



London Breed, Mayor

Malcolm Heinicke, Chair  
 Gwyneth Borden, Vice Chair  
 Cheryl Brinkman, Director  
 Amanda Eaken, Director

Steve Heminger, Director  
 Cristina Rubke, Director  
 Art Torres, Director

Jeffrey Tumlin, Director of Transportation

DATE: March 26, 2020

**MUNICIPAL TRANSPORTATION AGENCY  
 SFMTA SIGNATURE ROUTING**

**SUBJECT: Requesting signature from the Director of Transportation to execute Contract Modification No. 7 to Contract No. CPT 762, Procurement of New Light Rail Vehicles (LRV4) with Siemens Mobility, Inc.**

Modification No. 7 will provide enhancements to the vehicle design with passenger comforts and engineering refinements that improve fleet performance; and to advance Phase 2 Production acceleration activities for early fleet replacement, for an amount not to exceed \$43,514,046, with no increase in the total Contract price, achieved through planned change allowances and a decrease in the escalation allowance; and no increase in the term of the Contract.

Final Routing	Approval Authority	Initials	Date	Comments
6	Leo Levenson, Director of Finance & Information Technology	ll	March 27, 2020	
5	Julie Kirschbaum Director of Transit	JK	March 27, 2020	
4	Robin Reitzes, Deputy City Attorney	RR	March 26, 2020	
3	Virginia Harmon, Manager of Contract Compliance	LA	March 26, 2020	*Lome Aseron signed on behalf of Virginia Harmon
2	Trinh Nguyen. Contract and Procurement Manager, Federal	TN	March 26, 2020	
1	Janet Gallegos LRV4 Program Manager, Program and Delivery Support	JG	March 26, 2020	

Contact: Janet Gallegos at 415.579.9791

**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
ONE SOUTH VAN NESS AVE, 7<sup>TH</sup> FLOOR  
SAN FRANCISCO, CA 94103**

**MODIFICATION NO. 7 TO  
AGREEMENT BETWEEN SIEMENS MOBILITY, INC.  
AND  
THE CITY AND COUNTY OF SAN FRANCISCO FOR  
PROCUREMENT OF NEW LIGHT RAIL VEHICLES (LRV4)  
(SFMTA No. 2013-19)**

This Modification No. 7 to Agreement is made and entered into on **March 27, 2020**, by and between Siemens Mobility Inc. (Contractor), and the City and County of San Francisco, a municipal corporation (City), acting by and through its Municipal Transportation Agency (SFMTA).

**RECITALS**

- A.** On September 30, 2014, the City entered into an agreement with Contractor (Agreement) to provide 175 light rail vehicles (LRVs), together with associated equipment and spare parts, as well as Options for additional LRVs and parts.
- B.** On March 31, 2015, the City approved Modification No. 1 to the Agreement to exercise Option 1 in accordance with Section 64.1 of the Agreement for 40 additional LRVs to be delivered after the Phase 1 delivery of 24 Vehicles, and to exercise Options for additional Spare Parts and Equipment, in accordance with Sections 64.2, 64.3 and 64.4 of the Agreement.
- C.** On October 30, 2015, the City approved Modification No. 2 to the Agreement to update the list of approved major suppliers listed in Section 29, clarify the purpose of Item 1.1 (Allowance) in Exhibit 2 of Volume I, and specify the payment structure for changes to the LRVs paid under Item 1.1.
- D.** On August 16, 2016, the City approved Modification No. 3 to the Agreement to update the list of approved major suppliers, modify radio/CAD/AVL systems on the Vehicles, including related price and payment schedules, provide extra time for delivery of the Vehicles and other project submittals, add a new parent

company guarantee, and make miscellaneous changes to the Technical Specification.

- E.** On June 20, 2017, the City approved Modification No. 4 to the Agreement to procure four additional LRVs to be delivered after the 24th production LRV, which Vehicles shall be part of the production fleet, conform to all requirements of the Technical Specification, and all prior design approvals and Buy America audits.
- F.** On November 28, 2018, the SFMTA, through the Director of Transportation, approved an Assignment and Assumption Agreement, assigning the Contract from Siemens Industry, Inc., to Siemens Mobility Inc.
- G.** On October 22, 2019, the City approved Modification No. 5 to the Agreement to commence design of and expedite the addition of track brakes to the power trucks on eight LRVs as a method to reduce frequency of flat spots on wheels caused by activation of the push button emergency brake.
- H.** On December 6, 2019, the City approved Modification No. 6 to the Agreement to (i) update the Vehicles with multiple changes and enhancements to improve passenger comfort, operational functionality, and maintainability and fleet reliability; (ii) continue installation of the track brakes on the power trucks begun in Modification No. 5; and (iii) initiate activities in support of an accelerated Phase 2 delivery schedule with a goal for Phase 2 to be completed by 2025; and update parent company corporate guarantees.
- I.** The SFMTA now wishes to modify the Agreement to (i) further update the Vehicles with changes and enhancements to improve operational functionality and maintainability, including seating changes for increased passenger comfort; (ii) complete installation of the track brakes on the power trucks as planned and begun in Modification No. 5 and continued in Modification No. 6; (iii) complete activities in support of an accelerated Phase 2 delivery schedule to be completed by 2025 as planned and begun in Modification No. 6; and (iv) update parent company corporate guarantees.

Now, therefore, the parties agree that the Agreement shall be modified as follows:

- 1.** *Section 59 (Production Acceleration Activities) of the Agreement is replaced in its entirety with a revised Section 59 to read as follows:*

**59. Production Acceleration Activities**

**59.1. General.** The Contractor shall deliver Phase 2 Vehicles on a compressed schedule in accordance with Exhibit 3B, including performing all activities required to lease and establish a second production facility (Satellite Facility), which will be used for

Phase 2 LRV4 carshell frame production and other related activities (Production Acceleration Activities). In the event Contractor uses the Satellite Facility for work for agencies or companies other than the SFMTA, the parties shall conduct an analysis to determine to what extent Price Item 22 may be reduced to account for work that does not benefit the SFMTA. Production Acceleration Activities shall include, but not be limited to:

- 59.1.1. Facility Lease and Tenant Improvements.**  
The Contractor shall establish the Satellite Facility in the Sacramento Region within 50 miles of the Contractor's French Road facility (Existing Facility), and shall be responsible for all leasing costs, including rent and real estate costs, facility management, insurance, as well as all costs required to mechanically and electrical fit out the Satellite Facility for carshell production to support Phase 2. Any activities required to meet Phase 2 obligations not performed at the Satellite Facility will be performed at the Existing Facility.
- 59.1.2. Production Equipment.** The Contractor shall provide all equipment necessary to support the Phase 2 activities, including, but not limited to, welding fixtures and equipment, cranes, an integration fixture, turning jigs, and other assembly line equipment.
- 59.1.3. Satellite Facility Management and Supervision.**  
The Contractor shall staff, supervise, and manage the Satellite Facility. The Contractor also shall be responsible for any additional activities and costs resulting from managing dual sites (the Satellite Facility and Existing Facility), including managing the coordination between the two facilities. The Contractor shall provide 24-hour notice to SFMTA representatives for inspections to be performed at the Satellite Facility, consistent with the currently agreed inspection process.
- 59.1.4. Logistics and Materials Handling.** The Contractor shall be responsible for all additional equipment and activities related to dual site receiving and inspection, parts selection, loading, and transportation between the Satellite and Existing Facilities.
- 59.1.5. Supplier Ramp-Up.** The Contractor shall be responsible for all costs and activities related to

changes in supplier delivery location and schedules, including, but not limited to, acceleration costs and supply chain changes resulting from establishing the Satellite Facility.

**59.1.6. All Other Associated Acceleration Costs.** The Contractor shall be responsible for all industrial engineering or other costs related to the changes in production processes required by the accelerated schedule, including, but not limited to, any changes or additions to production resulting from establishment of the Satellite Facility, testing, and QA documentation.

**59.2. Reimbursement.** The City shall reimburse the Contractor for the preliminary activities of the Production Acceleration Activities in the amount set forth in Exhibit 1A, Item 21 (Initial Production Acceleration Activities) and Item 22 (Continued Production Acceleration Activities) according to the milestones in Exhibit 2, Item 21 and Item 22. Cost Items 21 and 22 represent the total amount payable to the Contractor in order to accelerate the Phase 2 Vehicle deliveries in accordance with Exhibit 3B (Vehicle Delivery Schedule).

2. *Exhibit 1A (Schedule of Prices) of the Agreement is replaced in its entirety with a new Exhibit 1A (Schedule of Prices), which is attached to this Modification.*
3. *Exhibits 2, 2.1, 2.2, 2.3, and 2.4 (Payment Schedules) of the Agreement are consolidated and replaced by a new Exhibit 2 (Payment Schedule), which is attached to this Modification.*
4. *Exhibit 3 (Project Delivery Schedule) of the Agreement is replaced in its entirety with a new Exhibit 3 (Project Delivery Schedule), which is attached to this Modification.*
5. *Exhibit 6 of the Agreement is modified such that the Contractor shall increase the existing Parent Company Guarantees to reflect the increase in the Contract Amounts for each one, respectively, as follows: The amount of the guarantees (or reduced amount, if applicable) shall be increased by \$2,892,319 for the 24 Base Order Vehicles (Guarantee number 466742), \$4,820,532 for the Option 1 Vehicles (Guarantee number 484678), \$482,053 for the Phase W Vehicles (Guarantee number 556963) and by \$35,319,221 for the Phase 2 Vehicles (Guarantee number 634590) until the work is complete. To facilitate increases to the existing Guarantees, Contractor shall execute amended Guarantees upon execution of this Modification.*

6. *A new Exhibit 8 (Modification No. 7 Change Orders) is added to the Agreement and is attached to this Modification.* Exhibit 8 lists all change orders that are incorporated into this Modification. Change Order Nos. 28, 33 and 34 require modifications to the Technical Specification (see Sections 8, 9, 10, and 12 of this Modification).

Change Order Nos. 29-32, 35-40 are changes requested by the SFMTA after the First Article Inspection (FAI) process in Section 20.9.3 of the Technical Specification (FAI Changes). The Contractor agrees to perform the following FAI Changes:

- A. Change Order 29 (Passenger Information Signs (PIS)) – Multiple PIS enhancements that update the technology consistent with evolving performance needs and expectations.
- B. Change Order 30 (Train Digital Recorder (TDR6) Hard Disk Drive (HDD) Unmounted) – The train operator display (TOD) shall display a message when the TDR6 HDD is unmounted to assist maintenance, troubleshooting, and verifying readiness for service.
- C. Change Order 31 (Restrain Corner Hatch at the End of Travel) – The corner hatch shall be modified to prevent it from quickly opening when unlocked.
- D. Change Order 32 (Replace Door Touch Strips with Push Button) – On Phase 2 Vehicles only, each doorway shall have “keep door open” push buttons instead of the touch strips installed on the Phase 1, Phase W, and Option 1 Vehicles.
- E. Change Order 35 (Provisions for Ease of Tire Replacement) – Wheel hubs specified in this change will be designed with a hole pattern to be approved by the SFMTA, to facilitate use with shop equipment.
- F. Change Order 36 (PIS-40 A-Pattern Change) – The PIS system and CAD/AVL system shall be modified to allow remote and manual changes to information displays at any time.
- G. Change Order 37 (Track Brake Installation) – Install track brakes on power trucks on all Phase 2 Vehicles.
- H. Seating Arrangement Changes

All interior passenger seating shall be changed on all Vehicles. Individual passenger seats shall replace bench seats and flip seats, and the interior of the Vehicle shall have both longitudinal passenger seating (facing the center of the Car) and transverse seating (forward-facing). Stanchions and other interior features shall also be reconfigured to provide more stanchions, hand-holds, and passenger stop request buttons.

- H1 - Change Order 38 (Interior Seating – Single Transverse Retrofit – 68 Vehicles) – The retrofit of Phase 1, Option 1, and Phase W Vehicles (Cars 1-68) shall consist of the

removal of current seating, and installation of new seats as described above. This layout shall have areas of single transverse seats, as approved by the SFMTA.

- H2 - Change Order 39 (Interior Seating – Single Transverse – 50 Vehicles) – The implementation of the redesigned seating configuration for the first 50 Vehicles of Phase 2 (cars 69-118) shall follow the same redesign as the retrofit of Phase 1, Option 1, and Phase W Vehicles described in Change Order 38.
- H3 - Change Order 40 (Interior Seating — Double Transverse – 101 Vehicles) – The implementation of the redesigned seating configuration to Phase 2 Vehicles after the first 50 Vehicles (Cars 119-219) shall include areas of double-wide transverse seats, as approved by the SFMTA.

These activities will be compensated according to the payment milestones shown in Exhibit 2. These activities shall be completed as provided in Exhibit 3A.

7. *Section 2.2.2 of the Technical Specification (Seating Arrangement), subsection 3 is replaced in its entirety to read as follows:*
  3. A minimum of 60 passenger seats per LRV is preferred, to the extent feasible. Contractor shall provide a minimum of 12 transverse seats per Vehicle. The final seating arrangement of each LRV is subject to the approval of the SFMTA.
8. *Section 6.3.2.2 of the Technical Specification (Exterior Manual Emergency Door Release) is modified to add a new subsection 3 to read as follows:*
  3. If the door release is located behind an access panel, the access panel shall lock when pushed closed.
9. *Section 6.3.4.2 of the Technical Specification (Crew Switches) is modified to add a new subsection 2 to read as follows:*
  2. If the crew switch is located behind an access panel, the access panel shall be lock when pushed closed.
10. *Section 9.2.4 of the Technical Specification (Convenience Outlets) is modified to add a new subsection 3 to read as follows:*
  3. Convenience outlets located within the passenger area shall be protected by means of a lockable cover.

11. *Section 22.2.6 of the Technical Specification (Training) is modified to add a new subsection 22.2.6.8 to read as follows :*
  - 22.2.6.8 Contractor shall provide additional training to supplement and extend base training. Training modules and schedules will be mutually agreed to by the SFMTA and Contractor.
  
12. *Section 23.3.1 of the Technical Specification (Fare Collection) is modified to add a new subsection 2 to read as follows:*
  2. Phase 2 Vehicles shall include prewiring for four additional Clipper® passenger devices, so that there is wiring for one passenger device at each doorway.
  
13. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modifications Nos. 1-6 and this Modification No. 7 shall be full accord and satisfaction for all past, current and prospective costs incurred in connection with Contractor's performance of all work for all executed Modifications up to and including the work covered under this Modification No. 7, without limitation, including any and all markups and overhead. If this modification involves the granting of an extension of time, with or without cost, Contractor releases the City from all claims and costs associated with such extension of time. Said costs may include, but are not limited to, costs for labor, materials, equipment, disruption, lost productivity, escalation, delay, extended overhead, administration and extended performance time. Contractor releases the City from all claims for which full accord and satisfaction is made, as set forth above. Notwithstanding the foregoing, this Release does not apply to work associated with change orders that are currently under discussion between Contractor and the City at the time of this Modification. This paragraph replaces the release paragraphs in Modification Nos. 1, 2, 3, 4, 5 and 6.
  
14. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.
  
15. **Legal Effect.** Except as expressly modified by this Modification No. 7, all other terms and conditions of the Contract remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties hereto have entered into and executed this Modification No. 7 on the date set forth on page 1 above.

**CITY**

**San Francisco Municipal Transportation Agency**



Jeffrey P. Tumlin  
Director of Transportation

San Francisco Municipal Transportation Agency  
Board of Directors  
Resolution No. 200329-029  
Dated: March 17, 2020

Attest:



Secretary

Approved as to Form:

Dennis J. Herrera  
City Attorney

By: Robin Reitzes  
Robin M. Reitzes  
Deputy City Attorney

**CONTRACTOR**

**Siemens Mobility, Inc.**



Michael Cahill  
President



Christopher Halleus  
Vice President, FBA

City vendor number: 50009  
Federal Taxpayer ID No. 13-2762488

n:\ptc\as2020\1000417\01430123.docx

**Attachments**

- Exhibit 1A – Schedule of Prices
- Exhibit 2 – Payment Schedule
- Exhibit 3 – Project Delivery Schedules
- Exhibit 8 – Modification No. 7 Change Orders

## EXHIBIT 1A Schedule of Prices

### BASE

ITEM	ORIGINAL CONTRACT/ MOD NO.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE <sup>4</sup>
Item 1	Original	Engineering Design, Project Management and Design Qualification Testing	Lump Sum		\$37,541,102
Item 1.1	Original, Mod 2, Mod 7 adjustment	Allowance for (a) regulatory mandated changes, (b) passenger enhancements, and (c) system modifications in order for Vehicle to interface with other SFMTA projects (e.g., radio project)	Lump Sum		\$0 <sup>1</sup>
Item 2.1	Mod 1	Vehicle Price for Base Order Phase 1	\$3,327,250	24 Cars	\$79,854,000
Item 2.2	Mod 1	Vehicle Price for Base Order Phase 2	\$3,327,250 <sup>2</sup>	151 Cars	\$502,414,750
Item 3	Original	Operating, Maintenance and Parts Manuals	Lump Sum		\$809,478
Item 4.1	Original	Training	Lump Sum		\$361,557
Item 4.2	Original	Train Simulator (1) (In accordance with Section 22.2.8 of Technical Specifications)	Lump Sum		\$1,704,650
Item 5.1	Mod 1	Spare Parts (Total of Exhibit 1.B, Phase 1)	Lump Sum		\$14,153,840
Item 5.2	Mod 1	Spare Parts (Total of Exhibit 1.B, Phase 2) <sup>2 5</sup>			
Item 6	Original	Special Tools, Test and Diagnostic Equipment (Total of Exhibit 1.D)	Lump Sum		\$1,792,624
Item 7.1	Mod 1	Option 1 for 40 Additional New Light Rail Vehicles	\$3,349,270 <sup>3</sup>	40 Cars	\$133,970,800

Item 8.1	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 1) <sup>5</sup>	Lump Sum		\$11,269,527
Item 8.2	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 2) <sup>25</sup>			
Item 9	Mod 1	Spare parts for Option Cars <sup>2 5</sup>	Lump Sum		\$15,000,000
Item 10	Mod 1	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) <sup>2</sup>	Lump Sum		\$1,704,650
Item 11	Mod 3	Modification No. 3 (Non-Recurring Costs)			
Item 11.1	Mod 3	Engineering	Lump Sum		\$6,128,416
Item 11.2	Mod 3	SIBAS Expert 2 Monitoring and Diagnostic Software	Lump Sum		\$71,000
Item 12	Mod 3	Modification No. 3 (Base Recurring Costs)			
Item 12A	Mod 3	Base Phase 1	\$62,313 <sup>6</sup>	24 Cars	\$1,495,514
Item 12B	Mod 3	Base Phase 2	\$62,313 <sup>2 6</sup>	151 Cars	\$9,409,275
Item 13	Mod 3	Modification No. 3 Option 1 (Recurring Costs)	\$62,313 <sup>6</sup>	40 Cars	\$2,492,523
Item 14	Mod 4	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750 <sup>3</sup>	4 Cars	\$15,875,000
Item 15	Mod 5	Track Brakes Phase 1			
Item 15.1	Mod 5	Non-recurring Costs for track brake, including engineering, testing, and updates to manuals.	Lump Sum		\$286,617
Item 15.2	Mod 5	Installation of track brakes on 8 Phase 1 Cars.	\$22,486	8 Cars	\$179,888
Item 16	Mod 6	Weight Incentives	TBD	TBD	TBD
Item 17	Mod 6	Non Recurring Engineering Costs			
Item 17.1	Mod 6	Phase 1, Option 1, Phase W Engineering Costs for Changes 8 – 25	Lump Sum		\$492,738

Item 17.2	Mod 6	Phase 2 Preliminary Design Work, Single Transverse Seat	Lump Sum	1	\$714,694
Item 17.3	Mod 6	Phase 2 Preliminary Design Work, Double Transverse Seat	Lump Sum	1	\$159,140
Item 18	Mod 6	Recurring Costs Phase 1, Option 1, Phase W			
Item 18.1	Mod 6	Modifications Performed at Siemens Facility (Change Orders 8 - 11)	\$11,179	68 Cars	\$760,172
Item 18.2	Mod 6	Modifications Performed at SFMTA (Change Orders 12 - 24)	\$2,284	68 Cars	\$155,312
Item 19	Mod 6	Recurring Costs for Phase 2 (Change Orders 9 - 24)	\$4,172 <sup>2</sup>	151 Cars	\$629,972
Item 20	Mod 6	Track Brake Installation on 60 Phase 1, Option 1, Phase W Cars	\$21,411	60 Cars	\$1,284,660
Item 21	Mod 6	Initial Production Acceleration Activities	Lump Sum	1	\$5,603,000
Item 22	Mod 7	Continued Production Acceleration Activities	Lump Sum	1	\$19,899,553
Item 23	Mod 7	Engineering Costs for Modification 7 (Change Orders 28-36, 38-40)	Lump Sum	1	\$2,809,279
Item 24	Mod 7	Phase 1, Option 1, and Phase W Recurring Costs Modifications Performed at SFMTA (Change Orders 28, 30, 31, 33)	\$3,472	68 Cars	\$236,096
Item 25	Mod 7	Phase 1, Option 1, and Phase W Vehicle Interior Redesign Modification Performed at SFMTA (Change Order 38)	\$109,998	68 Cars	\$7,479,864
Item 26	Mod 7	Recurring Costs for Phase 2	\$67,552	50 Cars	\$3,377,600

		Modification 7 (50 LRVs 69-118) (Change Order 28, 31, 32, 33, 34, 35, 37, 39)			
Item 27	Mod 7	Recurring Costs for Phase 2 Modification 7 (101 LRVs 119-219) (Change Order 28, 31, 32, 33, 34, 35, 37, 40)	\$86,254	101 Cars	\$8,711,654
Item 28	Mod 7	Additional Training Allowance	Lump Sum	1	\$1,000,000
				<b>SUBTOTAL</b>	<b>\$889,828,945</b>

### Option

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE <sup>4</sup>
Item 7.2	Mod 1	Option 2 for 1 to 45 Additional New Light Rail Vehicles	\$3,329,011 <sup>2</sup>	45 Cars	\$149,805,495

### Escalation

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE <sup>4</sup>
Allowance	Original, Mod 6, Mod 7 adjustment	Allowance for Escalation in accordance with Agreement, Section 7.5	n/a	n/a	\$ 153,017,137

<b>Not to exceed CONTRACT LIMIT</b>	<b>\$1,192,651,577</b>
---	------------------------

#### Notes:

<sup>1</sup> Allowance used and incorporated into Contract Modification No. 7, Items 26 and 27.

<sup>2</sup> This price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement.

<sup>3</sup> Price includes escalation.

<sup>4</sup> Prices do not include sales taxes.

<sup>5</sup> The prices of Spare Parts (recorded in Exhibits 1B and 1C Nominal Spare Parts) which are affected by the changes (Trucks, Wheels, Seats) in Modification 7 will be adjusted to reflect the cost of those changes as presented in the Change Orders.

<sup>6</sup> Extended price reflects the Change Order, unit price is rounded.

**Exhibit 2**  
**PAYMENT SCHEDULE**  
 (All Item references are to Exhibit 1.A)

Item 1 - Engineering Design, Project Management and Design Qualification Testing

	Milestone	Percent of Bid Item
A	Submittal and Approval of Test Program, System Safety, Reliability, Maintainability and other plans as negotiated with SFMTA	2%
B	Completion and Approval of Preliminary Design Review	2%
C	Completion and Approval of Final Design Review	35%
D	Completion and Approval of Vehicle Performance Qualification Testing	30%
E	Completion and Approval of Test Program as specified	26%
F	Completion and Approval of all Contract Requirements (Retention)	5%
Total for Item 1		100%

Item 2 – Vehicle Price for Base Contract

Item 2A – Vehicle Price for Base Contract (Cars 1 - 24)

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 1 - 24).* <ul style="list-style-type: none"> <li>• Propulsion</li> <li>• Friction Brake</li> <li>• Air Comfort</li> <li>• Door Operators &amp; Controls</li> <li>• Carbody</li> <li>• Train Control</li> <li>• Coupler</li> <li>• Communication</li> </ul>	2%
B	Delivery of complete set of subsystems to site of installation.	20%/Vehicle
C	Vehicle structure complete and ready for shipment to final assembly site	20%/Vehicle

	Milestone	Percent of Bid Item
D	SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA property	25%/Vehicle
E	Conditional Acceptance of Vehicle by SFMTA	30%/Vehicle
F	Completion and Approval of all Contract Requirements for Phase 1 (Retention)	3%
Total for Item 2A		100%

\* Payment will be made only to the extent that deposits have been paid to suppliers and up to the amount of the deposits or 2%, whichever is the lesser value; in addition Contractor must provide security for payment under Section 7.3 of the Agreement.

Item 2B – Vehicle Price for Base Contract (Cars 25 - 175)

Item 2B.1 – Vehicle Price for Base Contract (applies to 107 of 151 Phase 2 Vehicles)

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 25 - 175).* <ul style="list-style-type: none"> <li>• Propulsion</li> <li>• Friction Brake</li> <li>• Air Comfort</li> <li>• Door Operators &amp; Controls</li> <li>• Carbody</li> <li>• Train Control</li> <li>• Coupler</li> <li>• Communication</li> </ul>	2%
B	Delivery of complete set of subsystems to site of installation.	20%/Vehicle
C	Vehicle structure complete and ready for shipment to final assembly site	20%/Vehicle
D	SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA property	25%/Vehicle
E	Conditional Acceptance of Vehicle by SFMTA	30%/Vehicle
F	Completion and Approval of all Contract Requirements for phase 2 (Retention)	3%
Total for Item 2B.1		100%

Item 2B.2 – Vehicle Price for Base Contract (applies to 44 accelerated Vehicles of 151 Phase 2 Vehicles ) \*\*

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 25 - 175).* <ul style="list-style-type: none"> <li>• Propulsion</li> <li>• Friction Brake</li> <li>• Air Comfort</li> <li>• Door Operators &amp; Controls</li> <li>• Carbody</li> <li>• Train Control</li> <li>• Coupler</li> <li>• Communication</li> </ul>	2%
B	Delivery of complete set of subsystems to site of installation.	35%/Vehicle
C	Vehicle structure complete and ready for shipment to final assembly site	20%/Vehicle
D	SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA property	20%/Vehicle
E	Conditional Acceptance of Vehicle by SFMTA	20%/Vehicle
F	Completion and Approval of all Contract Requirements for phase 2 (Retention)	3%
Total for Item 2B.2		100%

\* Payment will be made only to the extent that deposits have been paid to suppliers and up to the amount of the deposits or 2%, whichever is the lesser value; in addition, Contractor must provide security for the payment, as required under Section 7.3 of the Agreement.

\*\* 44 of 151 Phase 2 Vehicles are classified as “accelerated” and shall apply to every other Vehicle to be delivered after the 63<sup>rd</sup> Vehicle of Phase 2 (Phase 2 Cars 65, 67, 69, etc.) unless otherwise agreed between the Parties.

Item 3 - Operating, Maintenance and Parts Manuals

	Milestone	Percent of Bid Item
A	Acceptance of Draft Manuals	5%
B	Delivery and Acceptance of Operating, Maintenance and Parts Manuals	90%
C	Completion and Approval of all Contract Requirements (Retention)	5%
Total for Item 3		100%

Item 4 – Training and Train Simulator

Item 4.1 – Training

	Milestone	Percent of Bid Item
A	Completion of Training Program and delivery and acceptance of all deliverables	95%
B	Completion and approval of all Contract Requirements (Retention)	5%
Total for Item 4		100%

Item 4.2 – Train Simulator

	Milestone	Percent of Bid Item
A	Delivery and Acceptance of Train Simulator	95%
B	Completion and Acceptance of all Contract Requirements (Retention)	5%
Total for Item 4.2		100%

Item 5 - Spare Parts

	Milestone	Percent of Bid Item
A	Delivery and acceptance of spare parts. Delivery and payment will be on a line-item basis.	95%
B	Completion and approval of all Contract Requirements (Retention)	5%
Total for Item 5		100%

Item 6 – Special Tools, Test and Diagnostic Equipment

	Milestone	Percent of Bid Item
A	Delivery and acceptance of Diagnostic Test Equipment, Special Tools, Bench Test Equipment	95%
B	Completion and approval of all Contract Requirements (Retention)	5%
Total for Item 6		100%

Item 7 - Option for 1 to 85 Additional New Light Rail Vehicles

Item 7.1 - Option 1 for 40 Additional New Light Rail Vehicles  
Progress payments will be made in accordance with Item 2A

Item 7.2 – Option 2 for 1 to 45 Additional New Light Rail Vehicles  
Progress payments will be made in accordance with Item 2B.1

Item 8 – Additional Spare Parts

Progress payments will be made in accordance with Item 5.

Item 9 – Spare Parts for Options

Progress payments will be made in accordance with Item 5.

Item 10 – Train Simulator

Progress payments will be made in accordance with Item 4.2.

Item 11 - Modification No. 3 Work (Non-Recurring Costs)

Item 11.1 – Engineering

	Milestone	Percent of Bid Item
A	Conceptual Design Review / Preliminary Design Review / Plan	20%
B	Final Design Review	40%
C	First Article Inspection	20%
D	System Acceptance Test	15%
E	Completion and Approval of all Contract Requirements (Retention)	5%
Total for Item 11.1		100%

Item 11.2 – SIBAS Expert 2 Monitoring and Diagnostic Software

	Milestone	Percent of Bid Item
A	Delivery and acceptance of SIBAS Expert Software	62%
B	Completion by SFMTA of two SIBAS Expert Training Sessions	33%
C	Completion and Approval of all Contract Requirements (Retention)	5%
Total for Item 11.2		100%

Item 12 - Modification No. 3 (Base Recurring Costs)

Item 12A – Base Phase 1

	Milestone	Percent of Bid Item
A	Delivery to site of installation of equipment required by Modification No. 3	42%
B	SFMTA Acceptance for shipment from final assembly site to SFMTA property of Vehicle with equipment Installed as required for Phase 1	25%
C	SFMTA Conditional Acceptance of Vehicle with equipment installed as required for Phase 1	30%
D	Completion and Acceptance of all Contract requirements for Phase 1 (Retention)	3%
Total for Item 12A		100%

Item 12B – Base Phase 2

	Milestone	Percent of Bid Item
A	Delivery to site of installation of equipment required by Modification No. 3	42%
B	SFMTA Acceptance for shipment from final assembly site to SFMTA property of Vehicle with equipment installed as required for Phase 2	25%
C	SFMTA Conditional Acceptance of Vehicle with equipment installed as required for Phase 2	30%
D	Completion and Acceptance of all Contract requirements for Phase 2 (Retention)	3%
Total for Item 12B		100%

Item 13 – Option 1 (Recurring Costs)

	Milestone	Percent of Bid Item
A	Delivery to site of installation of equipment required for Option 1	42%
B	SFMTA Acceptance for shipment from final assembly site to SFMTA property of Vehicle with equipment installed as required for Option 1	25%
C	SFMTA Conditional Acceptance of Vehicle with equipment installed as required for Option 1	30%
D	Completion and Acceptance of all Contract requirements for Option 1 (Retention)	3%
Total for Item 13		100%

Item 14 - Contract Modification 4: Vehicle Price for Phase W

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 25 – 28).* <ul style="list-style-type: none"> <li>• Propulsion</li> <li>• Friction Brake</li> <li>• Air Comfort</li> <li>• Door Operators &amp; Controls</li> <li>• Carbody</li> <li>• Train Control</li> <li>• Coupler</li> <li>• Communication</li> </ul>	2%
B	Delivery of complete set of subsystems to site of installation.	20%/Vehicle
C	Vehicle structure complete and ready for shipment to final assembly site	20%/Vehicle
D	SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA property	25%/Vehicle
E	Conditional Acceptance of Vehicle by SFMTA	30%/Vehicle
F	Completion and Approval of all Contract Requirements for Phase W (Retention)	3%
Total for Item 14		100%

\* Payment will be made only to the extent that deposits have been paid to suppliers and up to the amount of the deposits or 2%, whichever is the lesser value; in addition Contractor must provide security for payment under Section 7.3 of the Agreement.

Item 15 - Modification No. 5 Work

Item 15.1 – Non-Recurring Costs

	Milestone	Percent of Bid Item
A	Submittal and approval of engineering submittals and test documentation and manuals for additional track brakes on power trucks	100%

Item 15.2 – Vehicle Installation

	Milestone	Percent of Bid Item
A	Installation, testing, and Acceptance of track brakes on power trucks on 8 LRVs	100%

Item 16 – Weight Incentives – Actual amount will be determined according to Section 19.2 of the Agreement.

Item 16.1 – Phase 1, Option 1, and Phase W Weight Incentives

	Milestone	Percent of Bid Item
A	SFMTA Acceptance for shipment of Vehicle 2068 from final assembly site to SFMTA	100%

Item 16.2 – Phase 2 Weight Incentives

	Milestone	Percent of Bid Item
A	SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA	100%

Item 17 – Non-Recurring Engineering Costs for Modification No. 6 Work

Item 17.1 – Phase 1, Option 1, and Phase W Non-Recurring Engineering

	Milestone	Percent of Bid Item
A	Submittal and Approval of Design Documentation for Change Orders 8 – 11	55%
B	Submittal and Approval of Field Modification Instructions and/or Design/Software Documentation for Change Orders 12 – 24	45%

Item 17.2 – Phase 2 Preliminary Design Work, Single Transverse Seat

	Milestone	Percent of Bid Item
A	Submittal and Approval of Preliminary Design Review for Change Order 26 - Single Transverse Arrangement	75%
B	Submittal and Approval of Final Design Review for Change Order 26 - Single Transverse Arrangement	25%

Item 17.3 – Phase 2 Preliminary Design Work, Double Transverse Seat

	Milestone	Percent of Bid Item
A	Submittal and Approval of Carshell Analysis for Change Order 27 - Double Seat Arrangement	100%

Item 18 – Recurring Costs for Modification No. 6 – Phase 1

Item 18.1 – Modifications Completed at Siemens Facility

	Milestone	Percent of Bid Item
A	Completion of Installation of Modifications for Change Orders 8 -11 Phase 1, Option 1, and Phase W Cars	100%

Item 18.2 – Modifications Completed at SFMTA

	Milestone	Percent of Bid Item
A	Completion of Installation of Modifications for Change Orders 12 - 24 for Phase 1, Option 1, and Phase W Cars	100%

Item 19 – Recurring Costs for Modification No. 6 – Phase 2

	Milestone	Percent of Bid Item
A	Completion of Installation of Modifications for Change Orders 9 - 24 for Phase 2 Cars	100% per Vehicle

Item 20 – Track Brake Modifications

	Milestone	Percent of Bid Item
A	Completion of Installation of Modifications for Track Brakes in 28 Cars (Change Order 25)	33%
B	Completion of Installation of Modifications for Track Brakes in 48 Cars (Change Order 25)	33%
C	Completion of Installation of Modifications for Track Brakes in 68 Cars (Change Order 25)	34%

Item 21 – Initial Production Acceleration Activities

	Milestone	Percent of Bid Item
A	Occupation and Fit Out of Satellite Facility	50%
B	Completion of Installation of Major Equipment Items (Crane, Integration and Lifting/Turning Equipment) at Satellite Facility	50%

Item 22 – Continued Production Acceleration Activities

	Milestone	Percent of Bid Item
A	Commencement of Carshell Production	20%
B	Completion of First Carshell	10%
C	Vehicle Assembly Readiness – Paint Booth, Test Pit Installed	10%
D	Shipment of First Phase 2 Vehicle	10%
E	Recurring Amounts paid evenly in quarterly increments June 2020 to December 2025	50%

Item 23 – Non-Recurring Engineering Costs for Modification No. 7 Work

	Milestone	Percent of Bid Item
A	Approval of Field Modification Instructions for Vehicle Interior Retrofit and Reconfiguration, Single Transverse, Change Orders 38 and 39	20%
B	Approval of Final Design Review and Testing for Vehicle Interior Redesign, Double Transverse, Change Order 40	40%
C	PIS Software releases (Change Orders 29, 36) and Field Modification Instructions, Software Releases, or Engineering Documentation for all other (non-interior) Change Orders (Change Orders 28, 30-35)	40%

Item 24 – Recurring Costs for Modification No. 7 – Phase 1, Option 1, Phase W

	Milestone	Percent of Bid Item
A	Completion of Installation of Modifications in 34 Cars for Change Orders 28, 30, 31, 33 Phase 1, Option 1, Phase W Cars	50%
B	Completion of Installation of Modifications in 34 Cars for Change Orders 28, 30, 31, 33 Phase 1, Option 1, Phase W Cars	50%

Item 25 – Recurring Costs for Modification No. 7 – Vehicle Interior Redesign Phase 1, Option 1, Phase W

	Milestone	Percent of Bid Item
A	Completion of Retrofit of Vehicle Interior for Change Order 38 Phase 1, Option 1, Phase W	100% per Vehicle

Item 26 – Recurring Costs for Modification No. 7 – 50 Phase 2 Vehicles, 69-118 (Change Orders 28, 31-35, 37, 39)

Progress Payment will be made in accordance with Exhibit 2, Item 2B.1

Item 27 – Recurring Costs for Modification No. 7 – 101 Phase 2 Vehicles, 119-219 (Change Orders 28, 31-35, 37, 40)

Progress Payments will be made in accordance with Exhibit 2, Item 2B.1 and 2B.2 according to Vehicle number.

Item 28 – Additional Training Allowance

	Milestone	Percent of Bid Item
A	Delivery and Acceptance of Training – Payment will be on a per module basis	100% per Module

### EXHIBIT 3 PROJECT DELIVERY AND VEHICLE DELIVERY SCHEDULE

#### A. Project Delivery Schedule

Item	Date
Notice To Proceed	9/30/2014
Project Plan	11/29/2014
Training Start	4/17/2017
Training Complete	8/15/2017
Special Tools / Diagnostic Test Equipment	4/17/2017
Delivery of Publications (Manuals, Parts Book, Drawings) - Prelim	2/16/2017
Delivery of Publications (Manuals, Parts Book, Drawings) - Final	11/13/2017
Delivery of Spare Parts (Phase 1)	8/15/2017
Contract Mod 5, Item 15.1 Completion of Engineering for Additional Track Brakes	9/30/2019
Contract Mod 5, Item 15.2 Installation of Additional Track Brakes on 8 Vehicles	10/31/2019
Contract Mod 6, Item 17.1 A – Phase 1, Option 1, Phase W Non-Recurring Engineering, Submittal of Design Documentation for Change Orders 8 – 11	5/31/2017
Contract Mod 6, Item 17.1 B – Phase 1, Option 1, Phase W Non-Recurring Engineering, Submittal of Field Modification Instructions and or Software/ Design Documentation for Change Orders 12 – 24	1/3/2020
Contract Mod 6, Item 17.2 A - Phase 2 Preliminary Design Work, Single Transverse Seat, Completion of Preliminary Design Review for Change Order 26 - Single Transverse arrangement	1/24/2020
Contract Mod 6, Item 17.2 B - Phase 2 Preliminary Design Work, Single Transverse Seat, Completion of Final Design Review for Change Order 26 - Single Transverse arrangement	3/15/2020
Contract Mod 6, Item 17.3 A – Phase 2 Preliminary Design Work, Double Transverse Seat, Submittal of Carshell Analysis for Change Order 27 - Double Seat Arrangement	2/28/2020
Contract Mod 6, Item 18.1 A – Modifications Completed at Siemens Facility, Completion of Installation of modifications for Change Orders 8 -11 Phase 1, Option 1, Phase W Cars	10/8/2019
Contract Mod 6, Item 18.2 A – Modifications Completed at SFMTA, Completion of Installation of modifications for Change Orders 12 - 24 for Phase 1, Option 1, Phase W Cars	10/1/2020
Contract Mod 6, Item 19 A – Recurring Costs for Modification\6 – Phase 2, Completion of Installation of modifications for Change Orders 8 - 24 for Phase 2 Cars	Per Phase 2 Vehicle Delivery
Contract Mod 6, Item 20.1 A – Retrofit Track Brakes in 60	2/15/2020

Cars Phase 1, Option 1, Phase W, Completion of Installation of modifications for Track Brakes in 28 Cars (Change Order 25)	
Contract Mod 6, Item 20.1 B – Retrofit Track Brakes in 60 Cars Phase 1, Option 1, Phase W, Completion of Installation of modifications for Track Brakes in 48 Cars (Change Order 25)	3/15/2020
Contract Mod 6, Item 20.1 C – Retrofit Track Brakes in 60 Cars Phase 1, Option 1, Phase W, Completion of Installation of modifications for Track Brakes in 68 Cars (Change Order 25)	4/15/2020
Contract Mod 6, Item 21 A – Production Acceleration, Occupation of Facility, Change Order 28	11/30/2019
Contract Mod 6, Item 21 B – Production Acceleration, Completed Installation of Major Equipment Items (Crane, Integration and Lifting/turning equipment) Change Order 28	3/31/2020
Delivery of Spare Parts (35% of Phase 2 Quantity)	5/15/2021
Delivery of Spare Parts (35% of Phase 2 Quantity)	With Delivery of 50th Vehicle (Phase 2)
Delivery of Spare Parts (30% of Phase 2 Quantity)	With Delivery of 100th Vehicle (Phase 2)
Acceptance of Training Simulator 1	5/31/2018
Delivery of Additional Spare Parts (Exhibit 1 C)	TBD
Delivery of Spare Parts for Option Vehicles	TBD
Delivery of Training Simulator 2	TBD
Contract Mod 7, Item 22 A – Commencement of Carshell Production	6/15/2020
Contract Mod 7, Item 22 B – Completion of First Carshell	9/15/2020
Contract Mod 7, Item 22 C – Vehicle Assembly Readiness – Paint Booth, Test Pit Installed	12/15/2020
Contract Mod 7, Item 22 D – Shipment of First Phase 2 Vehicle	5/15/2021
Contract Mod 7, Item 22 E – Recurring Amounts	Quarterly, June 2020 to December 2025
Contract Mod 7, Item 23 A – Approval of Field Modification Instructions for Vehicle Interior Retrofit and Reconfiguration, Single Transverse, Change Orders 38 and 39	9/15/2020
Contract Mod 7, Item 23 B – Approval of Final Design Review and Testing for Vehicle Interior Redesign, Double Transverse, Change Order 40	12/15/2020
Contract Mod 7, Item 23 C – PIS Software releases (Change Orders 29, 36) and Field Modification Instructions, Software Releases, or Engineering Documentation for all other (non-interior) Change Orders (Change Orders 28, 30-35)	9/15/2020
Contract Mod 7, Item 24 A – Completion of Installation of Modifications in 34 Cars for Change Orders 28, 30, 31, 33 Phase 1, Option 1, Phase W Cars	12/15/2020

Contract Mod 7, Item 24 B – Completion of Installation of Modifications in 34 Cars for Change Orders 28, 30, 31, 33 Phase 1, Option 1, Phase W Cars	5/15/2021
Contract Mod 7, Item 25 – Completion of Retrofit of Vehicle Interior for Change Order 38 Phase 1, Option 1, Phase W	12/15/2022
Contract Mod 7, Item 28 – Delivery and Acceptance of Training – Payment will be on a per module basis	TBD

Note: See Exhibit 3.B for Vehicle Delivery Schedule.

## B. Vehicle Delivery Schedule\*

Item	Vehicle Delivery Date	Completion of Acceptance Testing
Notice To Proceed	9/30/2014	
Delivery of 1st Vehicle (Phase 1) to SFMTA (LRV 2001)	1/10/2017	8/12/2017
LRV 2002	2/27/2017	9/20/2017
LRV 2003	3/29/2017	8/25/2017
LRV 2004	10/16/2018	12/26/2018
LRV 2005	5/31/2017	8/3/2017
LRV 2006	7/11/2017	9/8/2017
LRV 2007	7/31/2017	9/27/2017
LRV 2008	10/17/2017	12/16/2017
LRV 2009	11/14/2017	1/14/2018
LRV 2010	3/8/2018	5/6/2018
LRV 2011	1/10/2018	3/18/2018
LRV 2012	1/18/2018	3/17/2018
LRV 2013	2/1/2018	3/31/2018
LRV 2014	2/8/2018	4/16/2018
LRV 2015	5/3/2018	6/28/2018
LRV 2016	1/25/2018	3/22/2018
LRV 2017	2/15/2018	4/12/2018
LRV 2018	3/29/2018	5/24/2018
LRV 2019	4/19/2018	6/10/2018
LRV 2020	3/1/2018	4/25/2018
LRV 2021	4/26/2018	6/20/2018
LRV 2022	3/15/2018	5/9/2018
LRV 2023	5/10/2018	7/4/2018
LRV 2024	4/6/2018	5/31/2018
LRV 2025 (Delivery of 1 <sup>st</sup> Phase W Vehicle to SFMTA)	5/17/2018	7/11/2018
LRV 2026	5/24/2018	7/18/2018
LRV 2027	5/21/2018	7/15/2018
LRV 2028 (Delivery of 4 <sup>th</sup> Phase W Vehicle to SFMTA)	6/7/2018	8/1/2018
LRV 2029 (Delivery of 1st Option 1 Vehicle to SFMTA)	6/14/2018	8/8/2018
LRV 2030	7/9/2018	9/2/2018
LRV 2031	6/4/2018	7/29/2018
LRV 2032	6/21/2018	8/15/2018
LRV 2033	6/28/2018	8/22/2018
LRV 2034	7/12/2018	9/05/2018
LRV 2035	8/2/2018	9/26/2018

<b>Item</b>	<b>Vehicle Delivery Date</b>	<b>Completion of Acceptance Testing</b>
LRV 2036	7/26/2018	9/19/2018
LRV 2037	8/9/2018	10/3/2018
LRV 2038	7/23/2018	9/16/2018
LRV 2039	9/20/2018	11/14/2018
LRV 2040	9/27/2018	11/21/2018
LRV 2041	8/16/2018	10/10/2018
LRV 2042	8/23/2018	10/17/2018
LRV 2043	8/27/2018	10/21/2018
LRV 2044	8/30/2018	10/24/2018
LRV 2045	8/31/2018	10/25/2018
LRV 2046	9/17/2018	11/11/2018
LRV 2047	10/18/2018	12/12/2018
LRV 2048	10/25/2018	12/19/2018
LRV 2049	11/6/2018	12/31/2018
LRV 2050	11/12/2018	1/6/2019
LRV 2051	10/04/2018	11/28/2018
LRV 2052	11/20/2018	1/14/2019
LRV 2053	11/28/2018	1/22/2019
LRV 2054	12/13/2018	2/6/2019
LRV 2055	12/20/2018	2/13/2019
LRV 2056	1/10/2019	3/6/2019
LRV 2057	1/17/2019	3/13/2019
LRV 2058	1/31/2019	3/27/2019
LRV 2059	2/7/2019	4/3/2019
LRV 2060	2/15/2019	4/11/2019
LRV 2061	2/25/2019	4/21/2019
LRV 2062	3/7/2019	5/1/2019
LRV 2063	4/16/2019	6/10/2019
LRV 2064	05/02/2019	6/26/2019
LRV 2065	6/20/2019	8/14/2019
LRV 2066	7/11/2018	9/4/2018
LRV 2067	8/15/2019	10/9/2019
LRV 2068 (Delivery of Last Option 1 Vehicle to SFMTA)	10/8/2019	12/2/2019
LRV 2069 (Delivery of 1st Phase 2 Vehicle to SFMTA)	5/15/2021	9/26/2021
LRV 2070	6/30/2021	10/13/2021
LRV 2071	7/30/2021	11/5/2021
LRV 2072	8/30/2021	11/29/2021
LRV 2073	9/15/2021	12/8/2021
LRV 2074	9/30/2021	12/16/2021
LRV 2075	10/15/2021	12/24/2021

<b>Item</b>	<b>Vehicle Delivery Date</b>	<b>Completion of Acceptance Testing</b>
LRV 2076	10/30/2021	1/1/2022
LRV 2077	11/15/2021	1/10/2022
LRV 2078	11/30/2021	1/25/2022
LRV 2079	12/15/2021	2/9/2022
LRV 2080	12/30/2021	2/24/2022
LRV 2081	1/17/2022	3/14/2022
LRV 2082	1/31/2022	3/28/2022
LRV 2083	2/14/2022	4/11/2022
LRV 2084	2/28/2022	4/25/2022
LRV 2085	3/16/2022	5/11/2022
LRV 2086	3/31/2022	5/26/2022
LRV 2087	4/15/2022	6/10/2022
LRV 2088	4/30/2022	6/25/2022
LRV 2089	5/16/2022	7/11/2022
LRV 2090	5/31/2022	7/26/2022
LRV 2091	6/16/2022	8/11/2022
LRV 2092	6/30/2022	8/25/2022
LRV 2093	7/15/2022	9/9/2022
LRV 2094	7/30/2022	9/24/2022
LRV 2095	8/17/2022	10/12/2022
LRV 2096	8/31/2022	10/26/2022
LRV 2097	9/15/2022	11/10/2022
LRV 2098	9/30/2022	11/25/2022
LRV 2099	10/17/2022	12/12/2022
LRV 2100	10/31/2022	12/26/2022
LRV 2101	11/15/2022	1/10/2023
LRV 2102	11/30/2022	1/25/2023
LRV 2103	12/15/2022	2/9/2023
LRV 2104	12/30/2022	2/24/2023
LRV 2105	1/16/2023	3/13/2023
LRV 2106	1/31/2023	3/28/2023
LRV 2107	2/14/2023	4/11/2023
LRV 2108	2/28/2023	4/25/2023
LRV 2109	3/16/2023	5/11/2023
LRV 2110	3/31/2023	5/26/2023
LRV 2111	4/15/2023	6/10/2023
LRV 2112	4/30/2023	6/25/2023
LRV 2113	5/16/2023	7/11/2023
LRV 2114	5/31/2023	7/26/2023
LRV 2115	6/16/2023	8/11/2023
LRV 2116	6/30/2023	8/25/2023
LRV 2117	7/18/2023	9/12/2023

<b>Item</b>	<b>Vehicle Delivery Date</b>	<b>Completion of Acceptance Testing</b>
LRV 2118	7/31/2023	9/25/2023
LRV 2119	8/30/2023	10/25/2023
LRV 2120	9/30/2023	11/25/2023
LRV 2121	10/31/2023	12/26/2023
LRV 2122	11/15/2023	1/10/2024
LRV 2123	11/30/2023	1/25/2024
LRV 2124	12/16/2023	2/10/2024
LRV 2125	12/30/2023	2/24/2024
LRV 2126	1/16/2024	3/12/2024
LRV 2127	1/30/2024	3/26/2024
LRV 2128	2/8/2024	4/4/2024
LRV 2129	2/19/2024	4/15/2024
LRV 2130	2/28/2024	4/24/2024
LRV 2131	3/8/2024	5/3/2024
LRV 2132	3/19/2024	5/14/2024
LRV 2133	3/28/2024	5/23/2024
LRV 2134	4/10/2024	6/5/2024
LRV 2135	4/19/2024	6/14/2024
LRV 2136	4/30/2024	6/25/2024
LRV 2137	5/9/2024	7/4/2024
LRV 2138	5/17/2024	7/12/2024
LRV 2139	5/29/2024	7/24/2024
LRV 2140	6/10/2024	8/5/2024
LRV 2141	6/19/2024	8/14/2024
LRV 2142	6/28/2024	8/23/2024
LRV 2143	7/11/2024	9/5/2024
LRV 2144	7/22/2024	9/16/2024
LRV 2145	7/31/2024	9/25/2024
LRV 2146	8/12/2024	10/7/2024
LRV 2147	8/21/2024	10/16/2024
LRV 2148	8/30/2024	10/25/2024
LRV 2149	9/10/2024	11/5/2024
LRV 2150	9/19/2024	11/14/2024
LRV 2151	9/30/2024	11/25/2024
LRV 2152	10/8/2024	12/3/2024
LRV 2153	10/15/2024	12/10/2024
LRV 2154	10/22/2024	12/17/2024
LRV 2155	10/29/2024	12/24/2024
LRV 2156	11/5/2024	12/31/2024
LRV 2157	11/12/2024	1/7/2025
LRV 2158	11/19/2024	1/14/2025
LRV 2159	11/27/2024	1/22/2025

<b>Item</b>	<b>Vehicle Delivery Date</b>	<b>Completion of Acceptance Testing</b>
LRV 2160	12/12/2024	2/6/2025
LRV 2161	12/21/2024	2/15/2025
LRV 2162	12/30/2024	2/24/2025
LRV 2163	1/10/2025	3/7/2025
LRV 2164	1/17/2025	3/14/2025
LRV 2165	1/24/2025	3/21/2025
LRV 2166	1/31/2025	3/28/2025
LRV 2167	2/7/2025	4/4/2025
LRV 2168	2/14/2025	4/11/2025
LRV 2169	2/21/2025	4/18/2025
LRV 2170	2/28/2025	4/25/2025
LRV 2171	3/10/2025	5/5/2025
LRV 2172	3/17/2025	5/12/2025
LRV 2173	3/24/2025	5/19/2025
LRV 2174	3/31/2025	5/26/2025
LRV 2175	4/9/2025	6/4/2025
LRV 2176	4/16/2025	6/11/2025
LRV 2177	4/23/2025	6/18/2025
LRV 2178	4/30/2025	6/25/2025
LRV 2179	4/30/2025	6/25/2025
LRV 2180	5/9/2025	7/4/2025
LRV 2181	5/16/2025	7/11/2025
LRV 2182	5/23/2025	7/18/2025
LRV 2183	5/30/2025	7/25/2025
LRV 2184	5/30/2025	7/25/2025
LRV 2185	6/9/2025	8/4/2025
LRV 2186	6/16/2025	8/11/2025
LRV 2187	6/23/2025	8/18/2025
LRV 2188	6/30/2025	8/25/2025
LRV 2189	6/30/2025	8/25/2025
LRV 2190	7/9/2025	9/3/2025
LRV 2191	7/16/2025	9/10/2025
LRV 2192	7/23/2025	9/17/2025
LRV 2193	7/30/2025	9/24/2025
LRV 2194	7/30/2025	9/24/2025
LRV 2195	8/9/2025	10/4/2025
LRV 2196	8/16/2025	10/11/2025
LRV 2197	8/23/2025	10/18/2025
LRV 2198	8/30/2025	10/25/2025
LRV 2199	8/30/2025	10/25/2025
LRV 2200	9/9/2025	11/4/2025
LRV 2201	9/16/2025	11/11/2025

<b>Item</b>	<b>Vehicle Delivery Date</b>	<b>Completion of Acceptance Testing</b>
LRV 2202	9/23/2025	11/18/2025
LRV 2203	9/30/2025	11/25/2025
LRV 2204	9/30/2025	11/25/2025
LRV 2205	10/9/2025	12/4/2025
LRV 2206	10/16/2025	12/11/2025
LRV 2207	10/23/2025	12/18/2025
LRV 2208	10/30/2025	12/25/2025
LRV 2209	10/30/2025	12/25/2025
LRV 2210	11/9/2025	1/4/2026
LRV 2211	11/16/2025	1/11/2026
LRV 2212	11/23/2025	1/18/2026
LRV 2213	11/30/2025	1/25/2026
LRV 2214	11/30/2025	1/25/2026
LRV 2215	12/9/2025	2/3/2026
LRV 2216	12/16/2025	2/10/2026
LRV 2217	12/23/2025	2/17/2026
LRV 2218	12/30/2025	2/24/2026
LRV 2219	12/30/2025	2/24/2026
Delivery of 1st Option 2 Vehicle to SFMTA	TBD	TBD
Delivery Rate of Option 2 Vehicles	TBD	TBD
Delivery of the last Option 2 Vehicle	TBD	TBD

\* This schedule assumes that the SFMTA issues Notice to Proceed for Contract Modification 7 no later than April 17 2020.

**Exhibit 8  
Modification No. 7 Change Orders**

<b>Change Order No.</b>	<b>Description</b>	<b>Technical Specification (TS) Change vs. FAI Change</b>	<b>Total</b>
28	Lockable Convenience Outlet	TS Change	\$161,014
29	Passenger Information Signs (PIS)	FAI Change	\$185,443
30	Train Digital Records (TDR6) Hard Disk Drive (HDD) Unmounted	FAI Change	\$39,651
31	Restrain Corner Hatch at End of Travel	FAI Change	\$253,485
32	Replace Door Touch Strips with Push Button	FAI Change	\$269,440
33	Push to Close Locking Feature Addition to Exterior EDR Door	TS Change	\$274,593
34	Pre Wiring for Additional Clipper Card Readers	TS Change	\$208,410
35	Provisions for Ease of Tire Replacement	FAI Change	\$413,041
36	PIS 40 A Pattern Change	FAI Change	\$368,031
37	Track Brakes Installation	FAI Change	\$2,944,192
38	Interior Seating – Single Transverse Retrofit 68 Vehicles	FAI Change	\$7,646,262
39	Interior Seating – Single Transverse 50 Vehicles (2A)	FAI Change	\$2,394,716
40	Interior Seating – Double Transverse 101 Vehicles (2B)	FAI Change	\$7,456,215.00
		<b>Change Orders Total</b>	<b>\$22,614,493</b>
n/a	Continued Acceleration Activities	n/a	\$19,899,553.00
	Additional Training	n/a	\$1,000,000
		<b>Mod 7 Total</b>	<b>\$43,514,046</b>

SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
BOARD OF DIRECTORS

RESOLUTION No. 200329-029

WHEREAS, In 2014, the SFMTA Board of Directors approved Contract No. 2013-19 with Siemens Industry, Inc. (Siemens) to provide up to 260 Light Rail Vehicles (LRVs), including two options for expansion LRVs (the Contract), all for an amount not to exceed \$1,192,651,577, and a term not to exceed 15 years; and,

WHEREAS, The Contract included the replacement of the SFMTA's 151 Breda LRVs, as replacing these older and less reliable vehicles is an established need in the Agency's Capital Plan and will have immediate impact on overall system performance; and,

WHEREAS, On March 31, 2015, the SFMTA Board approved Modification No. 1 to the contract to exercise Option 1 for 40 additional LRVs to be delivered after the Phase 1 delivery of 24 vehicles; and,

WHEREAS, On October 30, 2015, the Director of Transportation, approved Modification No. 2 to the Contract to update the list of approved major suppliers, and clarify Contract language; and,

WHEREAS, On August 16, 2016, the SFMTA Board approved Modification No. 3 to the Contract, which added design changes to provide enhancements to passengers, enable full systems integration, and reduce the life-cycle costs of the LRVs, in the amount of \$19,596,728, with no increase in the total Contract price; and,

WHEREAS, On June 17, 2017, the SFMTA Board authorized the Director of Transportation to execute Modification No. 4 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles (LRV4), with Siemens Industry, Inc., to provide four additional LRV4 vehicles for an amount not to exceed \$15,875,000, with no increase in the total Contract price and no increase in the overall term of the Contract; and,

WHEREAS, On November 28, 2018, the Director of Transportation approved the assignment of the Contract from Siemens Industry, Inc., to Siemens Mobility, Inc.; and,

WHEREAS, On October 22, 2019, the Director of Transportation, under his delegated authority, executed Contract Modification No. 5 to expedite the design and pilot installation of track brakes to the power trucks as a method to reduce frequency of flat spots on wheels caused by activation of the push button emergency brake in the amount of \$466,505, with no increase in the total Contract price; and,

WHEREAS, On November 19, 2019, the SFMTA Board approved Contract Modification No. 6, to enhance the vehicle design with passenger comforts, updated operator cab features, and engineering refinements that improve fleet performance; and to advance Phase 2 long-lead activities to accelerate fleet replacement, for an amount not to exceed \$9,799,688, with no increase in the total Contract price, achieved through a decrease in the escalation allowance, and no increase in the term of the Contract; and,

WHEREAS, The proposed Contract Modification No. 7 will further enhance the Phase 1 vehicle design with passenger comforts, including seating changes and engineering refinements that improve overall fleet performance, and will complete the installation of track brakes as a means to reduce flat wheels; and,

WHEREAS, Contract Modification No. 7 will also provide funding for continued production acceleration activities essential to eliminating known risks to future service through the early fleet replacement, and provide related benefits, including the reduction of operating and maintenance costs, minimizing further investments in the existing Breda fleet, and minimizing the complexity of operating a mixed fleet of vehicles; and,

WHEREAS, On June 19, 2014, the San Francisco Planning Department determined (Case Number 2014.0929E) that the Procurement of New Light Rail Vehicles is statutorily exempt from the California Environmental Quality Act (CEQA) as defined in Title 14 of the California Code of Regulations Section 15275(a), which provides an exemption from environmental review for the institution or increase of passenger or commuter service on rail lines already in use; and,

WHEREAS, The vehicles to be used for the Central Subway Project are within the scope of the Central Subway Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (Central Subway SEIS/SEIR), Case No. 1996.281E; and,

WHEREAS, The vehicles to be used to provide enhanced Muni service to the Golden State Warriors Event Center Project are within the scope of the Golden State Warriors Event Center and Mixed Use Development at Mission Bay Blocks 29-32 Final Subsequent Environmental Impact Report (Event Center FSEIR), Case No. 2014.1441E; and,

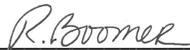
WHEREAS, The changes in the current Contract Modification are within the scope of the environmental review discussed above; no new significant effects have been identified, there is no substantial increase in significant effects already identified, and no new mitigation is required; and,

WHEREAS, Copies of the CEQA determinations are on file with the Secretary to the SFMTA Board of Directors, and may be found in the records of the Planning Department at 1650 Mission Street in San Francisco, and are incorporated herein by reference; now, therefore, be it

RESOLVED, That the SFMTA Board of Directors has subsequently reviewed the Central Subway SEIS/SEIR and the Event Center FSEIR and finds that since the certification of the two documents, no changes have occurred in the proposed project or in the circumstances under which the project would be implemented that would cause new significant impacts or a substantial increase in the severity of impacts identified and analyzed in those documents, and that no new information has emerged that would materially change the analysis or conclusions set forth in the two documents; the actions approved herein would not necessitate implementation of additional or considerably different mitigation measures that those identified in those documents; and be it further

RESOLVED, That the SFMTA Board authorizes the Director of Transportation to execute Contract Modification No. 7 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., to enhance the vehicle design with passenger comforts and engineering refinements that improve fleet performance; and to advance Phase 2 production acceleration activities for early fleet replacement, for an amount not to exceed \$43,514,046, with no increase in the total Contract price, achieved through planned change allowances and a decrease in the escalation allowance; and no increase in the term of the Contract.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of March 17, 2020.



---

Secretary to the Board of Directors  
San Francisco Municipal Transportation Agency