilities and services in compliance with all requirements imposed pursuant to Title 49, Code of Federal Regulations, DOT, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964, as said regulations may be amended. Contractor, for itself, its personal representatives, successors in interest, and assigns, agrees that Contractor in its operation at and use of San Francisco International Airport, covenants that (1) no person on the grounds of race, color, national origin or sex shall be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities; (2) that in the construction of any improvements on, over, or under the Airport and the furnishing of services thereon, no person on the grounds of race, color, national origin or sex shall be excluded from participation or denied the benefits of, or otherwise be subject to discrimination, (3) that Contractor shall use all City premises in compliance with all other requirements imposed by or pursuant to Title 49, Code of Federal Regulations, DOT, Subtitle A – Office of the Secretary of Transportation, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations may be amended. These Regulations are incorporated as though fully set forth herein. Contractor agrees to include the above statements in any subsequent contract that it enters into with subcontractors and cause those agreements to similarly include the statements, and cause those businesses to include the statements in further agreements.

Failure by the contractor to comply with the requirements of this section is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Airport deems appropriate.

**9. Effective Date.** Each of the modifications set forth in Section 2 shall be effective on and after August 1, 2013.

**10. Legal Effect.** Except as expressly modified by this Amendment, all of the terms and conditions of the Agreement shall remain unchanged and in full force and effect.

IN WITNESS WHEREOF, Contractor and City have executed this Amendment as of the date first referenced above.

CITY	CONTRACTOR
AIRPORT COMMISSION CITY AND COUNTY OF SAN FRANCISCO	
By: <u>Tony McCoy</u> John L. Martin, Airport Director <i>For</i>	<u><i>Johnetta Pauc / [Signature]</i></u> Authorized Signature <u><i>Johnetta Pauc / Douglas V. Hertzfelder</i></u> Printed Name
Attest:  By: <u><i>Jean Caramatti</i></u> Jean Caramatti, Secretary Airport Commission	<u><i>Secretary / Engineering Mgr.</i></u> Title
Resolution No: <u>13-0180</u>	<u>Bombardier Transportation (Holdings) USA Inc.</u> Company Name <u>40554</u> City Vendor Number
Adopted on: <u>July 23, 2013</u>	<u>1501 Lebanon Church Road</u> Address
Approved as to Form:  Dennis J. Herrera City Attorney	<u>Pittsburgh, PA 15236</u> City, State, ZIP <u>(412) 655-5700</u> Telephone Number
By: <u><i>Constance Menefee</i></u> Constance Menefee Deputy City Attorney	<u>25-1579550</u> Federal Employer ID Number





AIRPORT COMMISSION  
CITY AND COUNTY OF SAN FRANCISCO  
RESOLUTION NO. 16-0277

**APPROVE MODIFICATION NO. 3 TO CONTRACT NO. 8838 WITH BOMBARDIER  
TRANSPORTATION (HOLDINGS) USA, INC. FOR AIRTRAIN OPERATIONS AND  
MAINTENANCE SERVICES**

WHEREAS, on September 16, 2008, this Commission approved Resolution No. 08-0173 awarding Contract No. 8838 AirTrain Operations and Maintenance (O&M) to Bombardier Transportation (Holdings) USA, Inc. (BT USA) for a five-year contract, with one (1) three-year option, and two (2) one-year options, in the amount of \$56,500,000 and approved a one-year contingency budget of \$500,000 for payment of incentive bonuses and other changes, subject to the Board of Supervisors (BOS) approval of the agreement and award of this contract; and

WHEREAS, on November 18, 2008, the BOS passed Ordinance No. 080942, which granted the Airport Commission a waiver of the competitive bidding requirements, adopted Resolution No. 266-08 for award of Contract No. 8838 to BT USA for a five-year term in the amount of \$56,500,000, and approved the contingency budget of \$500,000 for payment of incentive bonuses and other changes during Year One of the new contract; and

WHEREAS, the originally approved \$56,500,000 to fund the initial five-year term did not include funding for labor and material escalation and bonuses beyond year one of the contract, resulting in a shortfall of \$3,200,000 over the initial five-year term; and

WHEREAS, on July 23, 2013, this Commission adopted Resolution No. 13-0156, which approved Modification No. 1 for a three-year contract extension (March 1, 2014 through February 28, 2017) to Contract No. 8838, to BT USA, for AirTrain O&M, in the amount \$42,200,000; and

WHEREAS, on December 10, 2013, the BOS adopted Resolution No. 429-13, which approved Modification No. 1 to the contract; and

AIRPORT COMMISSION

CITY AND COUNTY OF SAN FRANCISCO

RESOLUTION NO. 16-0277

WHEREAS, on May 19, 2014 this Commission adopted Resolution No. 14-0104, which approved Modification No. 2 to Contract No. 8838, AirTrain O&M, with BT USA, increasing the not to exceed amount by \$1,848,174 to cover the replacement cost of obsolete or worn out AirTrain equipment and to provide funding for the replacement of any additional materials, tools and equipment that may become obsolete or worn beyond repair over the three-year contract term, for a revised not to exceed total contract amount of \$100,548,174; and

WHEREAS, on September 19, 2014, the BOS adopted Resolution No. 328-14, which approved Modification No. 2 for the AirTrain System but reduced the not to exceed amount by \$4,340, for a revised not to exceed amount of \$100,543,834; and

WHEREAS, Staff proposes to further modify this contract to exercise the first of two (2) one-year options (March 1, 2017 through February 28, 2018) and to provide additional funding for the replacement cost of obsolete or worn out AirTrain parts and equipment; and

WHEREAS, funding for this project will be provided from both the Airport's Operating and Capital funds; now, therefore, be it

RESOLVED, that this Commission hereby approves Modification No. 3 to Contract No. 8838, AirTrain Operations and Maintenance, with Bombardier Transportation (Holdings) USA, Inc., in an amount not to exceed \$14,901,134, to exercise the first one-year option (March 1, 2017 through February 28, 2018) and cover the replacement cost of obsolete or worn out AirTrain parts and equipment for a new total contract amount not to exceed \$115,444,968; and, be it further

RESOLVED, that the Airport Director is authorized to take the necessary steps to obtain BOS approval of Modification No. 3 pursuant to San Francisco Charter Section 9.118(b).

Page 2 of 2

*I hereby certify that the foregoing resolution was adopted by the Airport Commission*

*NOV 01 2016*

*at its meeting of* \_\_\_\_\_

430

*Jean Cominelli*  
Secretary



San Francisco International Airport

**MEMORANDUM**

November 1, 2016

TO: AIRPORT COMMISSION  
Hon. Larry Mazzola, President  
Hon. Linda S. Crayton, Vice President  
Hon. Eleanor Johns  
Hon. Richard J. Guggenlime  
Hon. Peter A. Stern

FROM: Airport Director

SUBJECT: Modification No. 3 to Contract No. 8838 with Bombardier Transportation (Holdings) USA, Inc.

DIRECTOR'S RECOMMENDATION: APPROVE MODIFICATION NO. 3 TO CONTRACT NO. 8838 WITH BOMBARDIER TRANSPORTATION (HOLDINGS) USA, INC. FOR AIRTRAIN OPERATIONS AND MAINTENANCE SERVICES IN THE AMOUNT OF \$14,901,134 TO EXERCISE THE FIRST OF TWO 1-YEAR OPTIONS AND COVER THE REPLACEMENT OF OBSOLETE AIRTRAIN PARTS AND EQUIPMENT, FOR A NEW TOTAL NOT TO EXCEED CONTRACT AMOUNT OF \$115,444,968.

**Executive Summary**

Transmitted herewith for your approval, is a proposed resolution to authorize Modification No. 3 to Contract No. 8838, increasing the not to exceed amount by \$14,901,134 to exercise the first 1-year option (March 1, 2017 through February 28, 2018) and cover the replacement cost of obsolete or worn out AirTrain parts and equipment.

**Background**

On September 16, 2008, this Commission adopted Resolution No. 08-0173, which awarded Contract No. 8838, AirTrain Operations and Maintenance (O&M), to Bombardier Transportation (Holdings) USA, Inc. for a five-year contract (March 1, 2009 to February 28, 2014) with one (1) three-year option, and two (2) one-year options, in the amount of \$56,500,000, and approved a contingency budget of \$500,000 for payment of incentive bonuses and other changes during year one of the new contract. On November 18, 2008, the Board of Supervisors (BOS) passed Ordinance No. 080942, which granted the Airport Commission a waiver of the competitive bidding requirements, and adopted Resolution No. 266-08 for award of the contract.

On July 23, 2013, this Commission adopted Resolution No. 13-0156, which approved Modification No. 1 for a three-year contract extension (March 1, 2014 through February 28, 2017) for AirTrain O&M and; also to cover a shortfall of \$3,200,000 over the initial five-year term, in the amount of \$42,200,000, for a new not to exceed total contract amount of

\$98,700,000. On December 10, 2013, the BOS adopted Resolution No. 429-13 approving Modification No. 1.

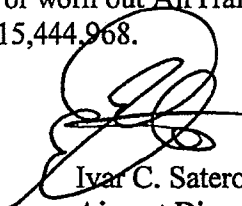
On May 19, 2014, this Commission adopted Resolution No. 14-0104, which approved Modification No. 2 in the amount of \$1,848,174 for a new not to exceed total contract amount of \$100,548,174. On September 9, 2014, the BOS adopted Resolution No. 328-14, which approved Modification No. 2 for the AirTrain System but reduced the not to exceed amount by \$4,340 for a revised not to exceed amount of \$100,543,834.

Modification No. 3 in the amount of \$14,901,134 includes the one-year contract extension and the provisions for the replacement of parts, materials, tools and equipment associated with the operation of the AirTrain that are either worn beyond repair or obsolete and can no longer be serviced. This modification will provide for the replacement of the following items identified by the contractor as either obsolete or worn beyond repair as follows:

- Installation of tri-handle stanchions in each AirTrain vehicle providing additional hand hold area for passengers at a cost of \$291,659.38.
- The automatic station door close and lock switches used at each station door has exceeded their expected life span and requires replacement with new units at a cost of \$213,953.93.
- Due to the age of the AirTrain, it is expected that additional materials, tools and equipment will require replacement over the one-year contract term at a cost not to exceed \$100,000.

#### **Recommendation**

Based on the above, I recommend the Commission approve Modification No. 3 to Contract No. 8838 with Bombardier Transportation (Holdings) USA, Inc. in the amount not to exceed \$14,901,134, to exercise the first 1-year option (March 1, 2017 through February 28, 2018) and cover the replacement cost of obsolete or worn out AirTrain parts and equipment for a new total contract amount not to exceed \$115,444,968.



Ivar C. Satero  
Airport Director

Prepared by: Jeff Littlefield  
Chief Operating Officer

Attachment



RECEIVED  
BOARD OF SUPERVISORS San Francisco International Airport  
SAN FRANCISCO

November 16, 2016

2016 NOV 17 PM 1:39  
BY ZHB

Ms. Angela Calvillo  
Clerk of the Board  
Board of Supervisors  
City Hall  
1 Dr. Carlton B. Goodlett Place, Room 244  
San Francisco, California 94102-4689

Subject: Approval of Modification No. 3 to Contract 8838 to provide AirTrain Operations and Maintenance Services at San Francisco International Airport with Bombardier Transportation (Holdings) USA, Inc. and the City and County of San Francisco, acting by and through its Airport Commission

Dear Ms. Calvillo,

Pursuant to Section 9.118 of the City Charter, I am forwarding for the Board of Supervisor's approval, the Modification No. 3 to Contract 8838 to provide Operation and Maintenance Services for the AirTrain System, between Bombardier Transportation (Holdings) USA, Inc. and the City and County of San Francisco, acting by and through its Airport Commission. Modification No. 3 will exercise the first of two 1-year options (March 1, 2017 through February 28, 2018) and cover the replacement of obsolete AirTrain parts and equipment, in an amount not to exceed \$14,901,134 for a new total contract amount not-to-exceed \$115,444,968. The Airport Commission has approved the terms of the contract by adopting Resolution 16-0277 on November 1, 2016.

The following is a list of accompanying documents:

- Board of Supervisors Resolution;
- Approved Airport Commission Resolution No. 16-0277;
- Memorandum to the Airport Commission recommending Resolution No. 16-0277
- Form SFEC-126 for the Board of Supervisors;
- Form SFEC-126 for Mayor Lee; and
- Copy of Original Agreement, Contract 8838
- Copy of the Amendment No. 1 to Contract 8838 from the City Attorney's Office.
- Approval as to form of Modification No. 2 to Contract 8838 from the City Attorney's Office.
- Approval as to form of Modification No. 3 to Contract 8838 from the City Attorney's Office.

Please contact Cathy Widener, Airport Governmental Affairs at 650-821-5023 if you have any questions or concerns regarding this matter.

Very truly yours,

Jean Caramatti  
Commission Secretary

Enclosures

AIRPORT COMMISSION CITY AND COUNTY OF SAN FRANCISCO

EDWIN M. LEE  
MAYOR

LARRY MAZZOLA  
PRESIDENT

LINDA S. CRAYTON  
VICE PRESIDENT

ELEANOR JOHNS  
433

RICHARD J. GUGGENHIME

PETER A. STERN

IVAR C. SATERO  
AIRPORT DIRECTOR

**FORM SFEC-126:**  
**NOTIFICATION OF CONTRACT APPROVAL**  
 (S.F. Campaign and Governmental Conduct Code § 1.126)

<b>City Elective Officer Information</b> <i>(Please print clearly.)</i>	
Name of City elective officer(s): Members, SF Board of Supervisors	City elective office(s) held: Members, SF Board of Supervisors

<b>Contractor Information</b> <i>(Please print clearly.)</i>	
Bombardier Transportation (Holdings) USA Inc.	
(1) Board of Directors of Bombardier Transportation (Holdings) USA Inc. (BTHUSA)- B. Jill Hampton, Dan Gray, Jennifer Callery (2) President - B. Jill Hampton (3) N/A- No person owns 20 percent or more (4) N/A (5) BTHUSA does have a group of employees known as the "PAC-Political Action Committee" whose role is to support the Government in the U.S. at State and Federal levels when mass transit is involved.	
Contractor address: 1501 Lebanon Church Road, Pittsburgh PA 15236	
Date that contract was approved: September 16, 2008	Amount of contract: \$100,548,174
Describe the nature of the contract that was approved: Maintenance and operation services of the AirTrain system which operates 24 hours every day, providing access to SFO's Terminals, Terminal Parking Garages, Rental Car Center and BART Station.	
Comments: Modification No. 3 to Contract 8838, originally awarded pursuant to a settlement filed in the United States District Court for the Northern District of California, case number C 04-5307 PJH and further pursuant to Airport Commission Resolution No. 08-0173, No. 13-0156, No. 14-0104, and 16-0277.	

This contract was approved by (check applicable):

the City elective officer(s) identified on this form  
 a board on which the City elective officer(s) serves San Francisco Board of Supervisors  
Print Name of Board

the board of a state agency (Health Authority, Housing Authority Commission, Industrial Development Authority Board, Parking Authority, Redevelopment Agency Commission, Relocation Appeals Board, Treasure Island Development Authority) on which an appointee of the City elective officer(s) identified on this form sits

Print Name of Board

<b>Filer Information</b> <i>(Please print clearly.)</i>	
Name of filer: Angela Calvillo, Clerk of the Board of Supervisors	Contact telephone number: (415) 554 5184
Address: City Hall, Room 244, San Francisco, CA 94102	E-mail: <a href="mailto:Board.of.supervisors@sfgov.org">Board.of.supervisors@sfgov.org</a>

\_\_\_\_\_  
 Signature of City Elective Officer (if submitted by City elective officer)

\_\_\_\_\_  
 Date Signed

\_\_\_\_\_  
 Signature of Board Secretary or Clerk (if submitted by Board Secretary or Clerk)

\_\_\_\_\_  
 Date Signed