

File No. 210838

Committee Item No. 15
Board Item No. 18

COMMITTEE/BOARD OF SUPERVISORS

AGENDA PACKET CONTENTS LIST

Committee: Budget & Finance Committee

Date September 8, 2021

Board of Supervisors Meeting

Date September 14, 2021

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
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OTHER (Use back side if additional space is needed)

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>CEQA Determinations dated June 19, 2014 and August 29, 2014</u>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>MTA Board of Directors Resolutions</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Department Presentation - September 8, 2021</u>
<input type="checkbox"/>	<input type="checkbox"/>	

Completed by: Linda Wong

Date August 31, 2021

Completed by: Linda Wong

Date September 10, 2021

1 [Contract Modification - Siemens Mobility, Inc. - Option for 30 Light Rail Vehicles -
2 \$130,409,780 Plus Escalation Costs]

3 **Resolution approving Modification No. 10 to Municipal Transportation Agency Contract**
4 **No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., to**
5 **exercise an option to procure 30 additional light rail vehicles in the amount of**
6 **\$130,409,780 plus applicable escalation costs, with cancellation provisions through**
7 **June 2025, with no increase in the total Contract price or in the term of the Contract.**

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

14 WHEREAS, On September 19, 2014, the Board of Supervisors adopted Resolution No.
15 332-14, approving the Contract subject to the following conditions: (1) that the contract
16 provide for two separate options, Option 1 for 40 LRVs and Option 2 for up to 45 LRVs; (2)
17 that the SFMTA obtain approval from this Board prior to exercising Option 2, contingent on
18 identification of \$234,664,852 in funding to pay for the Option; and (3) that the SFMTA obtain
19 approval from this Board for any vendor-financing agreement with Siemens Industry, Inc.; and

20 WHEREAS, Through Modifications Nos. 1 through 5 to the Contract, the SFMTA
21 approved updates to the vehicle design, the addition of 44 LRVs (including exercising Option
22 1 for 40 expansion vehicles and adding four additional vehicles, paid for by the Golden State
23 Warriors, to serve the Event Center), installation of track brakes to reduce flat wheels, and
24 optional spare parts and equipment; and

1 WHEREAS, Through Modifications Nos. 6, 7 and 8 to the Contract, the SFMTA
2 approved feedback-driven passenger comforts and engineering refinements; updates to
3 vehicle equipment, including cameras; provisions for weight incentives, administrative issues,
4 including parent company guarantees; and funding of Phase 2 acceleration activities essential
5 to the early fleet replacement plan; and

6 WHEREAS, Modifications Nos. 1 through 8 did not increase the total amount or the
7 term of the Contract; and

8 WHEREAS, On August 3, 2021, the SFMTA Board approved Resolution No. 210803-
9 096, which authorized the Director of Transportation to execute Modification No. 9 to the
10 Contract, which updates vehicle equipment, including next generation Clipper, upgrades
11 center door sensing capabilities, completes enhancements of cameras, makes changes to the
12 operator controls in response to operator feedback, and resolves an issue relating to the
13 calculation of escalation for the 151 replacement vehicles and other Phase 2-related items,
14 with no increase in the total Contract price or term of the Contract; and

15 WHEREAS, On August 3, 2021, the SFMTA Board approved Resolution No. 210803-
16 097, which authorized the Director of Transportation to execute Modification No. 10 to the
17 Contract, to exercise an option to procure 30 additional new LRVs in the amount of
18 \$130,409,780, plus applicable escalation costs, with cancellation provisions through June
19 2025, with no increase in the total Contract price or the term of the Contract; and

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

1 WHEREAS, SFMTA Contract No. 2013-19 and Modification Nos. 1 through 10, and
2 CEQA documentation related to Planning Department Case Number 2014.0929E are on file
3 with the Clerk of the Board of Supervisors in File No. 210838, which is declared to be a part of
4 this Resolution as if set forth fully herein; now, therefore, be it

5 WHEREAS, The LRV4 project is a capital project with a proven track record of State
6 and Federal grant awards; and

7 WHEREAS, Purchasing 30 easier-to-maintain and more reliable Option 2 vehicles
8 saves operating dollars when compared to operating 30 older Breda vehicles; and

9 WHEREAS, The SFMTA has confirmed that no enterprise funding sources for services
10 and operations, such as transit fare revenues, parking fees and fines or other such sources
11 not included in the SFMTA 5-Year Capital Improvement Program operating funds, will be used
12 for the purchase of these LRV4 Option 2 vehicles; and

13 WHEREAS, The SFMTA will provide a written report detailing the sources of funding
14 for the Option 2 vehicles before SFMTA initiates production of Option 2 vehicles, include that
15 report in the legislative file for this item and present that report before the Board of
16 Supervisors; and

17 RESOLVED, That the Board of Supervisors authorizes the Director of Transportation to
18 execute Modification No. 10 to SFMTA Contract No. 2013-19: Procurement of New Light Rail
19 Vehicles, with Siemens Mobility, Inc., to exercise an option to procure 30 additional new light
20 rail vehicles in the amount of \$130,409,780, plus applicable escalation, with cancellation
21 provisions through June 2025, with no increase in the total Contract price and no increase in
22 the term of the Contract; and, be it

23 FURTHER RESOLVED, That within 30 days of the Contract being fully executed by all
24 parties, the Director of Transportation shall provide the executed Contract to the Clerk of the
25 Board for inclusion into the official file.

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Item 15 File 21-0838	Department: Municipal Transportation Agency (SFMTA)
EXECUTIVE SUMMARY	
Legislative Objectives	
<p>The proposed resolution would approve the tenth modification to the contract between the SFMTA and Siemens Industry, Inc. (Siemens) to exercise Option 2 to procure 30 out of a possible 45 additional light rail vehicles in the amount of \$130,409,780 plus applicable escalation costs up to \$92,162,994, with cancellation provisions through June 2025.</p>	
Key Points	
<ul style="list-style-type: none"> • In September 2014, the Board of Supervisors approved a 15-year contract between the SFMTA and Siemens for the manufacture and delivery of up to 260 new light-rail vehicles, including two options for expansion light-rail vehicles, in an amount not-to-exceed \$1,192,651,577. The Board of Supervisors amended the original resolution to require Board approval for the second of the two options to expand the number of light rail vehicles. • SFMTA previously purchased 68 vehicles, including 40 vehicles purchased under Option 1, and on approval of the proposed resolution would purchase an additional 30 vehicles under Option 2 by 2029. According to SFMTA staff, the tenth modification aligns with growth scenarios and projected ridership levels developed prior to the pandemic. SFMTA has negotiated option milestones that provide for a no-cost cancellation through June 2025. 	
Fiscal Impact	
<ul style="list-style-type: none"> • The proposed modification would authorize the purchase of 30 light rail vehicles at a cost of \$130,409,780 plus applicable escalation costs for Phase II vehicles and spare parts up to \$92,162,994. The total not-to-exceed contract amount of \$1,192,651,577 remains unchanged. 	
Policy Consideration	
<ul style="list-style-type: none"> • SFMTA has not finalized its planned sources to pay for Option 2 because the purchase is beyond the agency's capital planning cycle. However, federal procurement rules require that all contract Options be exercised by September 30, 2021. As of this writing, SFMTA plans to use Proposition B Baseline funds as backstop funding while the Agency identifies other funding sources. 	
Recommendations	
<ul style="list-style-type: none"> • Because the original approval of this contract required identification of a funding source for Option 2 expenses, we recommend amending the proposed resolution to request SFMTA to provide a written report detailing the final sources of funding for the Option 2 expenses once SFMTA orders the Option 2 vehicles, and include that report in the legislative file for this item. • Approve the proposed resolution, as amended. 	

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

The San Francisco Municipal Transportation Agency (SFMTA) currently operates 213 light-rail vehicles to provide mass transportation over 71 miles of track throughout the City. In September 2014, the Board of Supervisors approved a 15-year contract between the SFMTA and Siemens Industry, Inc. (Siemens) for the manufacture and delivery of up to 260 new light-rail vehicles and associated spare parts, special tools, training and documentation, including two options for expansion light-rail vehicles, in an amount not-to-exceed \$1,192,651,577 (File 14-0882). The purchase plan under the original agreement provided for 175 light rail vehicles and options for 85 additional expansion light rail vehicles, totaling 260. Of the 175 vehicles, 24 were to be purchased in Phase 1 to expand the fleet, and 151 were to be purchased in Phase 2 to replace the old fleet. Of the 85 option vehicles, 40 were to be purchased under Option 1 and 45 were to be purchased under Option 2.

Approval of the contract was subject to the following conditions: (1) that the contract provide for two separate options, Option 1 for 40 light rail vehicles and Option 2 for up to 45 light rail vehicles; (2) that the SFMTA obtain approval from the Board of Supervisors prior to exercising Option 2, contingent on identification of \$234,664,852 in funding to pay for the option; and (3) that the SFMTA obtain approval from the Board of Supervisors for any vendor-financing agreement with Siemens.

Competitive Process

SFMTA selected Siemens after issuing a competitive Request for Qualifications (RFQ) in March 2013 to select a group of manufacturers that would be eligible to provide proposals for a new contract to procure new light rail vehicles. Four vendors submitted statements of qualification, and all were deemed qualified. In September 2013, SFMTA issued a Request for Proposals (RFPs) to the four qualified vendors, of which only two¹ submitted responsive proposals. Siemens received the highest score in every category of the RFP, including qualitative responsibility, technical evaluation, price evaluation and alternate approaches. Selection panels² reviewed the

¹ Vendors that submitted a proposal include Construcciones y Auxiliar de Ferrocarriles (CAF) and Siemens, Inc.

² The Minimum Qualification Evaluation Panel included the following: SFMTA Senior Program Manager and an SFMTA Transit Division Budget Manager. The Qualitative Responsibility Evaluation Panel included the following: SFMTA Chief Financial Officer, Director of Risk Management for the City, and an SFMTA Transit Division Budget Manager. The Technical Evaluation Panel included the following: SFMTA Senior Program Manager, SFMTA Lead Light Rail Vehicle Engineer, SFMTA Supervisor of Rail Maintenance, Principal Transportation Planner for Fleet Planning

proposals and scored them. The contract term specified in the RFP is 15 years effective on the date that the contract is certified.

Contract Modifications

SFMTA modified the contract nine times, as shown in Exhibit 1 below. Modifications did not require Board of Supervisors' approval because they did not change the total not-to-exceed contract amount of \$1,192,651,577.

Exhibit 1: Siemens, Inc. Contract Modifications

Modification No.	Date	Description
1	3/31/15	Exercised Option 1 for 40 additional light-rail vehicles to be delivered after the Phase 1 delivery of 24 vehicles. No change to total contract amount.
2	10/30/15	Updated list of approved major suppliers and clarified contract language. No change to total contract amount.
3	8/16/16	Added design changes to provide enhancements to passengers, enable full systems integration and reduce the life-cycle costs of the light-rail vehicles. No change to total contract amount.
4	6/17/17	Provided four additional vehicles (to be funded by the Mission Bay Transportation Improvement Fund) to serve the Chase Center. No change to total contract amount.
5	10/22/19	Expedited the design and pilot installation of track brakes to the power trucks to reduce frequency of flat spots on wheels caused by the activation of the push button emergency brake. No change to total contract amount.
6	11/19/19	Enhanced vehicle design with passenger comforts, updated operator cab features, and engineering refinements that improve fleet performance, advanced Phase 2 (purchase of 151 replacement vehicle) long-lead ³ activities to accelerate fleet replacement. No change to total contract amount.
7	3/27/20	Provided for completion of Phase 2 long-lead activities, implemented interior configuration and seating changes based on the approved redesign, completed installation of the track brakes, and provided for other equipment updates and vehicle enhancements. No change to total contract amount.
8	10/30/20	Modified the vehicles, including adding larger cab monitors and a second sensitive edge to the middle doors, deleting fareboxes for 141 of the vehicles and expedited work to avoid Phase 2 production delays. No change to total contract amount.
9	8/3/21	Updated vehicle equipment including center door sensing capabilities, completed enhancements of cameras, made changes to the operator cab and controls, and reduced scope in preparation for next generation Clipper, resolved calculation of escalation costs for the 151 Phase 2 replacement vehicles using funds from the escalation allowance. No change to total contract amount.

Source: Siemens, Inc. Contract Modifications One through Nine

and Capital Planning, and SFMTA Director of System Safety. The Price Evaluation Panel included the following: SFMTA Senior Program Manager, SFMTA Transit Division Budget Manager, Contract Compliance Office Representative, and Contract Compliance Officer.

³ Long lead items refer to the equipment, product or system that is identified at the earliest stage of a project to have a delivery time long enough to affect directly the overall lead time of the project.

DETAILS OF PROPOSED LEGISLATION

The proposed resolution would approve the tenth modification to the contract between SFMTA and Siemens, Inc. to exercise Option 2 to procure 30 out of a possible 45 additional light rail vehicles in the amount of \$130,409,780 plus applicable escalation costs up to \$92,162,994, with cancellation provisions through June 2025. The total not-to-exceed contract amount of \$1,192,651,577 and term of 15 years remains unchanged.

As noted above, options for more vehicles were built into the original contract to provide the SFMTA with flexibility to adjust the total number of vehicles purchased depending on changing service projections and/or economic conditions during the 15 years of the contract.

Requirement to Exercise Options by September 2021

The proposed modification would exercise Option 2 of the original contract to procure 30 out of a possible 45 additional light rail vehicles to be delivered after the Phase 2 delivery of 151 vehicles. Under Federal Transportation Administration (FTA) procurement rules⁴, transportation agencies must exercise any contract options within seven years of the effective date of the contract, which in the case of this 15-year contract, would be September 30, 2021.

According to SFMTA Deputy Project Manager Joe Speaks, the agency projects a need for 30 out of a possible 45 additional vehicles before the end of this decade, contingent on the trajectory of the post-pandemic recovery. Deputy Project Manager Speaks states that while the pandemic and budget reality have generated uncertainty around future service needs and growth, the SFMTA is preparing for transit needs anticipated in 2030 and beyond and, as shown below, estimates purchase of the proposed additional 30 vehicles for delivery in FY 2027-28 and FY 2028-29. According to Deputy Project Manager Speaks, the addition of 30 light rail vehicles would most reasonably match growing service needs, which includes increasing frequency and improving reliability on the T-Third, increasing capacity with longer trains on the N Judah (future 3-car trains), providing a high-capacity shuttle in the subway (future 4-car shuttles), and improving frequency and reliability systemwide.

No-Cost Cancellation Clause and Restart Fee

The addition of 30 vehicles by 2029 under the proposed modification aligns with growth scenarios and projected ridership levels developed prior to the pandemic. Consequently, to preserve flexibility and address planning and economic uncertainty created by the pandemic, the SFMTA has negotiated option milestones that provide for a no-cost cancellation through June 2025. Under the proposed modification, Option 2 may be cancelled at no cost to the City at any time prior to issuance of the Release for Production Notice, the action that authorizes the start of production of the vehicles. SFMTA can provide Siemens a Release for Production Notice at any

⁴ Per FTA rule titled “Time Limits for Options on Rolling Stock Contracts” as defined per 49 U.S.C. § 5325(e)(1)(B) FTA Circular 4220.1F, Chap. IV, §2.e(10)(b)

time prior to June 2025. Failure to provide the Release for Production Notice will initiate the no-cost cancellation.⁵

Under the proposed modification, if SFMTA provides a Release for Production Notice before June 2023, vehicle production can continue uninterrupted with no additional restart fee costs. Therefore, if the post-pandemic recovery period between now and June 2023 (approximately two years), establishes clear trendlines for growth and shows demonstrated need before 2030, then SFMTA has the option to initiate the Release for Production notice and avoid any restart fees. However, if SFMTA provides notice after June 2023 (but before the no-cost cancellation deadline of June 2025), then SFMTA must pay the actual costs of restarting production, which is not-to-exceed \$11,064,200.⁶ This restart fee amount is included as part of the proposed modification amount of \$130,409,780.

Purchase Plan

As shown in Exhibit 2 below, the first 68 light-rail vehicles were delivered to the SFMTA between 2017 and 2019.⁷ These vehicles expanded the fleet to accommodate growing service needs including service to the Chase Center⁸ and launch of the Central Subway. Phase 2 of the contract is now underway with the first vehicle to be delivered Fall of 2021. Phase 2 provides for the replacement of the old 151 Breda light-rail vehicles through 2026, which are being retired concurrently. The proposed Option 2 addition of 30 vehicles is expected to be delivered from 2027 through 2029. Exhibit 2 below shows the purchase plan related to the phases and options for up to 249 light-rail vehicles.

⁵ The FTA has approved SFMTA's approach to no-cost cancellation modification to the contract terms.

⁶ The actual cost of restart fees to be reimbursed could be less than \$11,064,200 but cannot exceed this amount. According to Deputy Project Manager Speaks, the exact costs associated with restarting production depend on several factors including the duration of the shutdown, the production location available for restart, the availability of specialized equipment, and the need for retooling.

⁷ This includes Phase 1 (24 expansion vehicles), Option 1 (40 expansion vehicles), and Phase W (4 vehicles for the Chase Center).

⁸ The fourth contract modification added the four light-rail vehicles (Phase W) to accommodate service needs for the new Chase Center. The cost was \$3,968,750 per vehicle totaling \$15,875,000. Per File 15-0995, the Mission Bay Transportation Improvement Fund will eventually fully pay for the four light-rail vehicles and, in the meantime, SFMTA has financed the procurement of the vehicles through the issuance of 2017 revenue bonds. From the 2017 revenue bond, SFMTA financed \$128 million for both replacement and expansion vehicles and has spent \$126.4 million of this amount per the SFMTA revenue bond report from May 14, 2021. The portion of revenue bonds specifically for the four light-rail vehicles has all been spent. SFMTA anticipates it will be more than 10 years before the department is fully reimbursed for capital improvements made in advance of the Chase Center opening.

Exhibit 2: Purchase Plan of New Vehicles and Removal of Vehicles at End of Service

Year	Existing Number of Vehicles	Phase I - Increase Fleet by 24 Vehicles	Option I - Increase Fleet by 40 Vehicles	Phase W - Increase Fleet by 4 Vehicles	Phase II - Replace 151 Vehicles	Remove End of Service Vehicles	Option II - Increase Fleet by 30 Vehicles	Total Vehicles
2014-15	151							151
2015-16	151							151
2016-17	151	3						154
2017-18	154	21	6					181
2018-19	181		31	4				216
2019-20	216		3					219
2020-21	219							219
2021-22	219			24	(15)			228
2022-23	211			24	(24)			228
2023-24	211			26	(26)			228
2024-25	211			47	(47)			228
2025-26	211			30	(30)			228
2026-27	211				(9)			219
2027-28	219					22		241
2028-29	241					8		249
Total		24	40	4	151	(151)	30	

Source: San Francisco Municipal Transportation Agency

FISCAL IMPACT

The proposed modification would authorize the purchase of 30 light rail vehicles at a cost of \$130,409,780 plus applicable escalation costs for Phase 2 vehicles and spare parts up to \$92,162,994. The total not-to-exceed contract amount of \$1,192,651,577 remains unchanged.

Escalation Allowance

The initial price per light-rail vehicle for the first light-rail vehicles delivered in Phase 1 was \$3,327,350. The contract between the SFMTA and Siemens includes an escalation⁹ allowance to provide for the costs of inflation on labor and materials that Siemens may apply to: (1) Phase 2

⁹ Escalation is the adjustment of prices to keep pace with inflation. Escalation built into the SFMTA contract with Siemens ensures that prices quoted at the beginning of the contract change in accordance with key economic indicators of labor and materials fluctuations over the 15 years of vehicle production.

(151) light-rail vehicles, (2) all option (up to 85) light-rail vehicles, (3) training simulators, and (4) spare parts for the Phase 2 and optional light-rail vehicles.

For Phase 2 light-rail vehicles, the SFMTA has calculated the escalation using the contractually defined formula for applying labor and materials indices from the U.S. Bureau of Labor and Statistics across the escalation period spanning 2014 to 2020. The Phase 2 escalation was calculated to May of 2020 at 2.44 percent per year compounded, 14.71 percent total, resulting in a Phase 2 vehicle price of \$3,826,439. The Option 2 vehicle price is based on the Phase 2 price calculation, plus additional escalation after May 2020 (and any applicable modification adjustments).

The Option 2 price per light-rail vehicle will be \$3,978,186, which includes escalation of 14.71 percent through May 2020 (mirroring the confirmed Phase 2 escalation rate methodology). The Option 2 price is then to be escalated further for the escalation period following May 2020 through the end of the Option 2 escalation period, which ends one year before the scheduled delivery date of the first Option 2 vehicle. The Option 2 escalation period will depend on when SFMTA chooses to provide Siemens with the Release for Production Notice, but is expected to end between January 2024 and October 2026. The value of indexes at the end of the Option 2 escalation period is defined in the contract as the “arithmetic average of the final published labor and material indices for the three months after one year prior to the Delivery Date for the first Option 2 Vehicle.” The price for Option 2 vehicles will be escalated using the same methods applied for Phase 2 vehicles but will not be less than 0.15 percent per month compounded – or 1.81 percent per year compounded.

The remaining escalation allowance of \$92,162,994 is the funding remaining under the total contract not-to-exceed amount of \$1,192,651,577 that is available for future expected escalation costs. Escalation cost increases are tied to future economic indicators so these costs cannot be calculated yet. The project maintains an escalation allowance as part of the planned budget to cover future escalation. The largest remaining price item that will require escalation in the future will be the Option 2 vehicles. The remaining escalation allowance is also the source for funds to cover escalation on spare parts.¹⁰ The total available funds remaining in this escalation allowance are \$92,162,994 and will not exceed this amount.

Contract Costs

As shown in Exhibit 3 below, the cost items in the proposed modification for 30 additional light rail vehicles total \$130,409,780. This includes 30 vehicles at \$3,978,186 per vehicle (including all of the modifications to date and escalated up to May 2020), as well as the not-to-exceed restart fee of \$11,064,200. As previously mentioned, additional escalation costs will be calculated after the Release for Production Notice is issued and will come from the escalation allowance of \$92,162,994. As shown in Exhibit 3 below, SFMTA has paid Siemens \$326,601,308, or approximately 33.7 percent, of the current contracted amount.¹¹ As previously mentioned,

¹⁰ Escalation on spare parts varies depending on when the spare parts are to be delivered.

¹¹ This amount does not include the Option 2 amount of \$130,409,780 and the remaining escalation allowance of \$92,162,994.

SFMTA has received 68 out of 219 approved vehicles (31 percent) per the current purchase plan. Exhibit 3 below shows the base and escalation costs, as well as the invoiced expenditures to date, for the contract with Siemens under the not-to-exceed contract amount of \$1,192,651,577.

Exhibit 3: Total Contract Costs and Invoiced Expenditures to Date for All Phases and Options

Current Contract	Base	Escalation	Invoiced to Date	Total (\$)
Design, Project Management, and Testing	\$37,541,102	N/A	\$34,485,909	\$37,541,102
Phase 1 Vehicles (24)	79,854,000	N/A	77,298,672	79,854,000
Phase 2 Light-Rail Vehicles (151)	502,414,750	\$75,377,539	24,155,835	577,792,289
Manuals	809,478	N/A	0	809,478
Training	361,557	N/A	343,479	361,557
Train Simulator (1 of 2)	1,704,650	N/A	1,619,418	1,704,650
Train Simulator (2 of 2)	1,704,650	TBD	0	1,704,650
Phase I and Phase II Spare Parts	14,153,840	TBD (Phase 2)	7,460,165	14,153,840
Special Tools and Equipment	1,792,624	N/A	0	1,792,624
Additional Spare Parts	11,269,527	TBD	0	11,269,527
Optional Spare Parts	15,000,000	TBD	2,056,610	15,000,000
Option 1: Light-Rail Vehicles (40)	\$133,160,440	810,360	\$133,133,483	\$133,970,800
Modification 4: Light-Rail Vehicles (4) for Chase Center	\$15,875,000	N/A ¹²	\$15,398,750	\$15,875,000
Modifications 3, 5 through 9	\$78,249,286	N/A	\$30,648,987	\$78,249,286
Subtotal, Phases I/II, Option 1, Mods. 1 - 9	\$893,890,904	\$76,187,899	\$326,601,308	\$970,078,803
Option 2 (Proposed Modification): Light Rail Vehicles (30) and Restart Fee ¹³	\$115,426,373	\$14,983,407	N/A	\$130,409,780
Remaining Contingency (Escalation Allowance) ¹⁴		N/A	N/A	\$92,162,994
Total	\$1,009,317,277	\$91,171,306	\$326,601,308	\$1,192,651,577

Source: San Francisco Municipal Transportation Agency

As shown in Exhibit 3 above, the fourth contract modification added four light-rail vehicles (Phase W) to accommodate service needs for the new Chase Center. The cost was \$3,968,750 per vehicle totaling \$15,875,000. Per File 15-0995, the Mission Bay Transportation Improvement Fund will eventually fully pay for the four light-rail vehicles and, in the meantime, SFMTA has financed the procurement of the vehicles through the issuance of 2017 revenue bonds. From the 2017

¹² Included in base cost

¹³ Option 2 vehicles escalated to May 2020. Additional escalation to be added later.

¹⁴ Escalation allowance to apply to vehicles and spares as needed.

revenue bond, SFMTA financed \$128 million for both replacement and expansion vehicles and has spent \$126.4 million of this amount per the SFMTA revenue bond report from May 14, 2021. Modifications 3, 5 through 9 provided for updates to vehicle design, enabling of full systems integration, passenger comforts and engineering refinements, updates to vehicle equipment, and vehicle equipment design enhancements, as detailed in Exhibit 1 above.

The proposed resolution approves only the contract modification costs between the SFMTA and Siemens and does not reflect the costs for sales tax, project support costs, and a five percent project contingency. Those costs will be included in the SFMTA biennial capital budgets, through FY 2029, which includes funding sources subject to Board of Supervisors appropriation approval. SFMTA estimates these associated costs at a total of approximately \$39,770,000 and is currently planning on paying these costs with the same funding sources used to pay for the light-rail vehicles.

Sources of Funds

The maximum funding needed for Option 2 is approximately \$222,572,774¹⁵ and is outside of the current SFMTA 5-Year Capital Improvement Program (CIP) which ends in FY 2025. Because past funding awards are not a guarantee of future funding from those sources and Option 2 will not be delivered in the next five years, SFMTA has not yet identified specific sources to fund the balance of \$130,409,780 for the 30 light-rail vehicles under Option 2 and the remaining escalation allowance of \$92,162,994. SFMTA anticipates a mix of funding from these likely sources: (1) development impact fees, (2) cap and trade funds, (3) bridge toll funds, (4) Proposition K ½ cent transportation sales tax funds, (5) Proposition B Population Baseline funds, (6) SFMTA revenue bond program, and (7) competitive grants (including the Transit and Intercity Rail Capital Program). SFMTA is using Proposition B Population Baseline funds¹⁶ as a planned backstop currently to meet the costs of the proposed modification. Deputy Project Manager Speaks states that the baseline funding can potentially come from the following future allocations of Proposition B Population Baseline funds: \$36,000,000 in FY 2023-24, \$50,025,000 in FY 2024-25 and \$44,384,780 in FY 2025-26, as updated in the March Joint Report released by the Controller's Office, Budget and Legislative Analyst Office and Mayor's Budget Office on March 31, 2021.¹⁷ According to Deputy Project Manager Speaks, given the flexibility of Proposition B Population Baseline funds, SFMTA intends to pursue options for other funding sources in the meantime to replace the anticipated baseline funds in the future. The earliest funding required to support the cashflow for Option 2 will be included as part of the update on the 5-Year CIP in Spring 2022.

¹⁵ This amount includes the Option 2 amount of \$130,409,780 and the remaining escalation allowance of \$92,162,994.

¹⁶ Proposition B, approved by the voters in November 2014, provides additional City General Fund baseline transfers to SFMTA tied to the City daytime population growth.

¹⁷ The report states the following: "As San Francisco's economy recovers from the pandemic, its daytime population is projected to grow by nearly 10 percent in 2022, as office workers return downtown and visitors travel to the City for leisure and business. As a result of this rapid increase in daytime population, the Prop B baseline is anticipated to more than double from FY 2020-21 level of \$55.6 million to \$129.7 million by FY 2025-26."

POLICY CONSIDERATION

As previously mentioned, approval of the original contract was subject to the following conditions that (1) the SFMTA obtain approval from the Board of Supervisors prior to exercising Option 2, contingent on identification of \$234,664,852 in funding to pay for the option and (2) that the SFMTA obtain approval from the Board of Supervisors for any vendor-financing agreement with Siemens. SFMTA has not finalized its planned sources to pay for Option 2 because the purchase is beyond the agency's capital planning cycle. However, federal procurement rules require that all contract options be exercised by September 30, 2021.

SFMTA plans to use Proposition B General Fund Population Baseline funds as backstop to meet the costs of the proposed modification and the agency intends to identify other funding sources in the meantime. However, if Proposition B General Fund Population Baseline fund revenue is less than projected, SFMTA will need to re-prioritize the Capital Plan to ensure that the light-rail vehicles are delivered as planned. A final funding plan for Option 2 will be available once SFMTA orders the Option 2 vehicles via a Release for Production Notice and will be included in SFMTA's FY 2025-2029 CIP. Because the original approval of this contract required identification of a funding source for Option 2 expenses, we recommend amending the proposed resolution to request SFMTA provide a written report detailing the final sources of funding for the Option 2 expenses once SFMTA orders the Option 2 vehicles and to include that report in the legislative file for this item.

Purchase of the 30 additional light rail vehicles is based on pre-pandemic assumptions of ridership growth. The proposed contract modification provides for a cancellation clause exercisable through June 2025 if economic conditions no longer justify the purchase.

RECOMMENDATIONS

1. Amend the proposed resolution to request SFMTA provide a written report detailing the final sources of funding for the Option 2 expenses once SFMTA orders the vehicles in Option 2, and include that report in the legislative file for this item.
2. Approve the proposed resolution, as amended.

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

**MODIFICATION NO. 10 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. 10 to Agreement is made and entered into on _____, 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 enhancements to improve passenger comfort, operational functionality, and maintainability and fleet reliability; (ii) continue installation of the track brakes; and (iii) initiate activities for the accelerated Phase 2 delivery schedule.
- I.** On March 27, 2020, the City approved Modification No. 7 to the Agreement to (i) further update the Vehicles enhancements including seating changes; (ii) complete installation of the track brakes; and (iii) complete activities for the accelerated Phase 2 delivery schedule.
- J.** On October 30, 2020, the City approved Modification No. 8 to the Agreement to (i) further modify the Vehicles including adding larger cab monitors and a second sensitive edge to the middle doors; and (ii) delete fareboxes for 141 of the Vehicles; as well as expedite start of Phase 2 production.
- K.** On August 3, 2021, the MTA Board approved Modification No. 9 to the Agreement to add design refinements for Phase 2 production and updates to Phase 1 Vehicles, including (i) upgrading the center doors with additional sensing capabilities; (ii) completing installation of larger monitors and improved cameras initiated in Modification No. 8; (iii) making changes to the operator cab and controls in response to operator feedback; and (iv) providing for the next-generation Clipper equipment implementation on LRV4. In addition, using funds from the escalation allowance, the parties resolved an issue regarding Vehicle escalation costs, reflected in the Phase 2 Vehicle price. These changes did not increase the overall Contract amount.

L. The SFMTA now wishes to modify the Agreement to exercise Option 2 in accordance with Section 64.1 of the Agreement, to procure 30 out of a possible 45 additional LRVs to be delivered after the Phase 2 delivery of 151 Vehicles.

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

1. *Section 7.5.3(c) (Determination of Base and Current Indices) is modified to add new subsections iv. and v. to read as follows:*

(iv) The SFMTA will make an adjustment to the Base Order Vehicle Price, per item 7.2 of Exhibit 1.A, for Option 2 Vehicles. The SFMTA will determine the base labor and material indices by calculating the arithmetic average of the final published labor and material indices for the three months prior to May 2020. The SFMTA will determine the current labor and material indices for 30 Option 2 Vehicles, by calculating the arithmetic average of the final published labor and material indices for the three months after one year prior to the Delivery Date for the first Option 2 Vehicle. The overall escalation adjustment for the Option 2 Vehicle Price shall in no case be less than 0.15% per month, compounded.

(v) For indices named in the Contract that are only published annually, monthly values will be derived by evenly dividing the published annual change into 12 equal months, as applied for the Phase 2 Vehicles and documented in price escalations shown in Exhibit 1.A.

2. *Section 15.2.2. (Security), subsection (c) (Optional Delivery Phase [Option Vehicles 1-85]) is modified to read as follows:*

(c) Optional Delivery Phase (Option Vehicles 1-85). For each set of Option Vehicles (40 Option 1 and 30 Option 2 Vehicles), Contractor shall furnish to the City a performance bond, Letter of Credit, or Parent Company (Corporate) Guarantee (Security) in the amount of 25 percent of the Option price (including modifications and escalated through May 2020, as established in Exhibit 1.A) no later than 30 days after (i) the notice of election to exercise the Option 1 Vehicles or, (ii) issuance of the Release for Production Notice issued by the City as referenced in Section 64.1 for the Option 2 Vehicles. The Security will be adjusted in accordance with the final escalated price as calculated under section 7.5.3(c)(iv) for the Option 2 Vehicles. The amount of the Security for the Option Vehicles will be reduced from 25% to 5% upon Acceptance or Conditional Acceptance of the last Option 1 or 2 Vehicle. The City will release the Security upon the expiration of the warranty period of the last Option Vehicle. Alternatively, the City will release or authorize the release of the Security upon Acceptance or Conditional Acceptance of the last Option Vehicle provided that Contractor has furnished the City with a warranty bond,

Letter of Credit, or Corporate Guarantee in accordance with the requirements of Section 15.2.4.

3. *Section 15.2.3 (**Labor and Materials Bond**), subsection (c) (Optional Delivery Phase [Option Vehicles 1-85]) is modified to read as follows:*

(c) Optional Delivery Phase (Option Vehicles 1-85). For each set of Option Vehicles (40 Option 1 and 30 Option 2 Vehicles), Contractor shall furnish to the City a bond, Letter of Credit, or Parent Company (Corporate) Guarantee (Security) in the amount of 25 percent of the Option price (as established in Exhibit 1.A) to guarantee Contractor's payment of materials, provisions, or other supplies used for or in the performance of the Option no later than 30 days after (i) the notice of election to exercise the Option 1 Vehicles or, (ii) the issuance of the Release for Production Notice issued by the City as referenced in Section 64.1 for the Option 2 Vehicles. For the Option 2 Vehicles, the Security will be adjusted in accordance with the final escalated price as defined in section 7.5.3(c)(iv). Provisions for releasing or reducing the amount of the Security shall apply in the same manner as described above. Any bond shall also be retained by the City.

4. *Section 64.1 (Option for New Light Rail Vehicles) is replaced in its entirety to read as follows:*

64.1 Option for New Light Rail Vehicles. At the option of the City, the Contractor shall provide additional Vehicles in quantities indicated in the Schedule of Prices. Option 1 shall be for an additional 40 Vehicles and Option 2 shall be for an additional 30 out of a possible 45 Vehicles. (See Item 7 on Exhibit 2 -- Payment Schedule.) Commencement of the production activities of Option 2 Vehicles shall be triggered upon issuance of the City's written notice to Contractor (Release for Production Notice). Option 2 may be cancelled at no cost to the City at any time prior to issuance of the Release for Production Notice. The price of the Option Vehicles will be adjusted in accordance with Section 7.5 of this Agreement.

64.1.1 SFMTA will issue its Option 2 Vehicle Release for Production Notice to Contractor on or before June 30, 2023, for Delivery of no less than two (2) Vehicles per month continuously after conclusion of Phase 2 Vehicle deliveries. If the Release for Production Notice is issued after June 30, 2023, then a restart fee based on actual documented costs and not to exceed \$11,064,200, paid in accordance with Exhibit 2 (price item 40 - Restart Allowance) will apply for the Option 2 Vehicles in addition to the escalation adjustment provided hereunder. The delivery schedule for such Vehicles will commence between 24 and 28 months after issuance of the Release for Production Notice. The last Option 2 Vehicle will be delivered no later than 18

months after delivery of the first Option 2 Vehicle. In no case will the Release for Production Notice be issued later than June 30, 2025.

64.1.2 Contractor may request a further price adjustment within 12 months of the Release for Production Notice, and the SFMTA will consider the request at that time under the following condition: Contractor must reasonably demonstrate that the projected cost increase percentage (excluding profit) to produce the Option 2 Vehicles (compared to the actual costs to produce the Phase 2 Vehicles) exceeds the estimated escalation adjustment provided under Section 7.5 by more than three percentage points due to unusual market conditions. In that event, and within three months, the Parties shall mutually agree on a reasonable price adjustment to cover the projected cost increase.

5. *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.*
6. *Exhibit 2 (Payment Schedule) of the Agreement is replaced in its entirety with a new Exhibit 2 (Payment Schedule), which is attached to this Modification.*
7. *Exhibit 3A (Project Delivery Schedule) of the Agreement is replaced in its entirety with a new Exhibit 3A (Project Delivery Schedule), which is attached to this Modification.*
8. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modifications Nos. 1-9 and this Modification No. 10 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. 10, 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, 6, 7, 8, and 9.
9. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.

10. *Legal Effect.* Except as expressly modified by this Modification No. 10, all other terms and conditions of the Contract remain unchanged and in full force and effect.

Attachments

Exhibit 1A – Schedule of Prices

Exhibit 2 – Payment Schedule

Exhibit 3A – Project Delivery Schedule

IN WITNESS WHEREOF, the parties hereto have entered into and executed this Modification No. 10 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. _____
Dated: _____

Attest:

Secretary

Board of Supervisors

Resolution No. _____
Dated: _____
Attest:

Clerk

Approved as to Form:
Dennis J. Herrera
City Attorney

By: _____
Robin M. Reitzes
Deputy City Attorney

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CONTRACTOR

Siemens Mobility, Inc.

Michael Cahill
Michael Cahill
President

Christopher Halleus
Christopher Halleus
Vice President, FBA

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

EXHIBIT 1A

Schedule of Prices

BASE

ITEM	ORIGINAL CONTRACT/ MOD NO.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
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 ¹
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	\$3,826,439 ³	151 Cars	\$577,792,289
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) ²⁵			
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 ³	40 Cars	\$133,970,800

Item 7.2	Mod 10	Option 2 for 30 Additional New Light Rail Vehicles	\$3,978,186 ^{7 8}	30 Cars	\$119,345,580
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Item 8.1	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 1) ⁵	Lump Sum		\$11,269,527
Item 8.2	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 2) ^{2 5}			
Item 9	Mod 1	Spare parts for Option Cars ^{2 5}	Lump Sum		\$15,000,000
Item 10	Mod 1	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) ²	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 ⁶	24 Cars	\$1,495,514
Item 12B	Mod 3	Base Phase 2	\$62,313 ⁶	151 Cars	\$9,409,275
Item 13	Mod 3	Modification No. 3 Option 1 (Recurring Costs)	\$62,313 ⁶	40 Cars	\$2,492,523
Item 14	Mod 4	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750 ³	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		\$714,694
Item 17.3	Mod 6	Phase 2 Preliminary Design Work, Double Transverse Seat	Lump Sum		\$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	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		\$5,603,000
Item 22	Mod 7	Continued Production Acceleration Activities	Lump Sum		\$19,899,553
Item 23	Mod 7	Engineering Costs for Modification 7 (Change Orders 28-36, 38-40)	Lump Sum		\$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	\$109,998	68 Cars	\$7,479,864

		SFMTA (Change Order 38)			
Item 26	Mod 7	Recurring Costs for Phase 2 Modification 7 (50 LRVs 69-118) (Change Order 28, 31, 32, 33, 34, 35, 37, 39)	\$67,552	50 Cars	\$3,377,600
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 ²	101 Cars	\$8,711,654
Item 28	Mod 7	Additional Training Allowance	Lump Sum		\$1,000,000
Item 29	Mod 8	Non recurring Costs Change Orders 41, 43	Lump Sum		\$1,000,546
Item 30	Mod 8	Recurring Costs Phase 1, Option 1 and Phase W			
Item 30.1	Mod 8	Recurring Costs Securitas Monitors Change order 41	\$6,947	68 Cars	\$472,396
Item 30.2	Mod 8	Recurring Costs Phase 1, Option 1, Phase W, Retrofit of Door system changes (Change Order 43)	\$19,198	40 Cars	\$767,920
Item 30.3	Mod 8	Recurring Costs Phase 1, Options 1, Phase W Retrofit of Rear View Monitor system (Change Order 41)	\$38,201	40 Cars	\$1,528,040
Item 31	Mod 8	Recurring Costs Phase 2			
Item 31.1	Mod 8	Recurring Costs Phase 2 Recurring (Change Orders 41, 43)	\$24,395	10 Cars	\$243,950
Item 31.2	Mod 8	Recurring Costs Phase 2 Recurring costs (Change Orders 42)	- \$27,294	141 Cars	- \$3,848,454
Item 32	Mod 9	Non Recurring Expenses Modification 9	Lump Sum		\$885,063

Item 33	Mod 9	Tire replacement per truck set	\$65,477	20 Cars	\$1,309,540
Item 34	Mod 9	Retrofit of Door system changes Change Order 44	\$18,589	28 Cars	\$520,492
Item 35	Mod 9	Retrofit of Rear View Monitor system Change Order 45	\$37,759	28 Cars	\$1,057,252
Item 36	Mod 9	Retrofit of Phase 1 Change Orders 46 to 52	\$14,445	68 Cars	\$982,260
Item 37	Mod 9	Phase 2 Recurring costs Change Orders 44 & 45	\$18,021	141 Cars	\$2,540,961
Item 38	Mod 9	Phase 2 Recurring costs Orders 46 to 52	-\$18,133	151 Cars	-\$2,738,083
Item 39	Mod 9	Retrofit of Phase 2 Change Orders 46 to 49	\$10,027	15 Cars	\$150,436
Item 40	Mod 10	Production Restart Fee	<i>Not to Exceed Amount</i>		\$11,064,200
				SUBTOTAL	\$1,100,488,583

Escalation

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
Allowance	Original, Mod 6-10 adjustment	Allowance for Escalation in accordance with Agreement, Section 7.5	n/a	n/a	\$92,162,994
Not to exceed CONTRACT LIMIT					\$1,192,651,577

Notes:

- ¹ Allowance used and incorporated into Contract Modification No. 7, 8 Items 26 - 35.
- ² This price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement; the parties have agreed that the escalation will be 14.7091% for items 5.2 and 8.2
- ³ Price includes escalation. Item 2.2 includes escalation required on items 2.1, 12B, and 19, as per letter SII-MTA 1301, which is incorporated herein by reference as though fully set forth.
- ⁴ Prices do not include sales taxes.
- ⁵ 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.
- ⁶ Extended price reflects the Change Order, unit price is rounded.
- ⁷ The price reflects escalation through May 2020 as per Section 7.5.3(c)(iv).
- ⁸ Option 2 Vehicles will have double transverse seats as specified in Change Order 40, Price Item 27.

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 Acceptance 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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 63rd 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 Acceptance 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 Acceptance 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 Acceptance 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 Acceptance 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

	Milestone	Percent of Bid Item
A	<u>Placement of contracts with the following major subcontractors (Option 2 Vehicles 1 - 30)</u> • <u>Propulsion</u> • <u>Friction Brake</u> • <u>Air Comfort</u> • <u>Door Operators & Controls</u> • <u>Carbody</u> • <u>Train Control</u> • <u>Coupler</u> • <u>Communication</u>	<u>10%</u>
B	<u>Delivery of complete set of subsystems to site of installation on a per Vehicle basis</u>	<u>25% per Vehicle</u>
C	<u>Vehicle structure complete and ready for shipment to final assembly site</u>	<u>20% per Vehicle</u>
D	<u>SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA property</u>	<u>22% per Vehicle</u>
E	<u>Conditional Acceptance of Vehicle by SFMTA</u>	<u>20% per Vehicle</u>
F	<u>Completion and Approval of all Contract Requirements for Option 2 (Retention)</u>	<u>3% per Vehicle</u>
<u>Total for Item 7.2</u>		<u>100%</u>

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 Acceptance 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 Acceptance 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 approval 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 approval 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 approval 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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 for approval of 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 approval of 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%

Total for Item 17.1	100%
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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%
Total for Item 17.2		100%

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%
Total for Item 20		100%

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%
Total for Item 21		100%

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%
Total for Item 22		100%

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%
Total for Item 23		100%

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, and 33 Phase 1, Option 1, Phase W Cars	50%
B	Completion of installation of modifications in 34 Cars for Change Orders 28, 30, 31, and 33 Phase 1, Option 1, Phase W Cars	50%
Total for Item 24		100%

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

Item 29 – Non-Recurring Costs for Modification No. 8

	Milestone	Percent of Bid Item
A	Approval of FDR supplement (Change Order 41)	60%
B	Approval of FDR supplement (Change Order 43 - Doors)	40%
	Total for Item 29	100%

Item 30 – Recurring Costs for Modification No. 8 – Phase 1, Option 1, Phase W

Item 30.1 – Modifications for Change Order 41, Securitas monitors

	Milestone	Percent of Bid Item
A	Installation, testing and Acceptance of modifications in 68 Phase 1, Option 1, Phase W Cars (Change Order 41)	100% Per Vehicle

Item 30.2 – Modifications for Change Order 43, doors

	Milestone	Percent of Bid Item
A	Installation, testing and Acceptance of door modifications in 40 Phase 1, Option 1, Phase W Cars (Change Order 43)	100% Per Vehicle

Item 30.3 – Modifications for Change Order 41, rear view monitors

	Milestone	Percent of Bid Item
A	Installation, testing and Acceptance of modifications to rear view monitor system in 40 Phase 1, Option 1, Phase W Cars (Change Order 41)	100% Per Vehicle

Item 31 - Recurring Costs for Modification No. 8, Phase 2

Item 31.1 – Recurring Costs for Modification No. 8 – 10 Phase 2 Vehicles, (Change Orders 41, 43)

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

Item 31.2 – Recurring Costs for Modification No. 8 – 141 Phase 2 Vehicles, (Change Orders 42)

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

Item 32 – Non-Recurring Costs for Modification No. 9

	Milestone	Percent of Bid Item
A	Tire replacement set-up complete (Change Order 53)	30%

B	Shipment and approval of tow bars and strap adaptors (Change Order 54)	30%
C	Field modification instructions (FМИs) approved for Change Orders 46-52	40%
Total for Item 32		100%

Item 33 – Costs for Modification No. 9 - Tire Replacement

	Milestone	Percent of Bid Item
A	Tire replacement for trucks on 20 Cars (60 trucks total) complete, returned, and Accepted by SFMTA (Change Order 53)	100% per truck

Item 34 – Recurring Costs for Modification No. 9 Retrofit of Door Systems – 28 Phase 1, Option 1, Phase W Vehicles

	Milestone	Percent of Bid Item
A	Retrofit of door systems (Change Order 44)	100% per Vehicle

Item 35 – Recurring Costs for Modification No. 9 Retrofit of Rear View Monitor Systems – 28 Phase 1, Option1, Phase W Vehicles

	Milestone	Percent of Bid Item
A	Retrofit of rear view monitor systems (Change Order 45)	100% per Vehicle

Item 36 – Recurring Costs for Modification No. 9 – 68 Phase 1, Option 1, Phase W Vehicles

	Milestone	Percent of Bid Item
A	Retrofit of operator cab and Clipper equipment (Change Orders 46-52)	100% per Vehicle

Item 37 – Recurring Costs for Modification No. 9 – 141 Phase 2 Vehicles,
(Change Orders 44 and 45)

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

Item 38 – Recurring Costs for Modification No. 9 – 151 Phase 2 Vehicles,
(Change Orders 46 to 52)

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

Item 39 – Costs for Modification No. 9 – Retrofit of 15 Phase 2 Vehicles,
(Change Orders 46 to 49)

	Milestone	Percent of Bid Item
A	Completion of cab improvement modifications Retrofit of 15 Phase 2 Vehicles, (Change Orders 46 to 49)	100%

Item 40 – Production Restart Fee (If Applicable)

	Milestone	Percent of Bid Item
A	Initiation of Restart activities, including retrofit plan, schedule, and resource plan	35%
B	Installation of jigs and fixtures into production line	30%
C	Completion of all restart activities and completion of first Option Vehicle	35%
Total for Item 40		100%

EXHIBIT 3
PROJECT DELIVERY AND VEHICLE DELIVERY SCHEDULE

A. Project Delivery Schedule

B. 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 3, Item 12 Completion of vehicle modifications in Base Vehicles (Modification 3)	Per Vehicle Delivery
Contract Mod 3, Item 13 Completion of vehicle modifications in Option 1 Vehicles (Modification 3)	Per Vehicle Delivery
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 - 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 - 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 – 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 Cars Phase 1, Option 1, Phase W, Completion of Installation of modifications for Track Brakes in 28 Cars (Change Order 25)	2/15/2020

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 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 26 – Completion of Installation of vehicle	Per Phase 2

Modification No. 10

modifications for Modification No. 7 – 50 Phase 2 Vehicles	Vehicle Delivery
Contract Mod 7, Item 27 – Completion of Installation of vehicle modifications for Modification No. 7 – 101 Phase 2 Vehicles	Per Phase 2 Vehicle Delivery
Contract Mod 8, Item 29 A – Approval of FDR Supplement for Modification of Rear View Monitor System (Change Order 42)	12/15/2020
Contract Mod 8, Item 29 B – Approval of FDR Supplement for Modification of Door System (Change Order 43)	12/31/2020
Contract Mod 8, Item 30.1 – Completion of Retrofit of Securitas Monitors for 68 vehicles Phase 1, Option 1, Phase W (Change Order 41)	10/31/2020
Contract Mod 8, Item 30.2 – Completion of Retrofit of Door Modification for 40 Phase 1, Option 1, Phase W Vehicles (Change Order 43)	12/22/2022
Contract Mod 8, Item 30.3 – Completion of Retrofit of Rear View Monitor System for 40 Phase 1, Option 1, Phase W Vehicles (Change Order 41)	8/31/2021
Contract Mod 8, Item 31.1 Completion of Installation of Door and Rear View Monitors upgrades for 10 Phase 2 Vehicles (Change Order 41, 43)	Per Phase 2 Vehicle Delivery
Contract Mod 9, Item 32 A – Tire Replacement Set Up Complete (Change Order 53)	12/15/2022
Contract Mod 9, Item 32 B – Shipment and Approval of Tow Bars and Strap Adaptors (Change Order 54)	12/24/2021
Contract Mod 9, Item 32 C – FMIs Approved for Change Orders 46-52	12/15/2022
Contract Mod 9, Item 33 – Tire Replacement for Trucks on 20 Cars complete, returned, and Accepted by SFMTA (Change Order 53)	12/15/2022
Contract Mod 9, Item 34 – Retrofit of Door Systems (Change Order 44)	12/15/2022
Contract Mod 9, Item 35 – Retrofit of Rear View Monitor Systems (Change Order 45)	3/31/2022
Contract Mod 9, Item 36 – Retrofit of Operator Cab and Clipper Equipment (Change Orders 46-52)	12/15/2022
Contract Mod 9, Item 37 – Completion of Installation of Vehicle modifications for Modification No. 9 – 141 Phase 2 Vehicles, (Change Orders 44 and 45)	Per Phase 2 Vehicle Delivery
Contract Mod 9, Item 38 – Completion of Installation of Vehicle modifications for Modification No. 9 – 151 Phase 2 Vehicles, (Change Orders 46 to 52)	Per Phase 2 Vehicle Delivery
Contract Mod 9, Item 39 – Retrofit of 15 Phase 2 Vehicles, (Change Orders 46 to 49)	2/28/2022
Contract Mod 10, Item 40A – Production Restart Fee, Initiation Activities	14 Months after Release for Production Notice
Contract Mod 10, Item 40B – Production Restart Fee, Installation of Jigs and Fixtures	18 Months after Release for Production Notice
Contract Mod 10, Item 40C – Production Restart Fee, Restart Complete, Including Completion of First Option 2 Vehicle	28 Months after Release for Production Notice

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

Modification No. 10

Exhibit 3-3

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**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 210803-097

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 or Vehicles), 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,

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 the Contract, to provide four additional Vehicles (funded by the Golden State Warriors) to serve the Chase Center, 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, On March 27, 2020, the parties entered into Modification No. 7 to complete Phase 2 long-lead activities, implement interior configuration and seating changes based on the approved re-design, complete installation of the track brakes, and provide for other equipment updates and Vehicle enhancements; and,

WHEREAS, On October 30, 2020, the Director of Transportation executed Contract Modification No. 8 to the Agreement to further modify the Vehicles, including adding larger cab monitors and a second sensitive edge to the middle doors, deleting fareboxes for 141 of the Vehicles, and expediting work to avoid Phase 2 production delays; and,

WHEREAS, On August 3, 2021, the SFMTA Board approved Contract Modification No. 9, to update Vehicle equipment including center door sensing capabilities, enhancements of cameras, changes to the operator cab and controls, and scope changes in preparation for next generation Clipper; and,

WHEREAS, Contract Modification No. 9 also resolved an issue between Siemens and the SFMTA regarding the proper method for calculating escalation costs for the 151 Phase 2 replacement Vehicles; and,

WHEREAS, Under Contract Modification No. 10, the SFMTA will exercise Option 2 to procure 30 additional LRVs to be delivered after completion of Phase 2, with cancellation provisions through June 2025; 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 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 <https://sfplanning.org/> and 49 South Van Ness Avenue, Suite 1400, San Francisco, and is incorporated herein by reference; now, therefore, be it

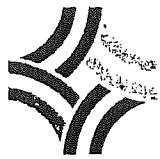
RESOLVED, That the SFMTA Board of Directors has subsequently reviewed the Central Subway SEIS/SEIR and the Event Center FSEIR and finds that since the certification of the two documents, no changes have occurred in the proposed project or in the circumstances under which the project would be implemented 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 than those identified in those documents; and be it further

RESOLVED, That the SFMTA Board of Directors authorizes the Director of Transportation to execute Contract Modification No. 10 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., to exercise an option to procure 30 additional new light rail vehicles in the amount of \$130,409,780, plus additional escalation, with cancellation provisions through June 2025, and with no increase in the total Contract price or 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 August 3, 2021.



Secretary to the Board of Directors
San Francisco Municipal Transportation Agency



Edwin M. Lee, Mayor

2014.0929E

Tom Brown, Chairman

Chery Brinkman, Vice-Chairman

Malcolm Hoenicka, Director

Kathy Lee, Director

Joel Ramey, Director

Christina Ruane, Director

Edward D. Rossin, Director of Transportation

LIGHT RAIL VEHICLE PROCUREMENT

As part of its regular daily passenger transit service, the SFMTA has a fleet of 151 light rail vehicles (LRVs). Vehicles in service operate 21 hours per day, 365 days a year, on the Muni Metro system. These vehicles typically have a lifespan of 25 years, and will be scheduled for retirement starting in 2021.

The planned procurement will provide up to 260 new LRVs, together with associated services, spare parts, special tools, training and documentation. The new LRVs are expected to have a 25-year life, which assumes that the cars will undergo a mid-life overhaul. SFMTA requires new LRVs for three purposes:

- (1) 24 LRVs for increased service demand for the Central Subway Project and Mission Bay, and system-wide growth along those corridors. These vehicles would be scheduled for delivery from 2016 through 2018;
- (2) the replacement of the existing fleet of 151 LRVs, with deliveries projected to start in 2021 and continue through 2028; and
- (3) Up to 85 LRVs to meet additional projected growth in ridership and system capacity expansion needs through 2040.

These cars will be housed at Muni Metro East Facility and Green Facility.

Statutorily exempt
under CEQA Guidelines
Section 15275(a) -
increase in service on
rail lines already in use.
New LRVs for Central
Subway covered under
Central Subway EIS/EIR
Final Supplemental

Case No. 1996.281E

~~Categorically exempt from Environmental Review
CEQA Guidelines 15301 Class 1 (e): Additions to
existing structures provided that the addition will
not result in an increase of more than 50 percent
of the floor area of the structures before the
addition, or 2,500 square feet, whichever is less.~~

Gerald Robbins Date



- Jeanie Poling 6/19/14

BOARD of SUPERVISORS



City Hall
Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

August 15, 2014

File No. 140882

Sarah Jones
Environmental Review Officer
Planning Department
1650 Mission Street, 4th Floor
San Francisco, CA 94103

Dear Ms. Jones:

On July 29, 2014, Supervisor Breed introduced the following legislation:

File No. 140882

Resolution approving a contract with Siemens Industry, Inc., to procure up to 260 light rail vehicles, associated services, spare parts, special tools, training, and documentation in an amount not to exceed \$1,192,651,577 for a term not to exceed 15 years, to commence following Board approval; and making environmental findings.

This legislation is being transmitted to you for environmental review.

Angela Calvillo, Clerk of the Board

A handwritten signature of Linda Wong.

By: Linda Wong, Assistant Clerk
Budget and Finance Committee

Attachment

c: Joy Navarrete, Environmental Planning
Jeanie Poling, Environmental Planning

SAN FRANCISCO DEPARTMENT OF CITY PLANNING
EXEMPT FROM ENVIRONMENTAL REVIEW

legally exempt under CEQA Grade - lines section 15275(a); increase of service on rail lines already in use. New LRVs for Central Subway covered under Central Subway EIS/EIR, Case No. 1994-0281E. Also per Case No. 2014-0929E.
Lisa Miller 8/29/14

Agreement Between

The City and County Of San Francisco

San Francisco Municipal Transportation Agency

And

Siemens Industry, Inc.

For

Procurement of New Light Rail Vehicles (LRV4)

Contract No. SFMTA-2013-19

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Exhibits

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Exhibit 3	Project Delivery Schedule
Exhibit 4	FTA Requirements
Exhibit 5	Warranty Provisions
Exhibit 6	Parent Company Guarantee

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

**Agreement between the City and County of San Francisco and
Siemens Industry, Inc.**

This Agreement is made this 19th day of September, 2014, in the City and County of San Francisco, State of California, by and between: Siemens Industry, Inc. at 7464 French Road, Sacramento, CA 95828 ("Contractor") and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA").

Recitals

A. SFMTA wishes to obtain the services of a qualified firm to procure up to 260 Light Rail Vehicles.

B. A Request for Qualifications ("RFQ") was issued on March 29, 2013, and City qualified three proposers to submit proposals.

C. A Request for Proposals ("RFP") was issued on September 30, 2013 to the qualified proposers, and City selected Contractor as the highest-qualified proposer pursuant to the RFP.

Now, THEREFORE, the parties agree as follows:

Definitions

Acceptance: The formal written acceptance by the City that all Work, or a specific portion thereof, under the contract has been satisfactorily completed.

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

Base Order: Work referenced as Items 1 – 6 in Exhibit 1.

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

City: The City and County of San Francisco.

Conditional Acceptance: The circumstance in which a Vehicle has been delivered to SFMTA and placed in revenue service despite not having met all requirements for Acceptance.

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

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

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

Contractor: The proposer to whom the Award is made.

Controller: Controller of the City.

Correction: The elimination of a defect.

Days: Unless otherwise designated, "Days" as used in the Contract shall mean calendar days.

Defect: Any patent or latent malfunctions or failure in manufacture or design of any component or subsystem.

Director: The Director of Transportation of the SFMTA or his or her designee.

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

Final Acceptance: The formal written acceptance by the Director of Transportation or his or her designee that all contract deliverables for the Contract have been satisfactorily completed and accepted.

Light Rail Vehicles: The Vehicles procured under this Contract, also referred to as "Cars," "LRV4s," or "Vehicles."

Material and/or Equipment: The Light Rail Vehicles (including all parts and equipment installed in them) and other deliverables furnished by the Contractor under the provisions of the Contract.

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

Option: A unilateral right in the Contract, by which, for a specified time, the SFMTA may elect to purchase, at a pre-determined price specified in the Contract, additional Work called for by the Contract.

Phase 1: Work related to the acquisition of 24 Base Order Vehicles to supplement the existing fleet when SFMTA Central Subway opens.

Phase 2: Work related to the acquisition of 151 Base Order Vehicles to replace the existing LRV fleet.

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

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

Related Defect(s): The damages inflicted on any component or subsystem as a direct result of a Defect.

Request for Qualifications; RFQ: The Request for Qualifications issued by the SFMTA on March 29, 2013 to qualify proposers for the RFP.

Request for Proposals; RFP: The Request for Proposals issued by the SFMTA on September 30, 2013, to procure up to 260 Light Rail Vehicles.

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

Subcontractor, Supplier: Any individual, partnership, firm, or corporation that, under an agreement with Contractor, undertakes integrally on the Project the partial or total design, manufacture, performance of, or furnishes one or more items of work under the terms of the contract. As used in this Agreement, the terms Subcontractor and Supplier are synonymous.

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

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

Working Days: Those calendar days during which regular business is conducted excluding Saturdays, Sundays, and all Federal, State, and municipal holidays that are observed by the SFMTA during the duration of the Contract.

Acronyms

AW0	Assigned Weight (empty load)
FDR	Final Design Review
FTA	Federal Transit Administration
PDR	Preliminary Design Review
RFP	Request for Proposals
RFQ	Request for Qualifications
SOQ	Statement of Qualifications

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

1.1. This Agreement is subject to the budget and fiscal provisions of the City's Charter. Charges will accrue only after prior written authorization certified by the Controller, and the amount of City's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization.

1.2. This Agreement will terminate without penalty, liability or expense of any kind to City at the end of any fiscal year if funds are not appropriated for the next succeeding fiscal year. If funds are appropriated for a portion of the fiscal year, this Agreement will

terminate, without penalty, liability or expense of any kind at the end of the term for which funds are appropriated.

1.3. City has no obligation to make appropriations for this Agreement in lieu of appropriations for new or other agreements. City budget decisions are subject to the discretion of the Mayor and the Board of Supervisors. Contractor's assumption of risk of possible non-appropriation is part of the consideration for this Agreement.

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

2. Term of the Agreement.

Subject to Section 1, the term of this Agreement shall not exceed 15 years from the Effective Date.

3. Effective Date of Agreement.

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

4. Work Contractor Agrees to Perform.

The Contractor agrees to perform the Work provided for in the Technical Specifications, and in the Contractor's Proposal (as incorporated into the Conformed Contract Documents), according to the Project Delivery Schedule set forth in Exhibit 3.

5. Compensation.

5.1. In no event shall the amount of this Agreement exceed One Billion, One Hundred Ninety-Two Million, Six Hundred Fifty-One Thousand, Five Hundred Seventy-Seven Dollars (\$1,192,651,577). The breakdown of costs associated with this Agreement appears in the Schedule of Prices (Exhibit 1) and Payment Schedule (Exhibit 2).

5.2. No charges shall be incurred under this Agreement nor shall any payments become due to Contractor until equipment, reports, services, or both, required under this Agreement are received from Contractor and approved by SFMTA as being in accordance with this Agreement. City may withhold payment to Contractor in any instance in which Contractor has failed or refused to satisfy any material obligation provided for under this Agreement.

5.3. In no event shall City be liable for interest or late charges for any late payments.

6. Guaranteed Maximum Costs.

6.1. The City's obligation hereunder shall not at any time exceed the amount certified by the Controller for the purpose and period stated in such certification.

6.2. Except as may be provided by laws governing emergency procedures, officers and employees of the City are not authorized to request, and the City is not required to reimburse the Contractor for, Commodities or Services beyond the agreed upon contract scope unless the changed scope is authorized by amendment and approved as required by law.

6.3. Officers and employees of the City are not authorized to offer or promise, nor is the City required to honor, any offered or promised additional funding in excess of the maximum amount of funding for which the contract is certified without certification of the additional amount by the Controller.

6.4. The Controller is not authorized to make payments on any contract for which funds have not been certified as available in the budget or by supplemental appropriation.

6.5. This contract will be initially certified for \$15,862,068.97. Contractor shall not incur costs in excess of such amount without written authorization from the SFMTA, signed by the SFMTA Chief Financial Officer, or his or her designee.

7. Payment; Invoice Format

Invoices furnished by Contractor under this Agreement must be in a form acceptable to the Controller, and must include the Contract Progress Payment Authorization number. All amounts paid by City to Contractor shall be subject to audit by City. Progress payments shall be made by the City to Contractor at the address specified below:

7.1. Amount. Subject to any subsequent deductions for Liquidated Damages for late delivery of Contract deliverables as specified in Section 19 of this Agreement, the City agrees to pay an amount not to exceed the compensation amount stated in Section 5.1 of this Agreement and in accordance with the terms and conditions of this Agreement.

7.2. Invoices. Contractor's invoices shall be submitted to the following address:

San Francisco Municipal Transportation Agency
Transit Division
1 South Van Ness Avenue, Room 7068
San Francisco, CA 94103
Attention: Ms. Trinh Nguyen P.E., Senior Program Manager

Each invoice shall include:

- Relevant milestones;
- Contract order number;
- Quantity of items;
- Description of items;
- Unit price;
- Total invoice amount.
- Supporting documentation and/or documentation referencing submittal or delivery.

7.3. Progress Payments. SFMTA shall make payments as the work proceeds in accordance with the progress payment provisions as set forth in the Payment Schedule (Exhibit 2). Progress payments shall be conditioned on either (1) transfer of title, free of encumbrances, to the City for the portion of the components, equipment or material paid for by the progress payment, plus a certificate of insurance required by Section 15.1 of this Agreement; or (2) issuance of a letter of credit in conformance with the provision of Section 15.2.5 in the amount of the progress payment. Progress payments for which a letter of credit shall be required are as follows: Milestones A, B and C of Item 1 of Exhibit 2 to this Agreement, and Milestones A, B (except if title is delivered prior to payment by SFMTA) and C of Item 2 of Exhibit 2 to this Agreement. Letter(s) of credit for such progress payments will be released upon Acceptance of 80 percent of the total Vehicles for each respective phase: Phase 1 Base Order Vehicles, Phase 2 Base Order Vehicles, and Option Vehicles.

In lieu of a letter of credit to secure progress payments, Contractor may elect to increase its performance bond required under Section 15.2.2 of this Agreement by the cumulative amount of progress payments for each of the above Milestones and any other items for which Contractor elects to submit security instead of transferring title. Such increase in the amount of the performance bond shall be included in the amount of the performance bond submitted at the time of Contract Award. This increase in the amount of the performance bond shall constitute security for all progress payments for which the bond is issued should Contractor default with respect to any provision of this Agreement. In lieu of an increase in the Performance Bond, an Advance Payment

Bond, in a form acceptable to the City's Risk Manager, or other security acceptable to the City's Risk Manager, will also be accepted. For any Advance Payment Bond or increase in the Performance Bond based upon the above, the Advance Payment Bond will be released or the Performance Bond will be reduced based upon Acceptance of 80 percent of the total Vehicles for each respective phase: Phase 1 Base Order Vehicles, Phase 2 Base Order Vehicles, and Option Vehicles.

All Work covered and paid for during the construction of the Light Rail Vehicles shall become the sole property of SFMTA. This provision shall not be construed as relieving the Contractor from the sole responsibility for all Work upon which payments have been made or for the restoration of all damaged Work or as waiving the right of SFMTA to require the fulfillment of all of the terms of the Contract specifications. The Contractor shall remain liable for insuring and delivering the material in the final form as specified in the Contract, and shall replace material at no cost to SFMTA in the event it is not delivered and accepted by SFMTA.

Contractor shall prepare invoices supported by evidence satisfactory to SFMTA that the Work invoiced has been accomplished and that the materials listed, if any, are stored and ready for use. City will endeavor to pay 30 days after receipt of the complete invoice package.

7.4. Exchange Rate Risk. The City will not make price adjustments on this Contract to protect the Contractor from fluctuations in the value of the applicable foreign currency in relation to the United States dollar.

7.5. Escalation. SFMTA will make price adjustments to this Contract to protect Contractor from economic inflation as set forth below. This adjustment will apply to the Base Order Phase 2 Vehicles, the Option Vehicles (Section 64.1), the optional Train Simulator, the spare parts for Phase 2, and the Option spare parts (see Section 7.5.4 below).

7.5.1. Sole Remedy for Cost Increases. This escalation adjustment shall be the sole remedy for any increases or decreases in the Contractor's costs for Phase 2 Vehicles, Option Vehicles, equipment and spare parts due to inflation or deflation. Adjustments will be calculated applied independently for each Option exercised.

7.5.2. Reserved.

7.5.3. Adjustment Methodology. The unit price of the Vehicle shall be broken down by the percentages of labor and material comprising the unit price as follows: 35% material, 60% labor, and 5% profit. The profit portion of the unit price shall not be subject to adjustment. In making any price adjustments under this Section, SFMTA will use the labor and material indices published by the U.S. Department of Labor, Bureau of Labor Statistics (BLS) at www.bls.gov/iag/tgs/iag335.htm and www.bls.gov/iag/tgs/iag336.htm.

(a) Labor Indices. SFMTA will make any adjustments based on the change in the following indices, equally weighted:

(i) Unit Labor Cost Index for the NAICS Manufacturing Series, Code 335, Electrical Equipment, Appliance and Component Manufacturing, and

(ii) Unit Labor Cost Index for the NAICS Manufacturing Series, Code 336, Transportation Equipment.

(b) Material Indices. SFMTA will make adjustments based on the change in the following indices, equally weighted:

(i) Producer Price Index (PPI) for the NAICS Manufacturing Series, Code 335, Electrical Equipment, Appliance and Component Manufacturing, and

(ii) The Producer Price Index (PPI) for the NAICS Manufacturing Series, Code 336, Transportation Equipment.

(c) Determination of Base and Current Indices

(i) SFMTA will determine the Base labor and material indices by calculating the arithmetic average of the final published indices for the three months prior to the date of Notice to Proceed.

(ii) SFMTA will determine the current labor and material indices for Phase 2 Vehicles by calculating the arithmetic average of the final published indices for the three months prior to one year before the scheduled date of delivery of the first Car of Phase 2 in accordance with Exhibit 3, Project Delivery Schedule.

(iii) SFMTA will negotiate and agree escalation to be applied to the Options at the time Options may be exercised.

(d) Determination of Escalated Price

(i) SFMTA will use the unit price of Vehicles as adjusted by any Contract Modifications in effect at the time of escalation (Adjusted Unit Price).

(ii) SFMTA will escalate the Adjusted Unit Prices of Vehicle according to the methodology in Section 7.5.3(c) to determine the escalated Vehicle unit price.

7.5.4. Escalation for Price of Spare Parts. Any price adjustment for spare parts shall be determined according to the methodology described above for escalating the price of Vehicles and in accordance with the table below.

Schedule of Prices Reference	Base Phase 1 Cars 1-24	Base Phase 2 Cars 25-175	Option Vehicles Cars 1-85
Nominal Spare (item 5)	NO ESCALATION	In accordance with Phase 2, Section 7.5.3 (c)(ii)	
Optional Spare (item 8)	In accordance with Section 7.5.3(c)(iii)	In accordance with Section 7.5.3(c)(iii)	
Spares for Option Vehicles (item 9)			In accordance with Section 7.5.3(c)(iii)

7.5.5. Escalation for Price of Train Simulator. Any price adjustment for the optional train simulator shall be determined according to the methodology described above for Option Vehicles, Section 7.5.3(c)(iii).

7.6. Release. The Contractor shall, if required by the City, execute and deliver at the time of final payment and as a condition precedent to final payment, a release in a form satisfactory to the City, discharging the City, its officers, agents and employees of and from liabilities, obligations, and claims arising under this Contract.

8. Submitting False Claims; Monetary Penalties.

Pursuant to San Francisco Administrative Code §21.35, any contractor, subcontractor or consultant who submits a false claim shall be liable to the City for three

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

9. Disallowance

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

10. Taxes

10.1. Payment of Taxes. The City will reimburse the Contractor for any levied sales tax on articles purchased by the City under this Agreement. However, if the Contractor cannot be authorized to collect and pay the sales taxes to the State of California, then the City will pay the sales tax directly to the State. Contractor shall be solely responsible for any penalties, interest or fees assessed as a result of late or erroneous payment of such taxes except to the extent that the City is responsible for making payments directly to the State.

The City warrants that it is a public entity exempt from certain federal excise taxes and in connection therewith that it has obtained a federal excise tax exemption certificate. Contractor will pay all other taxes, including possessory interest taxes, licenses, imposts, duties, and all other governmental charges of any type whatsoever levied upon or as a result of this Agreement or Work performed pursuant hereto.

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

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

10.2.2. Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that the creation, extension, renewal, or assignment of this Agreement may result in a "change in ownership" for purposes of real property taxes, and therefore may result in a revaluation of any possessory interest created by this Agreement. Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report on behalf of the City to the County Assessor the information required by Revenue and Taxation Code section 480.5, as amended from time to time, and any successor provision.

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

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

11. Payment Does Not Imply Acceptance of Work

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

12. Qualified Personnel

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

13. Responsibility for Equipment

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

14. Independent Contractor; Payment of Taxes and Other Expenses

14.1. Independent Contractor. Contractor or any agent or employee of Contractor shall be deemed at all times to be an independent contractor and is wholly responsible for the manner in which it performs the services and Work requested by City under this Agreement. Contractor or any agent or employee of Contractor shall not have employee status with City, nor be entitled to participate in any plans, arrangements, or distributions by City pertaining to or in connection with any retirement, health or other benefits that City may offer its employees. Contractor or any agent or employee of Contractor is liable for the acts and omissions of itself, its employees and its agents. Contractor shall be responsible for all obligations and payments, whether imposed by federal, state or local law, including, but not limited to, FICA, income tax withholdings, unemployment compensation, insurance, and other similar responsibilities related to Contractor's performing services and Work, or any agent or employee of Contractor providing same. Nothing in this Agreement shall be construed as creating an employment or agency relationship between City and Contractor or any agent or employee of Contractor.

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

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

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

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

15. Insurance; Bonds

15.1. Insurance

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

(a) Workers' Compensation, in statutory amounts, with Employers' Liability Limits not less than \$1,000,000 each accident, illness or injury. The Worker's Compensation policy shall be endorsed with a waiver of subrogation in favor of the City for all work performed by the Consultant, its employees, agents and subcontractors; **and**

(b) (i) Commercial General Liability Insurance with limits not less than \$50,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Contractual Liability, Personal Injury, Products and Completed Operations, and any exclusion for railroads shall be removed; **or** (ii) A combination of Umbrella or Excess Insurance and Commercial General Liability Insurance with combined limits not less than \$50,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Contractual Liability, Personal Injury, Products and Completed Operations; such coverage shall be written on a follow form basis, and any exclusion for railroads shall be removed; **and**

(c) Commercial Automobile Liability Insurance with limits not less than \$1,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Owned, Non-Owned and Hired auto coverage, as applicable; **and**

(d) Garage Liability insurance (if applicable, in SFMTA's sole discretion, based on means and methods employed by Contractor), including coverage for garage operations arising from premises/operations, product/completed operations, contracts, owned vehicles, non-owned vehicles

and damage to vehicles owned by others (bailment), with a minimum limit of liability of \$2,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage; **and**

(e) Garagekeepers' Legal Liability insurance (if applicable, in SFMTA's sole discretion, based on means and methods employed by Contractor), with an endorsement for coverage of Light Rail Vehicles, comprehensive form, with limits not less than \$2,000,000 each occurrence; **and**

(f) All Risk Property Insurance with replacement cost coverage and limits of no less than (amount TBD based on value of maximum cars stored). Insurance shall cover all risk of physical loss or damage to the Contractor's site, including buildings, contents, any storage facility and its contents; **and**

(g) Professional liability insurance, applicable to Contractor's profession, with limits not less than \$10,000,000 each claim with respect to negligent acts, errors or omissions in connection with professional services to be provided under this Agreement; **and**

(h) Unless otherwise covered by Commercial General Liability and/or Umbrella or Excess Insurance specified in paragraph 15.1.1(b)(i), Transit Liability coverage with limits not less than \$50,000,000, to be in place prior to testing of Vehicles on any public or third-party rails; **and**

(i) Crane Operator's/Riggers Liability Insurance (if applicable), covering crane operations while at Contractor's site with limits of no less than \$10,000,000 per occurrence and in the aggregate. This insurance applies only if Contractor uses a crane in the performance of the Work; **and**

(j) Any shipping contractor or subcontractor shall carry, at a minimum, physical damage insurance (including destruction, damage, fire and theft) in the amount of not less than the value of the item(s) shipped, as stated in Exhibit 1A, Price Item 2, and commercial liability insurance in the amount of not less than \$1,000,000.

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

(a) Name as Additional Insured the City and County of San Francisco, its Officers, Agents, and Employees.

(b) That such policies are primary insurance to any other insurance available to the Additional Insured, with respect to any claims arising out of this Agreement, and that insurance applies separately to each insured against whom claim is made or suit is brought.

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

15.1.4. All policies shall provide 30 Days' advance written notice to City of cancellation or reduction in coverage for any reason, mailed to the following address:

San Francisco Municipal Transportation Agency
Transit Division
1 South Van Ness Avenue, 7th Floor, San Francisco, CA 94103
Attention: Ms. Trinh Nguyen P.E., Senior Program Manager
Contract No. SFMTA-2013-19 – LRV4

15.1.5. Should any of the required insurance be provided under a claims-made form, Contractor shall maintain such coverage continuously throughout the term of this Agreement and, without lapse, for a period of five years beyond the expiration of this Agreement, to the effect that, should occurrences during the contract term give rise to claims made after expiration of the Agreement, such claims shall be covered by such claims-made policies

15.1.6. Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit or provides that claims investigation or legal defense costs be included in such general annual aggregate limit, such general annual aggregate limit shall be double the occurrence or claims limits specified above.

15.1.7. Should any required insurance lapse during the term of this Agreement, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this Agreement, effective as of the lapse date. If insurance is not reinstated, the City may, at its sole option, terminate this Agreement effective on the date of such lapse of insurance.

15.1.8. Before commencing any operations under this Agreement, Contractor shall do the following: (a) furnish to City certificates of insurance, and additional insured policy endorsements with insurers with ratings comparable to A- VIII or higher, that are authorized to do business in the State of California, and that are satisfactory to City, in form evidencing all coverage's set forth above, and (b) furnish complete copies of policies promptly upon City request.

15.1.9. Approval of the insurance by City shall not relieve or decrease the liability of Contractor hereunder.

15.1.10. If a subcontractor will be used to complete any portion of this agreement, the Contractor shall ensure that the subcontractor shall provide all necessary insurance and shall name the City and County of San Francisco, its officers, agents and employees and the Contractor listed as additional insureds.

15.2. Bonds/Letter of Credit

15.2.1. General. The following provisions set forth financial guarantees that must be met by Contractor. Contractor may choose to meet the requirements of this Section 15.2 by obtaining either the required bonds or an irrevocable letter of credit ("Letter of Credit") in an equivalent amount, or a combination of the two types of instruments. In addition, for each subsequent Vehicle delivery phase described below, Contractor may elect to change how the obligations are met by furnishing a bond to cover an obligation previously covered by a Letter of Credit or vice-versa, subject to approval of the SFMTA and the City's Risk Manager. The Contractor may provide a Parent Company Guarantee in lieu of the bond required under this Agreement, subject to the approval of the SFMTA and the City's Risk Manager. The form of the Parent Company Guarantee is provided in Exhibit 6.

15.2.2. Security. Contractor shall furnish to the City either a performance bond or a Letter of Credit for each phase of delivery as set forth below:

(a) Phase 1 (24 Base Order Vehicles)

(i) A performance bond or Letter of Credit in the amount of 25 percent of the total price for Phase 1 within 20 Days following the receipt of the notice of award of the Contract.

(ii) If requested by Contractor and agreed to by City, the amount of the performance bond may be reduced, or the City may authorize a reduction in the amount of the Letter of Credit from 25 percent

to 12.5 percent of the total price for Phase 1 upon Acceptance or Conditional Acceptance of the 24th Car. Upon expiration of the warranty period of the 24th Car, the City will release the performance bond (or authorize the release of the Letter of Credit) covering the 24 Cars. Alternatively, the City may release the performance bond (or authorize the release of the Letter of Credit) upon Acceptance or Conditional Acceptance of the 24th Car provided that Contractor has furnished to City a warranty bond or Letter of Credit in accordance with the requirements of Section 15.2.4.

(b) Phase 2 (151 Base Order Vehicles – 25-175)

(i) Contractor shall furnish to the City a performance bond or Letter of Credit in the amount of 25 percent of the total price for Phase 2 no later than 18 months prior to the planned delivery of Base Order Vehicle 25; Contractor shall issue a phase commencement letter to the City no later than 30 days prior to the issuance of the performance bond or Letter of Credit.

(ii) If requested by Contractor and agreed to by City, the amount of the performance bond may be reduced (or the City may authorize a reduction in the amount of the Letter of Credit) as Phase 2 Vehicles are Accepted as follows:

(A) from 25 percent to 20 percent of the total price for Phase 2 upon expiration of the warranty period of the 75th Car;

(B) from 20 percent to 15 percent of the total price for Phase 2 upon expiration of the warranty period of the 125th Car.

(iii) Upon expiration of the warranty period of the 175th Car, the City will release the performance bond or authorize the release of the Letter of Credit. Alternatively, the City may release the performance bond or authorize the release of the Letter of Credit upon Acceptance or Conditional Acceptance of the 175th Car provided Contractor has furnished to City a warranty bond or Letter of Credit in accordance with the requirements of Section 15.2.4 at the time of Acceptance or Conditional Acceptance of the 175th Car.

(c) Optional Delivery Phase (Option Vehicles 1-85). If SFMTA exercises the option for delivery of additional Vehicles (Option Vehicles), Contractor shall furnish to the City a performance bond or Letter of Credit in the amount of 25% of the total option price within 20 Days of Contractor's receipt of notice from SFMTA of the Agency's intention to exercise the option. The amount of the performance bond for the Option Vehicles may be reduced (or the City may authorize a reduction in the amount of the Letter of Credit for such Vehicles) from 25% to 5% upon Acceptance or Conditional Acceptance of the last Option Vehicle. The City will release the performance bond or authorize the release of the Letter of Credit, upon the expiration of the warranty period of the last Option Vehicle. Alternatively, the City may release the performance bond or authorize the release of the Letter of Credit upon Acceptance or Conditional Acceptance of the last Option Vehicle provided that Contractor has furnished the City with a warranty bond or Letter of Credit in accordance with the requirements of Section 15.2.4.

15.2.3. Labor and Materials Bond.

(a) Phase 1 (24 Base Order Vehicles) Within 20 days following the receipt of notice of Award of the Contract, the Contractor shall furnish to City either a labor and materials bond (in the form to be approved by

the City) or a Letter of Credit in the amount of 25 percent of the total price for Phase 1, to guarantee Contractor's payment of materials, provisions, or other supplies used for or in the performance of Phase 1 of the contract. Upon delivery and acceptance by the City of 75 percent of the contracted number of Vehicles for Phase 1, the amount of the labor and materials bond may be reduced (or the City may authorize a reduction in the amount of the Letter of Credit) to 30 percent of the original amount. Upon final payment by the City for all Contract deliverables under Phase 1, the obligations of the Contractor and surety under the labor and materials bond shall be released by the City in writing (or in the case of a Letter of Credit, the City shall authorize the release of the Letter of Credit for this purpose). The original bond document(s) shall be retained by the City.

(b) Phase 2 (151 Base Order Vehicles). Contractor shall furnish to the City either a labor and materials bond or Letter of Credit in the amount of 25 percent of the total price for Phase 2, to guarantee Contractor's payment of materials, provisions, or other supplies used for or in the performance of Phase 2 no later than 18 months prior to the planned delivery of Base Order Vehicle 25; Contractor shall issue a phase commencement letter to the City no later than 30 days prior to the issuance of the performance bond or Letter of Credit. Upon delivery and acceptance by the City of 75 percent of the contracted number of Vehicles for Phase 2, the amount of the labor and materials bond may be reduced (or the City may authorize a reduction in the amount of the Letter of Credit) to 30 percent of the original amount. Upon final payment by the City for all Contract deliverables under Phase 2, the obligations of the Contractor and surety under the labor and materials bond shall be released by the City in writing (or in the case of a Letter of Credit, the City shall authorize the release of the Letter of Credit for this purpose). The original bond document(s) shall be retained by the City.

(c) Optional Delivery Phase (Option Vehicles 1-85).)
Within 20 days of receipt of a notice from City of its intention to exercise the Option for delivery of additional Vehicles, the Contractor shall furnish to City either a separate labor and materials bond or a Letter of Credit in the amount of 25 percent of the cost of the additional Vehicles to be purchased, to guarantee performance of all Contract obligations with respect to such Optional Vehicles. Provisions for releasing or reducing the amount of the bond or Letter of Credit shall apply in the same manner as described above. Any such bond shall also be retained by the City.

15.2.4. Warranty Bond. Once all Vehicles have been Accepted or Conditionally Accepted for Phase 1, Phase 2, or for Option Delivery, Contractor may replace the performance bond for that phase, or request that the City authorize the release of a Letter of Credit provided in lieu of a performance bond by obtaining a warranty or guaranty bond or an additional Letter of Credit in the amount of 10 percent of the Contract amount for that phase or for the Option Vehicles, as appropriate. Where Contractor's performance is secured by a Letter of Credit and Contractor obtains a warranty bond to cover Contractor's warranty obligations for a given phase or the Option Delivery period, Contractor may request that the Letter of Credit be released to reflect that the Contractor's obligations under that delivery phase have otherwise been fulfilled. A bond or Letter of Credit under this paragraph 15.2.4 shall be for the purpose of covering all of Contractor's warranty obligations under the Contract for that phase or for Option delivery, and shall become effective upon release of the performance bond or City's authorization to release the Letter of Credit specified in Subsection 15.2.2 above. At the end of each year of warranty coverage, the Contractor may request a reduction of coverage, which may be approved at the discretion of SFMTA and the City's Risk Manager.

15.2.5. Requirements for Letter of Credit.

(a) General Requirements. Any Letter of Credit submitted as required security under this Agreement shall be a confirmed, clean, irrevocable Letter of Credit in favor of the City and County of San Francisco, a municipal corporation. It must have an original term of one year, with automatic renewals of the full amount (subject to modification as otherwise provided in this Section 15.2 to reflect the adjustments set forth above) throughout the term of the Agreement and throughout the performance of Contractor's obligations under the Agreement. If Contractor fails to deliver the Letter of Credit as required, City will be entitled to cancel this Agreement. The Letter of Credit must provide that payment of its entire face amount, or any portion thereof, will be made to City upon presentation of a written demand to the bank signed by the Director of Transportation on behalf of the City.

(b) Financial Institution. The Letter of Credit must be issued on a form and issued by a financial institution acceptable to the City in its sole discretion, which financial institution must (a) be a bank or trust company doing business and having an office in the City and County of San Francisco, (b) have a combined capital and surplus of at least \$25,000,000, and (c) be subject to supervision or examination by federal or state authority and with at least a Moody's A rating. Should the financial institution fail to maintain such rating, Contractor shall replace the Letter of Credit within 30 days with a Letter of Credit from a financial institution with such a rating.

(c) Demand on Letter of Credit. The Letter of Credit will constitute a security deposit guaranteeing faithful performance by Contractor of all terms, covenants, and conditions of this Agreement, including all monetary obligations set forth herein. If Contractor defaults with respect to any provision of this Agreement, SFMTA may make a demand under the Letter of Credit for all or any portion thereof to compensate City for any loss or damage that they may have incurred by reason of Contractor's default, negligence, breach or dishonesty. Such loss or damage may include without limitation any damage to or restoration of City property or property that is required to be constructed, maintained or repaired pursuant to this Agreement, payments to City, and claims for liquidated damages; provided, however, that City will present its written demand to said bank for payment under said Letter of Credit only after City first has made its demand for payment directly to Contractor, and five full Working Days have elapsed without Contractor having made payment to City. Should the City terminate this Agreement due to a breach by Contractor, the City shall have the right to draw from the Letter of Credit those amounts necessary to pay any fees or other financial obligations under the Agreement and perform the Work described in this Agreement until such time as the City procures another contractor and the agreement between the City and that contractor becomes effective. City need not terminate this Agreement in order to receive compensation for its damages. If any portion of the Letter of Credit is so used or applied by City, Contractor, within 10 Working Days after written demand by City, shall reinstate the Letter of Credit to its original amount; Contractor's failure to do so will be a material breach of this Agreement.

(d) Expiration or Termination. The Letter of Credit must provide for 60 Days notice to City in the event of non-extension of the Letter of Credit; in that event, Contractor shall replace the Letter of Credit at least 10 Working Days prior to its expiration. In the event the City receives notice from the issuer of the Letter of Credit that the Letter of Credit will be terminated, not renewed or will otherwise be allowed to expire for any reason during the period from the commencement of the term of this Agreement to 90 Days after the expiration or termination of this Agreement, or the conclusion of all of

Contractor's obligations under the Agreement, whichever occurs last, and Contractor fails to provide the City with a replacement Letter of Credit (in a form and issued by a financial institution acceptable to the City) within 10 Working Days following the City's receipt of such notice, such occurrence shall be an event of default, and, in addition to any other remedies the City may have due to such default (including the right to terminate this Agreement), the City shall be entitled to draw down the entire amount of the Letter of Credit (or any portion thereof) and hold such funds in an account with the City Treasurer in the form of cash guarantying Contractor's obligations under this Agreement. In such event, the cash shall accrue interest to the Contractor at a rate equal to the average yield of Treasury Notes with one-year maturity, as determined by the Treasurer. In the event the Letter of Credit is converted into cash pursuant to this paragraph, upon termination of this Agreement, Contractor shall be entitled to a full refund of the cash (less any demands made thereon by the City) within 90 Days of the termination date, including interest accrued through the termination date.

(e) Return of Letter of Credit. The Letter of Credit will be returned within 90 Days after the end of the term of this Agreement, provided that Contractor has faithfully performed throughout the life of the Agreement, Contractor has completed its obligations under the Agreement, there are no pending claims involving Contractor's performance under the Agreement and no outstanding disagreement about any material aspect of the provisions of this Agreement. In the event this Agreement is assigned, as provided for in Section 30, City will return or release the Letter of Credit not later than the effective date of the assignment, provided that the assignee has delivered to the City an equivalent Letter of Credit, as determined by City.

(f) Excessive Demand. If City receives any payments from the aforementioned bank under the Letter of Credit by reason of having made a wrongful or excessive demand for payment, City will return to Contractor the amount by which City's total receipts from Contractor and from the bank under the Letter of Credit exceeds the amount to which City is rightfully entitled, together with interest thereon at the legal rate of interest, but City will not otherwise be liable to Contractor for any damages or penalties.

15.2.6. Requirements for Bonds.

(a) Bonding entities on the above bonds must be legally authorized to engage in the business of furnishing performance bonds in the State of California. All bonding entities must be satisfactory to SFMTA and to the Controller and Risk Manager of the City.

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

15.2.7. Parent Company Guarantee If a Parent Company Guarantee is used, the City reserves the right to review the financials of the Parent Company at agreed intervals; Contractor's agreement for such review shall not be unreasonably withheld.

16. Indemnification

16.1. General. Contractor shall indemnify and save harmless City and its officers, agents and employees from, and, if requested, shall defend them against any and all loss, cost, damage, injury, liability, and claims thereof for injury to or death of a person, including employees of Contractor or loss of or damage to property, arising directly or indirectly from Contractor's performance of this Agreement, including, but not limited to, Contractor's use of facilities or equipment provided by City or others, regardless of the negligence of, and regardless of whether liability without fault is imposed or sought to be imposed on City, except to the extent that such indemnity is void or otherwise unenforceable under applicable law in effect on or validly retroactive to the date of this Agreement, and except where such loss, damage, injury, liability or claim is the result of the active negligence or willful misconduct of City and is not contributed to by any act of, or by any omission to perform some duty imposed by law or agreement on Contractor, its subcontractors or either's agent or employee. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, consultants and experts and related costs and City's costs of investigating any claims against the City.

16.2. Duty to Defend. In addition to Contractor's obligation to indemnify City, Contractor specifically acknowledges and agrees that it has an immediate and independent obligation to defend City from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to Contractor by City and continues at all times thereafter.

16.3. Intellectual Property. Contractor shall indemnify and hold City harmless from all loss and liability, including attorneys' fees, court costs and all other litigation expenses for any infringement of the patent rights, copyright, trade secret or any other proprietary right or trademark, and all other intellectual property claims of any person or persons in consequence of the use by City, or any of its officers or agents, of articles or Work to be supplied in the performance of this Agreement.

16.4. Limitation of Liability. Except as provided herein, Contractor's aggregate liability to the City under this Agreement shall be limited to the Contract amount stated in Section 5.1, as that amount may be modified by a properly approved and executed Contract Modification. Said limitation on liability shall not apply to:

16.4.1. damages and other liability caused by Contractor's willful, intentional acts or omissions;

16.4.2. liability arising under or for violation of any applicable statute, City ordinance, regulation, or other laws;

16.4.3. damages and other liability arising under claims by third parties, including indemnity or contribution for claims brought by a third party (see Paragraph 16.1);

16.4.4. damages and other liability for infringement of any intellectual property right as provided in Section 16.3.

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

settlement of the claim and provide timely assistance to Contractor in the defense of the claim.

17. Incidental and Consequential Damages.

Except for liquidated damages, Contractor shall not be responsible for indirect, incidental and consequential damages resulting from Contractor's acts or omissions, including but not limited to, lost profits or revenue and business interruption. Nothing in this Agreement shall constitute a waiver or limitation of any rights that City may have under applicable law.

18. Liability of City

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

19. Liquidated Damages/ Weight Incentives

19.1. Liquidated Damages

By entering into this Agreement, the Contractor agrees that in the event the Work, as provided under Section 4, is delayed beyond the scheduled milestones and timelines as provided in the Project Delivery Schedule in Exhibit 3 of this Agreement, as may be revised by Contract Modifications, City will suffer damages that will be impracticable or extremely difficult to determine; further, Contractor agrees that the amounts listed below for each day of delay beyond scheduled milestones and timelines are not a penalty, but are a reasonable estimate of the loss that City will incur based on the delay, established in light of the circumstances existing at the time this contract was awarded. Except where the delay is the result of an Unavoidable Delay, City may deduct a sum representing the liquidated damages from any money due to Contractor. Such deductions shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Contractor's failure to deliver to City within the time fixed or such extensions of time permitted in writing by SFMTA .

<u>Milestone</u>	<u>Amount per Day</u>
Delivery of first 2 Vehicles	\$2000 per Vehicle
Delivery of Vehicles 3 - 260	\$1000 per Vehicle
Completion of training program	\$500
Completion of delivery of Phase 1 spare parts	\$500
Completion of delivery of Phase 2 spare parts	\$500
Conditional Acceptance of manuals (operation, maintenance)	\$500

and parts manuals)

Delivery of diagnostic test equipment and special tools	\$500
Failure to provide a plan for correction of fleet defects	\$500 per Vehicle
Failure to fully correct fleet defects according to approved plan	\$500 per Vehicle

Liquidated Damages imposed under this Agreement shall be in addition to any other damages which are recoverable by the City specified elsewhere in the Contract. The total amount of liquidated damages shall not exceed 10 percent of the total amount of the Contract, as stated in Section 5.1 of this Agreement, as that amount may be amended by Contract Modification(s).

19.2. Weight Limits and Incentives

The nominal Vehicle weight shall be 78,770 pounds at AW0. Vehicles shall be weighed prior to delivery, and, for each pound in excess of the nominal weight, the City will deduct \$10 per pound per Vehicle from the Contractor's invoice. For each pound below the nominal weight, the City will pay an incentive payment of \$10 per pound per Vehicle. To allow for manufacturing variations, neither penalties nor incentives will be assessed on the first one percent excess or under weight. SFMTA shall reject Vehicles weighing in excess of 80,000 pounds at AW0 and shall not be required to pay for rejected Vehicles.

20. Default; Remedies

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

20.1.1. Contractor fails or refuses to perform or observe any term, covenant or condition contained in any of the following Sections of this Agreement: 8, 10, 15, 24, 30, 36, 51, or 55.

20.1.2. Contractor fails or refuses to perform or observe any other term, covenant or condition contained in this Agreement, and such default continues for a period of 15 Days after written notice thereof from City to Contractor.

20.1.3. San Francisco Municipal Transportation Agency Contractor (i) is generally not paying its debts as they become due, (ii) files, or consents by answer or otherwise to the filing against it of, a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction, (iii) makes an assignment for the benefit of its creditors, (iv) consents to the appointment of a custodian, receiver, trustee or other officer with similar powers of Contractor or of any substantial part of Contractor's property or (v) takes action for the purpose of any of the foregoing.

20.1.4. A court or government authority enters an order (i) appointing a custodian, receiver, trustee or other officer with similar powers with respect to Contractor or with respect to any substantial part of Contractor's property, (ii) constituting an order for relief or approving a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction or (iii) ordering the dissolution, winding-up or liquidation of Contractor.

20.2. Remedies. On and after any Event of Default, City shall have the right to exercise its legal and equitable remedies, including, without limitation, the right to terminate this Agreement or to seek specific performance of all or any part of this Agreement. In addition, City shall have the right (but no obligation) to cure (or cause to be cured) on behalf of Contractor any Event of Default; Contractor shall pay to City on demand all costs and expenses incurred by City in effecting such cure, with interest thereon from the date of incurrence at the maximum rate then permitted by law. City shall have the right to offset from any amounts due to Contractor under this Agreement or any other agreement between City and Contractor all damages, losses, costs or expenses incurred by City as a result of such Event of Default and any liquidated damages due from Contractor pursuant to the terms of this Agreement or any other agreement. All remedies provided for in this Agreement may be exercised individually or in combination with any other remedy available hereunder or under applicable laws, rules and regulations. The exercise of any remedy shall not preclude or in any way be deemed to waive any other remedy.

21. Termination for Convenience

21.1. Exercise of Option. City shall have the option, in its sole discretion, to terminate this Agreement, at any time during the term hereof, for convenience and without cause. City shall exercise this option by giving Contractor written notice of termination. The notice shall specify the date on which termination shall become effective.

21.2. Contractor Actions. Upon receipt of the notice, Contractor shall commence and perform, with diligence, all actions necessary on the part of Contractor to effect the termination of this Agreement on the date specified by City and to minimize the liability of Contractor and City to third parties as a result of termination. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation:

21.2.1. Halting the performance of all services and Work under this Agreement on the date(s) and in the manner specified by City.

21.2.2. Not placing any further orders or subcontracts for materials, services, equipment or other items.

21.2.3. Terminating all existing orders and subcontracts.

21.2.4. At City's direction, assigning to City any or all of Contractor's right, title, and interest under the orders and subcontracts terminated. Upon such assignment, City shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

21.2.5. Subject to City's approval, settling all outstanding liabilities and all claims arising out of the termination of orders and subcontracts.

21.2.6. Completing performance of any services or Work that City designates to be completed prior to the date of termination specified by City.

21.2.7. Taking such action as may be necessary, or as the City may direct, for the protection and preservation of any property related to this Agreement which is in the possession of Contractor and in which City has or may acquire an interest.

21.3. Contractor Invoice. Within 30 Days after the specified termination date, Contractor shall submit to City an invoice, which shall set forth each of the following as a separate line item:

21.3.1. The reasonable cost to Contractor, without profit, for all services and Work City directed Contractor to perform prior to the specified termination date, for which services or Work City has not already tendered payment. Reasonable costs may

include a reasonable allowance for actual overhead, not to exceed a total of 10 percent of Contractor's direct costs for services or other Work. Any overhead allowance shall be separately itemized. Contractor may also recover the reasonable cost of preparing the invoice.

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

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

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

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

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

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

22. Rights and Duties Upon Termination or Expiration

22.1. Survival of Sections. This Section and the following Sections of this Agreement shall survive termination or expiration of this Agreement: 8 through 11, 13 through 18, 24, 26, 28, 46 through 50, 54, 55, 61, 62 and 67.

22.2. Contractor Duties. Subject to the immediately preceding subsection 22.1, upon termination of this Agreement prior to expiration of the term specified in Section 2, this Agreement shall terminate and be of no further force or effect. Contractor shall transfer title to City, and deliver in the manner, at the times, and to the extent, if any, directed by City, any work in progress, completed work, supplies, equipment, and other materials produced as a part of, or acquired in connection with the performance of this Agreement, and any completed or partially completed work which, if this Agreement had been completed, would have been required to be furnished to City. This subsection shall survive termination of this Agreement.

23. Conflict of Interest

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

24. Proprietary or Confidential Information of City

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

25. Notices to the Parties

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

To City:

San Francisco Municipal Transportation Agency
Transit Division,
1 South Van Ness Avenue, 7th Floor, San Francisco, CA 94103
Attention: Ms. Trinh Nguyen P.E. Senior Program Manager
lr4@sfmta.com

To Contractor:

Siemens Industry, Inc.
Infrastructure & Cities Sector
7464 French Road
Sacramento, CA 95828
Attention: Mr. Viorel Aninoiu
viorel.aninoiu@siemens.com

Any notice of default must be sent by registered mail.

26. Intellectual Property

26.1. Works for Hire; Ownership of Results. Any interest of Contractor or its Subcontractors, in drawings, plans, specifications, blueprints, studies, reports, memoranda, computation sheets, computer files and media or other documents prepared by Contractor or its subcontractors solely for the City in connection with services or Work to be performed under this Agreement, shall become the property of and will be transmitted to City. However, Contractor may retain and use copies for reference and as documentation of its experience and capabilities. If, in connection with services or Work performed under this Agreement, Contractor or its subcontractors create artwork, copy, posters, billboards, photographs, videotapes, audiotapes, systems designs, software, reports, diagrams, surveys, blueprints, source codes or any other

original works of authorship, such works of authorship shall be works for hire as defined under Title 17 of the United States Code, and all copyrights in such works are the property of the City if prepared solely for the City and for no other customer or application. These shall include: City route specific information (e.g. public address system information, destination information), City specific propulsion and brake software code; and Contract-specific manuals, artwork, copy, posters, billboards, photographs, videotapes and audiotapes. If it is ever determined that any works created by Contractor or its subcontractors under this Agreement are not works for hire under U.S. law, Contractor hereby assigns all copyrights to such works to the City, and agrees to provide any material and execute any documents necessary to effectuate such assignment. With the approval of the City, Contractor may retain and use copies of such works for reference and as documentation of its experience and capabilities.

26.2. Licenses Granted

26.2.1. Computerized Software and Systems. To the extent that that the Contractor is providing its proprietary software, firmware, systems designs, computerized manuals, training modules, or other such deliverables that are not designed specifically for City's purposes in connection with the Agreement, Contractor grants City a perpetual, non-exclusive, non-transferable, license at all locations owned or controlled by City to use all such deliverables, or portions thereof. City shall also be authorized to modify or prepare derivative works of the deliverables and make copies of such deliverables for internal use only. Any such modifications shall become the property of the City unless such modifications are not used exclusively for internal purposes. City agrees not to remove or destroy any proprietary markings or proprietary legends placed upon or contained within the deliverable(s) or any related materials or documentation. Contractor hereby warrants that it has title to and/or the authority to grant a license of such deliverables to the City. Upon request, Contractor shall provide to City a copy of the source code, which corresponds to the most current version of the deliverable, as well as any and all applicable proprietary materials that are otherwise not furnished under this Agreement, but may become necessary for the long-term maintenance and operation of the Vehicles. Alternatively, prior to Notice to Proceed, City and Contractor shall negotiate and enter into an escrow agreement whereby the applicable source codes for software that is proprietary to Contractor or its suppliers or subcontractors, including periodic updates of said source codes, and other proprietary materials, are placed in escrow. The source codes placed in escrow shall be on electronic media and shall be accompanied by detailed software documentation, including a list of applicable software development tools. The Director of Transportation shall execute said escrow agreement on behalf of City.

26.2.2. Other Deliverables. Contractor grants City a perpetual, non-exclusive, non-transferable license to use, retain, and reproduce at all locations controlled by SFMTA, for internal use only, all copies (whether in hard copy or electronic format) of drawings, plans, specifications, schematics, studies, reports, memoranda, computation sheets and all other documents that are (i) prepared by Contractor or its subcontractors or suppliers (but not exclusively for City); and (ii) required to be provided to City in connection with this Agreement. Contractor hereby warrants that it has title to and/or the authority to grant a license of such deliverables to the City.

26.2.3. Proprietary Materials. To the extent that the Contractor considers any document or deliverable to be a trade secret or otherwise proprietary, Contractor shall so mark them. SFMTA shall require individuals using such proprietary documents to maintain the confidentiality of the documents, and if necessary, sign a confidentiality agreement regarding use of highly sensitive documents. Alternatively, at SFMTA's request, documents shall be placed in escrow, along with source codes, as described in subsection 26.2.1 above. Contractor shall hold the City harmless from and defend the City against all claims, suits or other proceedings instituted against the City for copyright infringement, misuse or misappropriation of a trade secret, or for access to

the documents or deliverables under the City's Sunshine Ordinance or the California Public Records Act. Contractor will pay the costs and damages awarded in any such action or proceeding, or the cost of settling such action or proceeding, provided that Contractor shall have sole control of the defense of any such action and all negotiations or its settlement or compromise. If notified promptly in writing of any informal claim (other than a judicial action) brought against City based on an allegation that City's use of the buses, spare parts, documents or deliverables constitutes infringement, Contractor will pay the costs associated with resolving such claim and will pay the settlement amount (if any), provided that Contractor shall have sole control of the resolution of any such claim and all negotiations for its settlement.

27. Exhibits

All exhibits are incorporated by reference and made a part of this Agreement as though fully set forth.

28. Audits and Inspection of Records

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

29. Subcontracting

Contractor may subcontract portions of the Work only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the performance of the Work. City's execution of this Agreement constitutes its approval of the major subcontractors/suppliers listed below. Neither party shall, on the basis of this Agreement, contract on behalf of or in the name of the other party. Any agreement made in violation of this provision shall be null and void.

	Commodity	Supplier
1	APC	INIT
2	ATCS	Thales
3	CCTV	Kratos
4	Event Recorder	Hasler Rail
5	HVAC	Thermo King
6	Radio	Harris

30. Assignment

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

33. Reserved

34. Nondiscrimination; Penalties

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

34.2. Subcontracts. Contractor shall incorporate by reference in all subcontracts the provisions of §§12B.2(a), 12B.2(c)-(k), and 12C.3 of the San Francisco Administrative Code (copies of which are available from SFMTA) and shall require all subcontractors to comply with such provisions. Contractor's failure to comply with the obligations in this subsection shall constitute a material breach of this Agreement.

34.3. Nondiscrimination in Benefits. Contractor does not as of the date of this Agreement and will not during the term of this Agreement, in any of its operations in San Francisco, on real property owned by San Francisco, or where work is being performed for the City elsewhere in the United States, discriminate in the provision of bereavement leave, family medical leave, health benefits, membership or membership discounts, moving expenses, pension and retirement benefits or travel benefits, as well as any benefits other than the benefits specified above, between employees with domestic partners and employees with spouses, and/or between the domestic partners and spouses of such employees, where the domestic partnership has been registered with a governmental entity pursuant to state or local law authorizing such registration, subject to the conditions set forth in §12B.2(b) of the San Francisco Administrative Code.. As a condition to this Agreement, Contractor shall execute the "Chapter 12B Declaration: Nondiscrimination in Contracts and Benefits" form (form HRC-12B-101) with supporting documentation and secure the approval of the form by the San Francisco Human Rights Commission.

34.4. Incorporation of Administrative Code Provisions by Reference, The provisions of Chapters 12B and 12C of the San Francisco Administrative Code are incorporated in this Section by reference and made a part of this Agreement as though fully set forth herein. Contractor shall comply fully with and be bound by all of the provisions that apply to this Agreement under such Chapters, including but not limited to the remedies provided in such Chapters. Without limiting the foregoing, Contractor understands that pursuant to §12B.2(h) of the San Francisco Administrative Code, a penalty of \$50 for each person for each calendar day during which such person was discriminated against in violation of the provisions of this Agreement may be assessed against Contractor and/or deducted from any payments due Contractor.

35. Tropical Hardwoods and Virgin Redwood Ban

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

36. Drug-Free Workplace Policy

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

37. Resource Conservation.

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

38. Compliance with Americans with Disabilities Act

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

39. Sunshine Ordinance

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

40. Public Access to Meetings and Records.

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

41. Notification of Limitations on Contributions.

Through execution of this Agreement, Contractor acknowledges that it is familiar with section 1.126 of the City's Campaign and Governmental Conduct Code, which prohibits any person who contracts with the City for the rendition of personal services, for the furnishing of any material, supplies or equipment, for the sale or lease of any land or building, or for a grant, loan or loan guarantee, from making any campaign contribution to (1) an individual holding a City elective office if the contract must be approved by the individual, a board on which that individual serves, or a board on which

an appointee of that individual serves, (2) a candidate for the office held by such individual, or (3) a committee controlled by such individual, at any time from the commencement of negotiations for the contract until the later of either the termination of negotiations for such contract or six months after the date the contract is approved. Contractor acknowledges that the foregoing restriction applies only if the contract or a combination or series of contracts approved by the same individual or board in a fiscal year have a total anticipated or actual value of \$50,000 or more. Contractor further acknowledges that the prohibition on contributions applies to each prospective party to the contract; each member of Contractor's board of directors; Contractor's chairperson, chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than 20 percent in Contractor; any subcontractor listed in the bid or contract; and any committee that is sponsored or controlled by Contractor. Additionally, Contractor acknowledges that Contractor must inform each of the persons described in the preceding sentence of the prohibitions contained in Section 1.126.

42. Requiring Minimum Compensation for Covered Employees

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

43. First Source Hiring Program

Contractor shall comply with all of the provisions of the First Source Hiring Program, Chapter 83 of the San Francisco Administrative Code, that apply to this Agreement, including but not limited to the remedies for noncompliance provided therein. The provisions of Chapter 83 are incorporated herein by this reference, and made part of this Agreement as though fully set forth herein.

44. Prohibition on Political Activity with City Funds

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

45. Preservative-Treated Wood Containing Arsenic

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

"saltwater immersion" shall mean a pressure-treated wood that is used for construction purposes or facilities that are partially or totally immersed in saltwater.

46. Modification of Agreement

This Agreement may not be modified, nor may compliance with any of its terms be waived, except by written instrument executed and approved as required by law.

46.1. City-Ordered Changes

The City may order changes in the Work and may order extra materials and extra work in connection with the performance of the Agreement, and the Contractor shall respond within 30 days to such orders, except that:

If changes ordered in design, workmanship, services, or materials are of such a nature as to increase or decrease the cost or the time required to execute the change in scope of Work, the City shall make a reasonable and proper adjustment in the Contract price, delivery schedule, or both, as agreed upon by the Contractor and the Agency as the reasonable and proper allowance for the increase or decrease required.

No order for any alteration, modification, or extra that will increase or decrease the cost of the Work shall be valid unless the resulting increase or decrease in price shall have been agreed upon in writing and approved by the City in the manner required under City law. No oral statement of any person whomsoever shall in any manner or degree modify or otherwise affect the terms of this Contract, which include the requirements of the Technical Specifications.

46.2. Regulatory Changes

If a price adjustment is necessary to incorporate changes mandated by legislation or regulations that are promulgated or become effective after the Effective Date of the Contract and before Acceptance of the Vehicles, the Agency and the Contractor shall negotiate the price adjustment, which shall be added to the cost of the Vehicle and/or the engineering costs from Item 1.1 of Exhibit 1. Such price adjustments may be audited, where required.

46.3. Schedule Changes

If City-ordered changes have potential impact on the delivery schedule, the Contractor shall submit a schedule change request for City approval.

47. Authority of Project Manager; Claims; Disputes.

47.1. Authority of Project Manager The Project Manager shall decide all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work; all questions, which may arise as to the acceptable fulfillment of the Contract on the part of the Contractor; and all questions as to compensation. In discharging the responsibilities outlined above, the Project Manager shall at all times act fairly and reasonably. Any appeal of the Project Manager's decisions shall be in accordance with the provisions of Section 47.4 of this Agreement. As with any claim, change, extra or additional work, Contractor shall be paid in accordance with the payment provisions set out in Section 5 of this Contract when the dispute is finally resolved.

Should any questions arise as to the meaning and intent of the Contract, the matter shall be referred to the Project Manager, who, in consultation with other City representatives, as applicable, and with input the Contractor, shall decide the true meaning and intent of the Contract. The Project Manager's decision in this regard shall be administratively final and conclusive.

47.2. Claims for Additional Compensation.

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

47.2.2. The written notice of potential claim shall set forth the reasons for which Contractor believes additional compensation will or may be due, the nature of the costs involved, and insofar as possible, the amount of the potential claim. The said notice as above required must have been given to the Project Manager prior to the time that Contractor shall have performed the work giving rise to the potential claim for additional compensation, or in all other cases, within 30 Days after the happening of the event, thing, occurrence, or other cause giving rise to the potential claim.

47.2.3. It is the intention of this Section 47.2 that differences between the Parties arising under and by virtue of the Contract be brought to the attention of the SFMTA at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly be taken. Contractor agrees that it shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing, or occurrence for which no written notice of potential claim as herein required was filed.

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

47.4. Resolution of Disputes. Disputes arising in the performance of this Agreement that are not resolved by negotiation between the parties shall be decided in writing by the SFMTA Project Manager. The Project Manager's decision shall be administratively final and conclusive unless within 10 Working Days from the date of such decision, the Contractor mails or otherwise furnishes a written appeal to the Director of Transit, or his/her designee. In connection with such an appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the Director of Transit shall be administratively final and conclusive. This section applies to all disputes unless a specific provision of this Agreement provides that the Project Manager's decision as to a particular dispute is final.

47.5. No Cessation of Work. Pending final resolution of a dispute hereunder, the Contractor shall proceed diligently with the performance of its obligations under this Agreement in accordance with the written directions of the Project Manager.

47.6. Alternative Dispute Resolution. If agreed to by both parties, disputes may be resolved by a mutually agreed to alternative dispute resolution process.

47.7. Disputes Among Contractor's Partners. The resolution of any contractual disputes related to Contractor's Joint Venture or Association partners (if any) shall be the sole responsibility of the Contractor. Each party of the Joint Venture or Association shall resolve all such disputes within 30 calendar days of when the dispute first surfaced so as not to impact the performance of the contract with the City. Any such disputes which impact the Project and which are left unresolved for more than one month shall be cause for the City to withhold and/or reduce invoice payments to the Contractor's Joint Venture or Association firms until the dispute is resolved.

48. 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.

49. Construction

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

50. 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 46.

51. Compliance with Laws

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

52. 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.

53. Reserved

54. Severability

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

55. Protection of Private Information

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

56. Time of Essence

Time is of the essence in this Agreement.

57. Technical Specifications

57.1. Fabrication. The Vehicles shall be designed, fabricated, and tested in accordance with the requirements in Volume 2 (Technical Specifications).

57.2. Omission. Notwithstanding the Technical Specifications or other data provided by the Project Manager, the Contractor shall have the responsibility of supplying all parts and details required to make these Vehicles complete and ready for service even though such details may not be specifically mentioned in the Specifications. Items that are installed by SFMTA shall not be the responsibility of the Contractor unless they are included in this Contract or should have been installed by the Contractor.

58. Project Management Plan.

The Project shall be managed, planned and controlled in accordance with the requirements of Section 20 of the Technical Specifications (Program Management and Quality Assurance).

59. Reserved

60. FTA Requirements

The provisions contained in "FTA Requirements for Procurement Contracts," attached as Exhibit 4. If there is any conflict between the FTA terms and conditions and any other terms and conditions of this Agreement, the FTA terms and conditions shall take precedence.

61. 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.

62. Warranty

Contractor shall provide warranties of Vehicles, training, parts and special tools as described in Exhibit 5 (Warranty).

63. Title

Adequate documents for securing the title of the Vehicle shall be provided to the Project Manager at the time the Vehicle is delivered. Upon Acceptance or ,in the case of a Vehicle being Conditionally Accepted, upon Conditional Acceptance of each Vehicle, the Contractor warrants that the title shall pass to the SFMTA free and clear of all liens, mortgages and encumbrances, financing statements, security agreements, claims and demands of any character. Title to the spare parts to be delivered under this Contract shall vest in the SFMTA immediately upon Acceptance by the SFMTA.

64. Option Vehicles, Equipment and Spare Parts

All items purchased under the Options shall be identical in every way to those purchased under the Base Order portion of the Contract. All conditions, Technical Specifications, and requirements set forth for the Base Order purchases shall apply to the items purchased under Option unless otherwise specified in this Section.

64.1. Option for New Light Rail Vehicles. At the option of the City, the Contractor shall provide additional Vehicles in quantities indicated in the Schedule of Prices. Option 1 shall be for an additional 40 Vehicles and Option 2 shall be for additional 1 to 45 Vehicles. (See Item 7 on Exhibit 2 -- Payment Schedule.) Option 2 may be executed at intervals. The price of Option Vehicles will be adjusted in accordance with Section 7.5 of this Agreement.

64.2. Option for Additional Spare Parts. At the option of the City, Contractor shall provide additional spare parts (Item 8 on the Payment Schedule, Exhibit 2). Prices shall remain firm for 24 months after NTP. The price of Option for additional spare parts will be adjusted in accordance with Section 7.5 of this Agreement.

64.3. Spare Parts For Options. At the option of the City, Contractor shall provide spare parts for Option Vehicles (Item 9 on the Exhibit 2 Payment Schedule). The price of spare parts for Option Vehicles will be adjusted in accordance with Section 7.5 of this Agreement.

64.4. Optional Train Simulator. At the option of the City, Contractor shall provide optional train simulator (Item 10 on the Exhibit 2 Payment Schedule). The price of optional train simulator will be adjusted in accordance with Section 7.5 of this Agreement.

64.5. Financing of Option Vehicles. At the sole election of the SFMTA, the parties shall negotiate vendor financing of approximately 40 Option Vehicles to be delivered between 2018 and 2021. Any financing agreement shall be subject to approval by the SFMTA Board of Directors and the Board of Supervisors.

65. Precedence of Contract Documents

Any inconsistency in requirements of the Contract shall be resolved by giving precedence in the following order:

- (a) Agreement (including all exhibits and Contract Modifications)
- (b) Technical Specifications (conformed with Addenda)
- (c) Contractor's Proposal (incorporated with Clarifications)

Wording shall take precedence over conceptual drawings and renderings. Any discrepancy shall be decided in the sole discretion of the SFMTA.

66. Deliveries

66.1. Predelivery Tests and Inspections. Pre-delivery tests and inspections shall be performed prior to shipment to SFMTA. Such tests and inspections shall be performed in accordance with the procedures defined in Verification Section 21.3 of the Technical Specifications, and they may be witnessed by the SFMTA Resident Inspector. When a Vehicle passes these tests and inspections, the Resident Inspector shall authorize release of the Vehicle for shipment. Such authorization does not imply Acceptance of the Vehicle by SFMTA.

66.2. Delivery Procedure. Delivery shall be determined by signed receipt of the SFMTA Engineer at the point of delivery and may be preceded by a cursory inspection of the Vehicle. The point of delivery shall be:

San Francisco Municipal Transportation Agency
Transit Division
Muni Metro East Facility
601 – 25th Street
San Francisco, CA 94107

Contractor shall deliver Vehicles during weekday working hours at a time mutually agreeable to SFMTA and Contractor, or as otherwise specified in writing by SFMTA. Contractor shall provide at least five Working Days notice to SFMTA prior to delivery. Delivery of the Vehicles shall be F.O.B. point of delivery, freight pre-paid and allowed. Contractor shall ensure that all Vehicles are fully operable when they are delivered.

66.3. Spare Parts Delivery Procedure. Contractor shall deliver Contract spare parts in two shipments or smaller lots provided that all spare parts shipments are

delivered in accordance with Exhibit 3. Composition of spare parts in each lot is subject to SFMTA approval. Contractor shall provide SFMTA with one-weeks advance notice before shipment of each lot of spare parts. Such notice shall include a packing list clearly identifying all parts and their quantity in the shipment.

Delivery shall be determined by signed receipt of the SFMTA representative at the point of delivery and may be preceded by a cursory inspection of the parts. Within 20 Days of delivery, SFMTA will issue a notification of acceptance, non-acceptance or Conditional Acceptance of the spare parts. The point of delivery shall be:

San Francisco Municipal Transportation Agency
Transit Division
Muni Metro East Facility
601 – 25th Street
San Francisco, CA 94107

67. Acceptance Of Vehicles

67.1. Procedure. After arrival at the designated point of delivery, each Vehicle will undergo pre-Acceptance and Acceptance tests by SFMTA as defined in the Verification Section 21.3 of the Technical Specifications. When a Vehicle passes all tests, SFMTA will provide written Acceptance of the Vehicle to the Contractor. Contractor shall transfer title to the Vehicle to the City on the day of Acceptance, or Conditional Acceptance, if the Vehicle is not fully Accepted. Acceptance of one Vehicle does not imply Acceptance of any other delivered Vehicles.

If a Vehicle fails the Acceptance tests, the Vehicle shall not be Accepted until the repair procedures defined in Section 68, of this Agreement have been carried out and the Vehicle has been retested and passes all applicable tests. All deliveries of Vehicles shall be halted whenever five or more Vehicles have failed or have not been Accepted or Conditionally Accepted and are awaiting repairs or corrections.

After completion of post-delivery testing, SFMTA will issue a notification of Acceptance, non-Acceptance or Conditional Acceptance.

67.2. Conditional Acceptance. If a Vehicle does not meet all requirements for Acceptance, SFMTA may, at its exclusive option, “conditionally accept” the Vehicle and place it into revenue service, pending receipt of Contractor-furnished materials and/or labor necessary to effectuate corrective action for Acceptance. For any Conditionally Accepted Vehicle, payments shall be made as provided in Section 7 above.

67.3. Assumption of Risk of Loss. Prior to delivery as described in Section 66 of this Agreement, and regardless whether Title has passed to the City, the Contractor shall bear risk of loss of the Vehicle, including any damage sustained during transportation to the delivery site. Risk of loss will pass to the SFMTA upon delivery of each LRV, except that loss or damage to the Vehicle resulting from acts or omissions of the Contractor shall be the responsibility of the Contractor until Acceptance of said Vehicle.

68. Repairs Prior To Acceptance.

The SFMTA Project Manager may require the Contractor, or its designated representative, to perform repairs after non-Acceptance or conditional Acceptance, or the Contractor may request that the work be done by SFMTA personnel with reimbursement by the Contractor. Contractor shall inform SFMTA in advance of any modifications made to the Vehicle during the Acceptance period.

68.1. Repairs by Contractor. If the SFMTA Project Manager requires the Contractor to perform repairs after non-Acceptance of the Vehicle, the Contractor's

representative must begin the repair within five Days after receiving notification from the SFMTA Project Manager of failure of Acceptance tests.

The Contractor shall provide, at its own expense, all spare parts, tools, and labor required to complete the repairs. At the SFMTA Project Manager option, the Contractor may be required to remove the Vehicle from SFMTA property while repairs are being effected. The Contractor shall then provide a space to complete the repairs, shall diligently pursue the repairs, and shall assume risk of loss while the Vehicle is under its control.

68.2. Repairs by SFMTA. If the SFMTA Project Manager agrees to a request by the Contractor for SFMTA to perform repairs on a Contractor-owned Vehicle prior to SFMTA Acceptance, SFMTA shall correct or repair the defect using parts supplied by the Contractor specifically for this repair. Monthly, or at a period to be mutually agreed upon, reports of all repairs covered by this procedure shall be submitted by the SFMTA Project Manager to the Contractor for actual cost reimbursement of parts. The Contractor shall provide forms for these reports.

If the Contractor supplies parts for repairs being performed by SFMTA before Acceptance of the Vehicle, Contractor shall ship these parts prepaid to SFMTA within ten working days after receipt of the request for the parts. The Contractor may request that defective components covered by this provision be returned to the manufacturing plant. Contractor shall bear all expenses for supplying such parts and for any associated costs.

Contractor shall reimburse SFMTA for all costs of labor and materials (including taxes) for repairs made or caused to be made by SFMTA. If SFMTA performs the repairs itself, the amount shall be determined by multiplying the number of man-hours actually required to correct the defect by the current technician's hourly overtime wage rate, which includes fringe benefits and overhead, plus the cost of towing the Vehicle if such action was necessary. If SFMTA requires the service of an outside repair facility, Contractor shall reimburse SFMTA for all such repair invoices. Contractor shall also reimburse SFMTA for administrative costs incurred in performing the repairs. The use of SFMTA labor will not relieve the Contractor from the responsibility to ensure that repairs are carried out in accordance with proper procedures.

SFMTA may deduct the cost of repairs from any monies due or that may become due to the Contractor under the Agreement, or if such monies are insufficient, the Contractor or its surety shall pay to the SFMTA any deficiency.

69. Unavoidable Delays

69.1. Definition. An Unavoidable Delay is an interruption of the work beyond the control of the Contractor, which the Contractor could not have avoided by the exercise of care, prudence, foresight, and diligence. Such delays include and are limited to acts of God; floods; windstorms; tornadoes; wars; riots; insurrections; epidemics; quarantine restrictions; strikes and lockouts; freight embargoes; acts of a governmental agency; priorities or privileges established for the manufacture, assembly, or allotment of materials by order, decree, or otherwise of the United States or by any department, bureau, commission, committee, agent, or administrator of any legally constituted public authority; changes in the work ordered by the City insofar as they necessarily require additional time in which to complete the entire work; the prevention by the City of the Contractor's commencing or prosecuting the work. The duration of said Unavoidable Delays shall be limited to the extent that the commencement, prosecution, and completion of the work are delayed thereby, as determined by the City.

69.2. Notification of Delay. The Contractor shall notify SFMTA as soon as the Contractor has, or should have, knowledge that an event has occurred that will delay

deliveries. Within five calendar days, the Contractor shall confirm such notice in writing, furnishing as much detail as is available.

69.3. Request for Extension. The Contractor agrees to supply, as soon as such data are available, any reasonable proof that is required by SFMTA to make a decision on any request for extension. SFMTA shall examine the request and any documents supplied by the Contractor and shall determine if the Contractor is entitled to an extension and the duration of such extension. SFMTA shall notify the Contractor of its decision in writing.

The granting of an extension of time because of Unavoidable Delays shall in no way operate as a waiver on the part of the City of the right to collect liquidated damages for other delays or of any other rights to which the City is entitled.

70. MacBride Principles—Northern Ireland

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

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

CITY

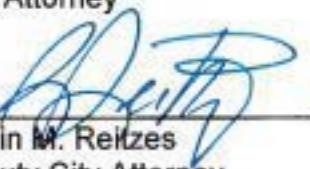
San Francisco Municipal
Transportation Agency



Edward D. Reiskin
Director of Transportation

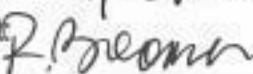
Approved as to Form:

Dennis J. Herrera
City Attorney

By 
Robin M. Reitzes
Deputy City Attorney

San Francisco Municipal
Transportation Agency
Board of Directors

Resolution No. 14-120
Dated: 7/15/2014

Attest: 

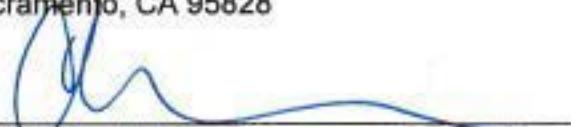
Secretary

Board of Supervisors
Resolution No. 332-14
Dated: 9-19-2014

Attest:


Clerk

CONTRACTOR


Michael Cahill
President
Rail Systems Division
Siemens Industry, Inc.
Infrastructure & Cities Sector
7464 French Road
Sacramento, CA 95828
Christopher Halleus
Vice President, Finance & Business
Administration
Rail Systems Division
Siemens Industry, Inc.
Infrastructure & Cities Sector
7464 French Road
Sacramento, CA 95828

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

EXHIBIT 1

A. Schedule of Prices

BASE

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 1	Engineering Design, Project Management and Design Qualification Testing	Lump Sum	x 1	\$37,541,102
Item 1.1	Allowance for regulatory mandated changes, requested passenger enhancements and system modifications resulting from changes to project interfaces	Lump Sum	x 1	\$10,000,000
Item 2	Vehicle Price for Base Order	\$3,327,250	x 175 cars	\$582,268,750
Item 3	Operating, Maintenance and Parts Manuals	Lump Sum	x 1	\$809,478
Item 4.1	Training	Lump Sum	x 1	\$361,557
Item 4.2	Train Simulator (1) (In accordance with Section 22.2.8 of Technical Specifications)	Lump Sum	x 1	\$1,704,650
Item 5	Spare Parts (Total of Exhibit 1.B)	Lump Sum	x 1	\$14,153,840
Item 6	Special Tools, Test and Diagnostic Equipment (Total of Exhibit 1.D)	Lump Sum	x 1	\$1,792,624
Total Base: Items 1 – 6				\$648,632,001

OPTIONS

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 7	Option 1 and Option 2 for 1 to 85 Additional New Light Rail Vehicles	\$3,329,011	x 85 cars	\$282,965,935
Item 8	Additional Spare Parts (Total of Exhibit 1.C)	Lump Sum	x 1	\$11,269,527
Item 9	Spare Parts for Options	Lump Sum	x 1	\$15,000,000
Item 10	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications)	Lump Sum	x 1	\$1,704,650
Total Options: Items 7 – 10				\$310,940,112

Note: The Prices do not include escalation. Escalation will be applied in accordance with Agreement Section 7.5.

B. Nominal Spare Parts

Total Price \$14,153,840

Carbody and Interior

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	5 car sets	6 car sets	Windshield	\$12,798	\$76,789
2	0 car sets	2 car sets	2 car sets	Articulation section, complete	\$25,737	\$51,475
3	1 car set	4 car sets	5 car sets	Passenger seat assemblies, complete (frame, inserts, hinges, mounting hardware, etc)	\$28,103	\$140,516
4	1 car set	3 car sets	4 car sets	Destination sign, complete (side and ends)	\$25,326	\$101,305
5	1 car set	1 car set	2 car sets	Passenger side window glass	\$10,481	\$20,962
6	1 car set	1 car set	2 car sets	Glass - all (except windshield and passenger side window)	\$3,484	\$6,969

Coupler and Draft Gear

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Coupler & draft gear assembly, complete	\$150,880	\$754,402

Cab and Train Control

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	2 units	18 units	20 units	Master Controller assembly	\$4,181	\$83,625
2	1 cab set	1 cab set	2 cab sets	Cab control panel, complete (excluding master controller)	\$50,860	\$101,720

Doors and Door Control

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Door actuator unit, including linkages and gear drives or actuators	\$71,325	\$356,626
2	1 car set	4 car sets	5 car sets	Door Leaf	\$45,750	\$228,749
3	2 doorway sets of each type	6 doorway sets of each type	8 sets	Door control board or module, complete	\$3,005	\$24,042

Air Comfort System

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Air conditioner units	\$93,730	\$468,648
2	1 car set	1 car set	2 car sets	Air conditioning blower motors	\$10,244	\$20,488
3	1 unit	5 units	6 units	Air conditioning compressor motors	\$0	\$0
4	1 units	5 units	6 units	Air conditioning compressors	\$5,200	\$31,203

Power Supply and Auxiliary Electric

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	2 units	8 units	10 units	Pantograph assembly, complete	\$15,941	\$159,410
2	1 car set	1 car set	2 car sets	Battery	\$10,833	\$21,666
3	1 unit	3 units	4 units	Auxiliary Inverter	\$76,947	\$307,789

Propulsion

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	2 units	6 units	8 units	Traction motor, complete with coupling	\$44,393	\$355,141
2	1 car set	1 car set	2 car sets	Propulsion/brake dynamic resistors assembly, complete	\$20,121	\$40,241
3	1 car set	1 car set	2 car sets	Traction power contactors (motor circuit configuration contactors, reverser, et al., except line switch or main breaker)	\$5,464	\$10,927
4	2 units	3 units	5 units	Line switch	\$1,192	\$5,958
5	1 car set	1 car set	2 car sets	Control relays and sensors, all (except speed sensors or tach generators)	\$4,575	\$9,150
6	1 car set	3 car sets	4 car sets	Speed sensors or tach generators (if required)	\$20,573	\$82,292
7	1 car set	4 car sets	5 car sets	Electronic control unit, complete	\$49,401	\$247,005
8	1 car set	3 car sets	4 car sets	Printed circuit boards, logic	\$64,515	\$258,060
9	1 car set	2 car sets	3 car sets	Propulsion inverters	\$225,725	\$677,174

Truck Assembly and Suspension

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Trucks, complete (ready to install)	\$1,239,478	\$6,197,389
2	2 truck sets	3 truck sets	5 truck sets	Motor truck axle assembly, complete (including gear box, brake disc, ground bearings, primary suspension if needed)	\$229,134	\$1,145,672
3	2 truck sets	3 truck sets	5 truck sets	Trailer truck wheel/axle assembly, complete	\$172,792	\$863,961

Friction Brakes

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	3 car sets	4 car sets	All friction brake equipment (except air compressor, connecting hoses, fittings, inter-unit wiring and electronic control unit)	\$276,600	\$1,106,401
2	2 units	5 units	7 units	Compressor assembly (if required)	\$0	\$0

Communications

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	3 car sets	4 car sets	PA, Communication systems, complete	\$45,170	\$180,678

Miscellaneous

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	1 car set	2 car sets	AC and DC motors, other (except traction motors)	\$8,704	\$17,408

C. Optional Spare Parts

Total Price \$ 11,269,527

Carbody and Interior

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	1 car set	2 car sets	Rubber window glazing, all	\$0	\$0
2	1 car set	1 car set	2 car sets	Windscreen, complete	\$0	\$0
3	1 car set	1 car set	2 car sets	Access covers of all underfloor equipment boxes	\$2,439	\$4,878
4	0 car sets	2 car sets	2 car sets	Stanchions	\$6,969	\$13,938
5	2 car sets	0 car sets	2 car sets	Graphics and decals	\$6,098	\$12,196

Coupler and Draft Gear

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Electrical head, complete	\$52,266	\$261,330
2	200 units	200 units	400 units	Electrical contacts	\$232	\$92,800
3	4 units	6 units	10 units	Electrical head cover	\$5,192	\$51,920
4	2 car sets	3 car sets	5 car sets	Coupler attenuation tubes	\$7,317	\$36,585

Cab and Train Control

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 cab set	3 cab sets	4 cab sets	Cab door, complete with hardware	\$784	\$3,136
2	2 units	8 units	10 units	CCTV system (for outside rear view)	\$47,039	\$470,390
3	2 cab sets	6 cab sets	8 cab sets	Wiper motor	\$1,394	\$11,152
4	4 units	36 units	40 units	Wiper arms	\$348	\$13,920
5	2 car sets	2 car sets	4 car sets	Horn assembly	\$12,753	\$51,012
6	2 car sets	2 car sets	4 car sets	Gong assembly	\$0	\$0
7	1 cab set	3 cab sets	4 cab sets	Switches, pushbuttons, console displays, meters, gauges, indicating lamps, LEDs, lenses, all	\$16,432	\$65,728

8	4 car sets	0 car sets	4 car sets	Inside sunvisors and mirrors	\$742	\$2,968
9	250 units	0 units	250 units	Wiper blades	\$87	\$21,750
10	2 car sets	2 car sets	4 car sets	Operator's sash	\$3,680	\$14,720
11	1 units	1 unit	2 units	Operator's seat	\$4,007	\$8,014
12	2 cab sets	8 cab sets	10 cab sets	Cab seat cushions (seat and back)	\$0	\$0

Doors and Door Control

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	2 doorway sets	8 doorway sets	10 sets	Door panel set, complete with glazing, suspension, and edges	\$6,063	\$60,630
2	20 doorway sets	0 doorway sets	20 sets	Sensitive edges	\$638	\$12,760
3	3 car sets	0 car sets	3 car sets	Stop request switches	\$0	\$0
4	2 car sets	8 car sets	10 car sets	Limit switches, all	\$6,901	\$69,010
5	1 car set	4 car sets	5 car sets	Passenger door pushbutton switches (interior and exterior)	\$6,969	\$34,845
6	1 car set	2 car sets	3 car sets	Stop request light lenses	\$0	\$0
7	1 car set	3 car sets	4 car sets	Step assembly, complete	\$155,244	\$620,976

Air Comfort System

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	1 car set	2 car sets	All heating elements (passenger compartment and cab)	\$2,526	\$5,052
2	1 car set	1 car set	2 car sets	Temperature control relays	\$0	\$0
3	1 car set	1 car set	2 car sets	Air conditioning valves, complete	\$505	\$1,010
4	1 car set	1 car set	2 car sets	Air flow switches, all	\$0	\$0
5	1 car set	2 car set	3 car sets	Thermostats, all	\$235	\$705
6	1 car set	3 car set	4 car sets	Air conditioning pressure switches	\$491	\$1,964
7	1 car set	3 car set	4 car sets	Flexible ducting	\$0	\$0
8	24 car sets	76 car set	100 car	Disposable air filters	\$160	\$16,000

			sets			
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Lighting

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	0 car sets	1 car set	1 car set	Fixtures for all interior lights, complete	\$20,783	\$20,783
2	2 car sets	0 car sets	2 car sets	Fixtures for all exterior lights, complete	\$30,154	\$60,308
3	1 unit of each type	1 unit of each type	2 units	Light fixtures complete (sockets, lens, etc.)	\$1,497	\$2,994
4	1 car set	0 car sets	1 car set	Light sockets	\$0	\$0
5	2 car sets	0 car sets	2 car sets	Lights (except head lights)	\$0	\$0
6	10 units	40 units	50 units	Head Lights	\$3,310	\$165,500
7	1 car set	1 car set	2 car sets	Lenses for all lights, interior and exterior (except cab console)	\$3,920	\$7,840
8	1 car set	0 car sets	1 car sets	Lenses for Light fixtures	\$8,432	\$8,432

Power Supply and Auxiliary Electric

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	5 units	15 units	20 units	Pantograph head, complete	\$5,923	\$118,460
2	2 car sets	2 car sets	4 car sets	Pantograph raise and lower actuator assembly	\$4,683	\$18,732
3	2 car sets	3 car sets	5 car sets	Lightning or surge arrestor	\$1,742	\$8,710
4	1 car set	1 car set	2 car sets	Battery rack assembly	\$35	\$70
5	1 car set	1 car set	2 car sets	Relays, all	\$27,744	\$55,488
6	2 car sets	3 car sets	5 car sets	Inverter printed circuit boards	\$31,514	\$157,570
7	2 car sets	4 car sets	6 car sets	Battery charger/ low voltage supply	\$46,203	\$277,218
8	2 car sets	2 car sets	4 car sets	Printed circuit boards for battery charger / low voltage DC supply	\$0	\$0
9	5 units	0 units	5 units	Shop power plug, complete (male, car mounted)	\$871	\$4,355
10	2 units	2 units	4 units	High speed circuit breaker	\$10,342	\$41,368
11	50 car sets	150 car sets	200 car sets	Pantograph shoe carbon inserts (complete with retainer socket)	\$3,275	\$655,000

12	1 car sets	1 car sets	2 car sets	Pantograph insulators	\$1,673	\$3,346
13	20 car sets	0 car sets	20 car sets	Pantograph shunts	\$8,502	\$170,040

Propulsion

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Filter Capacitor	\$188	\$940
2	1 car set	1 car set	2 car sets	Line reactor	\$14,185	\$28,370
3	1 car set	1 car set	2 car sets	Motor reactor	\$19,422	\$38,844
4	2 car sets	3 car sets	5 car sets	Motor cable connecting lugs	\$871	\$4,355
5	10 car sets	10 car sets	20 car sets	Contactor tips (traction power contactors)	\$15,157	\$303,140
6	10 car sets	10 car sets	20 car sets	Contactor tips, all other	\$12,157	\$243,140
7	2 car sets	2 car sets	4 car sets	Arc chutes, all	\$184	\$736
8	0 sets	50 sets	50 sets	Tractor motor bearings	\$6,620	\$331,000

Truck Assembly and Suspension

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	4 car sets	5 car sets	Primary springs	\$9,296	\$46,480
2	1 car set	4 car sets	5 car sets	Secondary springs	\$8,366	\$41,830
3	4 units	4 units	8 units	Gear box with axle & motor couplings	\$41,200	\$329,600
4	1 car set	1 car set	2 car sets	Load sensing device	\$0	\$0
5	5 car sets	0 car sets	5 car sets	Shock absorber	\$441	\$2,205
6	5 car sets	0 car sets	5 car sets	Motor truck pivot replacement liner / bearings	\$0	\$0
7	5 car sets	0 car sets	5 car sets	Trailer truck pivot replacement liner / bearings	\$0	\$0
8	3 car sets	2 car sets	5 car sets	Ball bearing slew rings for trailer truck	\$52,527	\$262,635
9	4 car sets	0 car sets	4 car sets	Ground brush holders	\$13,893	\$55,572
10	4 car sets	0 car sets	4 car sets	Journal bearing	\$39,722	\$158,888

11	6 car sets	18 car sets	24 car sets	Wheel assembly, complete	\$142,372	\$3,416,928
12	16 car sets	0 car sets	16 car sets	Wheel tire sets	\$52,266	\$836,256
13	40 units	0 units	40 units	Ground brushes	\$544	\$21,760
14	40 units	0 units	40 units	Ground brush springs	\$23	\$920
15	6 units	0 units	6 units	Axles, final machined	\$4,963	\$29,778
16	2 car sets	3 car sets	5 car sets	Bearings, gear assembly	\$0	\$0

Friction Brakes

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	1 car set	2 car sets	Electronic control unit, complete (if not included as part of propulsion ECU)	\$35,546	\$71,092
2	2 car sets	3 car sets	5 car sets	Printed circuit boards - brake control (if required)	\$28,746	\$143,730
3	3 truck sets	3 truck sets	6 truck sets	Track brake assembly, complete	\$11,195	\$67,170
4	2 car sets	2 car sets	4 car sets	Sander valves	\$22,837	\$91,348
5	2 units	2 units	4 units	Compressor control unit, complete with contactors	\$0	\$0
6	2 car sets	0 car sets	2 car sets	Brake disc	\$19,187	\$38,374
7	200 car sets	0 car sets	200 car sets	Brake pads	\$2,788	\$557,600
8	4 car sets	0 car sets	4 car sets	Connecting air hoses and fittings, all	\$0	\$0
9	1 car set	2 car sets	3 car sets	Track brake wear plates, complete	\$1,045	\$3,135

Communications

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 car set	1 car set	2 car sets	Interior speakers	\$274	\$548
2	2 car sets	0 car sets	2 car sets	Exterior speakers	\$730	\$1,460
3	10 units	0 units	10 units	Radio antenna	\$166	\$1,660
4	10 units	0 units	10 units	Handsets	\$629	\$6,290
5	2 car sets	2 car sets	4 car sets	GPS system	\$0	\$0
6	2 car sets	2 car sets	4 car sets	Infotainment System (Digital route maps, etc)	\$24,009	\$96,036
7	2 car sets	2 car sets	4 car	Mobile access router	\$2,307	\$9,228

			sets			
8	2 car sets	2 car sets	4 car sets	Event Recorder	\$12,857	\$51,428

Miscellaneous

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	10 car sets	14 car sets	24 car sets	Circuit Breakers, all (except propulsion main breaker and auxiliary)	\$9,152	\$219,648
2	1 car set	1 car set	2 car sets	Circuit Breaker holders, all	\$0	\$0
3	25 car sets	25 car sets	50 car sets	Air and pneumatic filter elements, all	\$436	\$21,800
4	10 car sets	10 car sets	20 car sets	Contactor tips (except propulsion)	\$0	\$0

D. Diagnostic Test Equipment/Special Tools

Total Price \$ 1,792,624

Portable Test Equipment

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	18 units	18 units	36 units	Laptop (to be able to diagnose equipment below)	\$3,190	\$114,835
				Propulsion system		
				Brake and spin/slide systems		
				Auxiliary inverter		
				LVPS and battery		
				Heating and cooling system		
				Couplers/trainlines		
				Master controller		
				Door systems		
				Communications system		

Shop Test Equipment

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1 unit	1 unit	2 units	Propulsion system	\$252,530	\$505,060
2	1 unit	1 unit	2 units	Friction Brake	\$95,820	\$191,641
3	1 unit	1 unit	2 units	Auxiliary inverter	\$216,322	\$432,644
4	1 unit	1 unit	2 units	LVPS and battery	\$28,254	\$56,508
5	1 unit	1 unit	2 units	Air conditioner	\$21,255	\$42,509
6	1 unit	1 unit	2 units	Master controller	\$0	\$0
7	1 unit	1 unit	2 units	Pneumatic/hydraulic controllers	\$60,976	\$121,952

Special Tools (IF REQUIRED)

No.	Phase1 Qty.	Phase2 Qty.	Total Qty.	Description of Item	Unit Price	Total Price
1	1	1	2	Jacking inserts and levelling bars	\$57,736	\$115,472
2	1	1	2	Bogie Press	\$55,506	\$111,012
3	1	1	2	Flushing Cart	\$26,133	\$52,266
4	1	1	2	HVAC lifting fixture and trolley	\$14,007	\$28,014
5	1	1	2	Lifting fixture for APS	\$10,356	\$20,711

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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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

	Milestone	Percent of Bid Item
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)

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 25 - 175).* <ul style="list-style-type: none"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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	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.

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 4.1 – 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
Progress payments will be made in accordance with Item 2B.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.

Exhibit 3: PROJECT DELIVERY SCHEDULE

Item	Calendar Days after Notice to Proceed
Project Plan	60
Delivery of 1st Vehicle to SFMTA	737
Delivery of 2nd Vehicle to SFMTA	810
Training Start	870
Training Complete	990
Special Tools / Diagnostic Test Equipment	870
Delivery of Publications (Manuals, Parts Book, Drawings) - Prelim	870
Delivery of Publications (Manuals, Parts Book, Drawings) - Final	1080
Delivery of Spare Parts (Phase 1)	990
Testing Complete / Acceptance of Vehicle	990
Delivery Rate of Base Phase 1 Vehicles (3-24)	1 Car/ 2 week
Delivery of 24th Vehicle (Phase 1) to SFMTA	1298
Delivery of 1st Vehicle (Phase 2) to SFMTA	May15, 2021
Delivery Rate of Phase 2 Vehicles	1 Car/ 2 week
Delivery of 151st Vehicle (Phase 2) to SFMTA	2114 days after delivery of 1 st Car (Phase 2)
Delivery of Spare Parts (35% of Phase 2 Quantity)	May 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)
Delivery of 1st Option Vehicle to SFMTA	TBD
Delivery Rate of Option Vehicles	TBD
Delivery of the last Option Vehicle	TBD

EXHIBIT 4
FTA REQUIREMENTS FOR PROCUREMENT CONTRACTS

I. DEFINITIONS

A. Approved Project Budget means the most recent statement, approved by the FTA, of the costs of the Project, the maximum amount of Federal assistance for which the City is currently eligible, the specific tasks (including specified contingencies) covered, and the estimated cost of each task.

B. Contractor means the individual or entity awarded a third party contract financed in whole or in part with Federal assistance originally derived from FTA.

C. Cooperative Agreement means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project or Program, and in which FTA takes an active role or retains substantial control.

D. Federal Transit Administration (FTA) is an operating administration of the U.S. DOT.

E. FTA Directive includes any FTA circular, notice, order or guidance providing information about FTA's programs, application processing procedures, and Project management guidelines. In addition to FTA directives, certain U.S. DOT directives also apply to the Project.

F. Grant Agreement means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project, and in which FTA does not take an active role or retain substantial control, in accordance with 31 U.S.C. § 6304.

G. Government means the United States of America and any executive department or agency thereof.

H. Project means the task or set of tasks listed in the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement or Cooperative Agreement applicable to the Project. In the case of the formula assistance program for urbanized areas, for elderly and persons with disabilities, and non-urbanized areas, 49 U.S.C. §§ 5307, 5310, and 5311, respectively, the term "Project" encompasses both "Program" and "each Project within the Program," as the context may require, to effectuate the requirements of the Grant Agreement or Cooperative Agreement.

I. Recipient means any entity that receives Federal assistance directly from FTA to accomplish the Project. The term "Recipient" includes each FTA "Grantee" as well as each FTA Recipient of a Cooperative Agreement. For the purpose of this Agreement, Recipient is the City.

J. Secretary means the U.S. DOT Secretary, including his or her duly authorized designee.

K. Third Party Contract means a contract or purchase order awarded by the Recipient to a vendor or contractor, financed in whole or in part with Federal assistance awarded by FTA.

L. Third Party Subcontract means a subcontract at any tier entered into by Contractor or third party subcontractor, financed in whole or in part with Federal assistance originally derived from FTA.

M. U.S. DOT is the acronym for the U.S. Department of Transportation, including its operating administrations.

II. FEDERAL CHANGES

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

III. ACCESS TO RECORDS

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

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

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

IV. DEBARMENT AND SUSPENSION (Contracts over \$25,000)

Grantees and subgrantees must not make any award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension."

Therefore, by signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the San Francisco Municipal Transportation Agency ("SFMTA"). If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the SFMTA, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 CFR Parts 180, Subpart C and 1200, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

V. NO FEDERAL GOVERNMENT OBLIGATIONS TO CONTRACTOR

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

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

VI. CIVIL RIGHTS

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

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

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

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

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

disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

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

VII. DBE/SBE ASSURANCES

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

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

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

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

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

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

D. Subcontracts - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs A through D of this section and also a

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

IX. ENERGY CONSERVATION REQUIREMENTS

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

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

A. The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq. Contractor agrees to report each violation of these requirements to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA regional office.

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

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

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

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

XII. PRIVACY

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

XIII. DRUG AND ALCOHOL TESTING

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

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

See Agreement Terms and Conditions.

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

See Agreement Terms and Conditions.

XVI. BUY AMERICA

The Contractor agrees to comply with 49 U.S.C. 5323(j) and 49 CFR Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7, and include microcomputer equipment, software, and small purchases (\$100,000 or less) made with capital, operating, or planning funds. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 CFR 661.11. Rolling stock not subject to a general waiver must be manufactured in the United States and have a 60 percent domestic content.

XVII. CARGO PREFERENCE - USE OF UNITED STATES FLAG VESSELS

The Contractor agrees: (a) to use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying Agreement to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels; (b) to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described above to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the Contractor in the case of a subcontractor's bill-of-lading.); and (c) to include these requirements in all subcontracts issued pursuant to this Agreement when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

XVIII. RECYCLED PRODUCTS

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including, but not limited to, the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

XIX. BUS TESTING (*applies to contracts for rolling stock*)

To the extent applicable, the Contractor (or Manufacturer) agrees to comply with the requirements of 49 U.S.C. § 5323(c) and FTA implementing regulations at 49 CFR Part 665, and shall perform the following:

A. A manufacturer of a new bus model or a bus produced with a major change in components or configuration shall provide a copy of the final test report to the Recipient at a point in the procurement process specified by the Recipient which will be prior to the Recipient's final acceptance of the first vehicle.

B. A manufacturer who releases a report under paragraph 1 above shall provide notice to the operator of the testing facility that the report is available to the public.

C. If the manufacturer represents that the vehicle was previously tested, the vehicle being sold should have the identical configuration and major components as the vehicle in the test report, which must be provided to the Recipient prior to Recipient's final acceptance of the first vehicle. If the configuration or components are not identical, the manufacturer shall provide a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing.

D. If the manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the United States before October 1, 1988, and is currently being produced without a major change in configuration or components), the manufacturer shall provide the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.

XX. PRE-AWARD AND POST-DELIVERY AUDIT REQUIREMENTS

To the extent applicable, Contractor agrees to comply with the requirements of 49 U.S.C. § 5323(l) and FTA implementing regulations at 49 CFR Part 663, and to submit the following certifications:

A. Buy America Requirements: The Contractor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the Bidder/Offeror certifies compliance with Buy America, it shall submit documentation which lists (1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs; and (2) the location of the final assembly point for the rolling stock, including a description of the activities that are planned to take place and actually took place at the final assembly point and the cost of final assembly.

B. Solicitation Specification Requirements: The Contractor shall submit evidence that it will be capable of meeting the bid specifications and provide information and access to Recipient and its agents to enable them to conduct post-award and post-delivery audits.

C. Federal Motor Vehicle Safety Standards (FMVSS): The Contractor shall submit (1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or (2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations

XXI. FALSE OR FRAUDULENT STATEMENTS AND CLAIMS

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

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

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

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

XXII. FLY AMERICA

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

XXIII. NATIONAL ITS ARCHITECTURE POLICY (Applicable to contracts for ITS projects)

If providing Intelligent Transportation Systems (ITS) property or services, Contactor shall comply with the National ITS Architecture and standards to the extent required by 23 U.S.C. § 512, FTA Notice, "FTA National ITS Architecture Policy on Transit Projects," 66 FR 1455, et seq., January 8, 2001, and later published policies or implementing directives FTA may issue.

XXIV. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS

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

XXV. TEXTING WHILE DRIVING; DISTRACTED DRIVING

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

XXVI. SEAT BELT USE

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

EXHIBIT 5: WARRANTY PROVISIONS

1.1 BASIC PROVISIONS

1.1.1 Warranty Requirements

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

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

Upon request of SFMTA, the Contractor promptly shall provide to the Project Manager complete copies of written warranties or guarantees and of documentation of any other arrangement relating to such warranties or guarantees extended by the Contractor's suppliers, sub suppliers, vendors, and subcontractors covering parts, components, and systems utilized in the Vehicle. If any vendor/supplier to the Contractor offers a warranty on a component that is longer or more comprehensive than the required warranties stated in this Exhibit, the Contractor shall inform SFMTA of this additional warranty and pass it through to SFMTA at no additional cost to SFMTA.

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

1.1.1.1 Complete Vehicle

The Vehicle shall be warranted and guaranteed to be free from Defects for five years, beginning on the date of official Acceptance or Conditional Acceptance of each Vehicle. During this warranty period, the Vehicle shall maintain its structural and functional integrity. The warranty shall be based on regular operation of the Vehicle within the Muni Metro System.

1.1.1.2 Intentionally left blank

1.1.1.3 Subsystem And Components

Primary load carrying members of the Vehicle structure shall be warranted against corrosion failure and/or fatigue failure for a period of 12 years.

1.1.1.4 Additional Warranties

If the customary standard warranties for the Material and/or Equipment, and installation thereof, exceed the period specified in Section 1.1.1.1, such warranties shall run to the SFMTA

If separate or additional warranties covering the Material and/or Equipment are furnished by the manufacturer, supplier, or seller of component part or parts of any item of said Material and/or Equipment, the SFMTA shall have the right, but not the duty, to benefit from these separate or additional warranties, along with the primary warranties set forth herein above. The SFMTA shall look only to Contractor for fulfillment of all warranty requirements expressed and implied by the making of the Contract.

The existence of any separate or additional warranties that run to the Contractor from the manufacturer, supplier, or installer of a component part of an item of Material and/or Equipment shall not relieve the Contractor of its obligation to repair or replace any of the Material and/or Equipment on account of faulty design, manufacture or workmanship during the warranty period. The SFMTA shall not be required to look to any other party for fulfillment of warranty provisions.

1.1.2 Voiding Of Warranty

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

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

1.1.3 Exceptions To Warranty

The warranty shall not apply to scheduled maintenance items and items furnished by SFMTA, except insofar as such equipment may be damaged by the failure of a part or component for which the Contractor is responsible.

1.1.4 Detection Of Defects

If SFMTA finds Defects within the warranty period defined in Section 1.1.1.1, it shall notify the Contractor's representative in writing. Within five Working Days after receipt of notification, the Contractor's representative shall either agree that the Defect is in fact covered by warranty, or reserve judgment until the sub-system or component is inspected by the Contractor's representative or is removed and examined at SFMTA property or at the Contractor's plant. At that time, the status of warranty coverage on the sub-system or component shall be mutually resolved between SFMTA and the Contractor. Contractor shall commence all Work necessary to perform inspection or repairs, under the provisions of Section 1.2, Repair Procedures, immediately after receipt of notification by the Contractor from the SFMTA. If within 10 Working Days of notification to Contractor, SFMTA and Contractor are unable to agree whether a Defect is covered by warranty provisions, SFMTA

reserves the right to commence repairs and seek reimbursement through Section 1.2 Repair Procedures.

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

The Contractor shall promptly comply with any timely written direction from the SFMTA to correct or partially correct a Defect, at no cost to the SFMTA. Contractor shall also correct any other systems or components of the Vehicle that have been damaged in any way as a result of the Defect (Collateral Damage).

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

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

1.1.5 Intentionally Left Blank

1.1.6 Fleet Defects

A fleet defect is defined as cumulative failures of any kind in the same components in the same or similar application where such items are covered by the warranty and such failures occur within the warranty period in at least ten (10) percent of the Vehicles delivered under the same Phase of this contract. SFMTA shall have final approval of corrections or changes under these conditions.

1.1.6.1 Correction of Fleet Defects

The Contractor shall correct a fleet defect under the procedures specified in Section 1.2, Repair Procedures. Within ten (10) working days of receipt of notification of a fleet defect, unless SFMTA grants an extension, the Contractor shall provide SFMTA with a plan, acceptable to SFMTA, specifying how and when all Vehicles with defects shall be corrected, including correction of Collateral Damage. Said plan is subject to approval by SFMTA. In addition, after correcting such defects, the Contractor shall promptly undertake and complete a work program, acceptable to SFMTA, reasonably designed to prevent the occurrence of the same defect in all other Vehicles and spare parts purchased under this contract. Any proposed changes to a fleet defect work plan or program must be submitted to SFMTA for its approval. If (a) Contractor does not provide a plan for correction within the time specified above (or as extended by SFMTA); or (b) a specific declared fleet defect is not fully corrected within the time specified in the plan; or (c) the remainder of the Vehicles are not

corrected in accordance with the Contractor's work program; SFMTA will assess liquidated damages in accordance with Section 19 of the Agreement.

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

1.1.6.2 Fleet Defect Repairs

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

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

1.1.6.3 Contractor Supplied Parts

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

1.1.6.4 Voiding Of Warranty Provisions

The fleet defect provisions shall not apply to Vehicle defects solely caused by noncompliance with the Contractor's recommended normal maintenance practices and procedures or caused solely by abuse of the equipment.

1.1.6.5 Exceptions To Warranty Provisions

Fleet defect warranty provisions shall not apply to damage that is a result of normal wear and tear in service. The provisions shall not apply to SFMTA-supplied items.

1.1.7 Contractor's Representative

The Contractor shall, at its own expense, provide qualified service personnel at the SFMTA facilities in accordance with Section 22.2.7 of Technical Specifications.

1.2 REPAIR PROCEDURES

The Contractor shall be responsible for all warranty-covered repair work. The Contractor or its designated representative shall secure parts and perform

all affected warranty repair work. At its discretion, SFMTA may perform such work if it determines it needs to do so based on transit service or other requirements. The Contractor shall be responsible, and shall reimburse SFMTA, for all costs for warranty work performed by SFMTA personnel or by any contractor(s) hired by SFMTA to perform warranty work, as described in Section 1.2.2, Repairs by SFMTA.

1.2.1 Repairs By Contractor

When SFMTA requires the Contractor to perform warranty-covered repairs, the Contractor's representative must begin work necessary to effect repairs in a proper and timely manner, within ten working days after receiving notification of a defect from SFMTA. Whenever the Contractor makes warranty repairs, new parts, subcomponents and subsystems shall be used, unless the repair of original parts is authorized in writing by SFMTA. SFMTA shall make the Vehicle available to complete repairs timely with the Contractor's repair schedule.

The Contractor shall provide, at its own expense, all spare parts, labor, tools and space required to complete repairs. The Contractor shall reimburse SFMTA for all expenses incurred, including labor for driving Vehicles, or towing charges for Vehicles transported, between SFMTA's facilities and Contractor's service center or the facilities of its subcontractors or suppliers. At SFMTA's option, the Contractor shall repair Vehicles at an offsite location, and not on SFMTA's property. If the Vehicle is removed from SFMTA's property, the Contractor's representative shall diligently pursue the acquisition of parts and repair procedures. The schedule and scope of the repairs shall be approved by SFMTA.

1.2.2 Repairs By SFMTA

If SFMTA elects to perform or procure a contractor to perform, the warranty-covered repairs, the following shall apply.

1.2.2.1 Parts Used

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

SFMTA shall use parts or components available from its own stock only on an emergency basis. Monthly reports, or reports at intervals mutually agreed

upon, of all repairs covered by warranty will be submitted by SFMTA to the Contractor for reimbursement or replacement of parts or components. The Contractor shall provide forms for these reports.

1.2.2.2 Contractor-Supplied Parts

The Contractor shall warehouse, at the Contractor's service center in San Francisco, all necessary parts to support its warranty obligations. The Contractor shall furnish parts for all warranty work, whether the warranty labor is performed by the Contractor or by SFMTA. Contractor shall deliver, prepaid, warranty parts for repairs within five calendar days of notification from SFMTA.

1.2.2.3 Defective Parts Return

The Contractor may request that defective parts or components covered by warranty be returned to the manufacturing plant. The Contractor shall pay the total cost for this action. Materials will be returned in accordance with the Contractor's instructions. Contractor shall provide such instructions to the SFMTA Project Manager at the beginning of the project.

The Contractor's representative shall meet with a SFMTA representative on a biweekly basis to determine which parts need to be returned to the manufacturer for evaluation, or which parts may be discarded.

1.2.2.4 Reimbursement For Labor

Contractor shall reimburse SFMTA for all warranty labor incurred by SFMTA. The amount shall be determined by multiplying the number of man-hours required to correct the defect by the current top mechanic's or technician's hourly overtime wage rate, which includes fringe benefits, multiplied by the project overhead rate (150% of the wage rate). Additionally, Contractor will be responsible for the cost of towing the Vehicle if such action was necessary and if the Vehicle was in the normal service area.

The wage rate, and therefore, the warranty labor rate, is subject to adjustment each year. Through January 31, 2013, the warranty labor rate shall be based on the technician's wage rate of \$140.00/hour, which includes labor, fringe benefits, and overhead.

In the event SFMTA deems it necessary to contract out for warranty repairs, the Contractor shall reimburse SFMTA for the actual cost of the repair, including charges for any warrantable parts, consequential parts or damages, labor, and towing or transportation.

Contractor shall reimburse SFMTA for warranty claims within 30 days after each claim has been submitted by SFMTA. If SFMTA does not receive payment within 30 Days, SFMTA will deduct the amount of the claim, which

includes labor, parts, administrative overhead and towing costs from payments due to Contractor.

1.2.2.5 Reimbursement For Parts; Towing

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

The warranty will include the cost of towing because of the failure of a warranted part. Towing costs consist of the cost any SFMTA labor expended, any parts utilized in the transfer of the Car, and the actual cost of any other transportation costs incurred by SFMTA because of the failure of a warranted part, plus a 15% handling fee.

1.2.3 Warranty After Replacement Or Repairs

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

1.2.4 Failure Analysis

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



EXHIBIT 6.1 – PARENT COMPANY GUARANTEE

G-ID 466742

September 8, 2014

RE: Procurement of New Light Rail Vehicles (LRV4) Contract No. SFMTA-2013-19 between Siemens Industry Inc. ("Obligor") and the City and County of San Francisco ("City"), through its Municipal Transportation Agency ("Beneficiary") dated September 29, 2014 ("Contract").

The Contract requires that Obligor provide a performance bond, labor and materials bond, warranty bond (the "bonds"), letters of credit or other security, as approved by the City's Risk Manager, to secure Obligor's performance, warranty and other obligations under the Contract. Siemens Corporation ("Guarantor"), the parent company of Obligor, offers to provide Beneficiary with the following guarantee in lieu of the bonds or letters of credit required under the Contract for the Phase 1 Vehicles.

For value received, Guarantor, a corporation duly organized and validly existing under the laws of the state of Delaware, unconditionally guarantees to Beneficiary the prompt and complete payment when due, whether by acceleration or otherwise, of all amounts owing by Obligor under Phase 1 of the Contract (including any liquidated damages). If at any time Obligor fails, neglects or refuses to timely or fully pay any sum due under Phase 1 of the Contract, and if within 15 calendar days after the written notice of such failure from the Beneficiary and the expiration of any grace period applicable with respect thereto under the Contract, Obligor has not made such payment in full, then upon receipt of written notice from Beneficiary specifying such default, Guarantor shall promptly make such payment in immediately available funds to the order of the Beneficiary. This guaranty is one of payment and not of collection. If more expeditious and appropriate than a direct payment to SFMTA (and if agreed to by SFMTA and Guarantor), in the event of any default on the part of the Obligor regarding its obligations under Phase 1 of the Contract, Guarantor agrees to perform all such obligations under the Contract that are necessary to cure the default and complete performance of all such work under the Contract.

Guarantor waives notice of acceptance of this Guarantee and notice of any liability to which it may apply, and waives presentment, demand for payment, protest, and notice of dishonor or non-payment of any kind.

Beneficiary may at any time and from time to time without notice to or consent of the Guarantor and without impairing or releasing the obligations of the Guarantor hereunder: (1) agree to any change in the terms of any obligation or liability of the Obligor to Beneficiary under the Contract, (2) grant any waivers to Obligor, (3) take or fail to take any action of any kind in respect of Phase 1 of the Contract, or (4) exercise or refrain from exercising any rights against Obligor under the Contract. In addition, Guarantor agrees that its obligations hereunder shall not be impaired in any manner whatsoever by any bankruptcy, extensions, moratoria or other relief granted to Obligor.

Notwithstanding anything contained in this Guarantee to the contrary, Guarantor's liability under this Guarantee shall not exceed the value of (1) \$73,108,626 (Seventy Three Million One Hundred Eight Thousand Six Hundred Twenty Six and 00/100 United States Dollars) (the "Stated Amount") plus (2) \$52,079,710 (Fifty Two Million Seventy Nine Thousand Seven Hundred Ten and 00/100 United States Dollars), (the "Additional Amount"), which covers providing additional security for progress payments made by the Beneficiary for such phase (as referenced in Section 7.3 of the Contract). Together, the Stated Amount and the Additional Amount covers all Phase 1 obligations. Once 80 percent of the Phase 1 Vehicles have been Accepted or Conditionally Accepted (as these terms are defined in the Contract), the Additional Amount may be released from the Guarantee for Phase 1. Upon Acceptance or Conditional Acceptance of all Phase 1 Vehicles, the Stated Amount will be reduced to 12.5 percent of the total price for Phase 1 in accordance with Section 15.2.2(a)(ii) of the Contract.

With respect to any claim, action or proceeding against Guarantor in connection with this Guarantee, Guarantor shall be entitled to assert those defenses which Obligor would be able to assert if such claim, action or proceeding were to be asserted or instituted against Obligor based upon the Contract. By its acceptance hereof, reliance hereon, Beneficiary affirms to Guarantor any and all representations, warranties, and covenants made by the Beneficiary to the Obligor under the Contract.

This Guarantee shall continue in full force and effect until Guarantor gives Beneficiary notice of termination of this Guarantee, except that, notwithstanding any such termination, this Guarantee shall continue in full force and effect with respect to all obligations and/or liabilities incurred prior to such termination. Notwithstanding the foregoing, however, this Guarantee shall terminate and cease of further effect on the earlier of: (a) May 17, 2023; (b) the Acceptance or Conditional Acceptance of the last Vehicle of Phase 1, provided that the Contractor has furnished a separate Parent Company Guarantee or other security for the warranty provisions that meets the requirements of section 15.2.4. of the Contract; (c) end of the agreed warranty period of the Phase 1 Vehicles; (d) the date of any permitted assignment of Obligor's interest in the Contract; or (e) the date that (i) the Guarantor no longer owns or controls, directly or indirectly, more than 50 percent of the ownership interests of the Obligor, and (ii) the Beneficiary has been provided with a replacement guaranty, letter of credit, or other financial accommodation from a party with a credit rating equal to or better than that of Guarantor as of the date of this Guarantee, which financial accommodation provides Beneficiary with no less protection than that which is contained in this Guarantee (the acceptance of such replacement guarantee being within the sole and reasonable discretion of the Beneficiary). Guarantor shall, as of such date (the "Expiration Date"), have no further obligations or liability under this Guarantee, whether or not the Guarantee is returned to the Guarantor. To the extent feasible, Beneficiary will return the original of this Guarantee to the Guarantor after the Expiration Date.

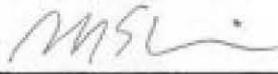
Nothing contained herein shall be construed as conferring any rights upon persons or entities other than the Beneficiary.

This Guarantee shall be governed and construed in accordance with the laws of the State of California without giving effect to principles of conflicts of law. Guarantor submits, and by its acceptance hereof Beneficiary hereby submits, to the jurisdiction of the courts of the state of California and to federal courts located within the city of San Francisco. Neither Guarantor nor Beneficiary may assign its rights or delegate its duties without the written consent of the other party. Any amendments to this Guarantee must be in writing. This Guarantee may be

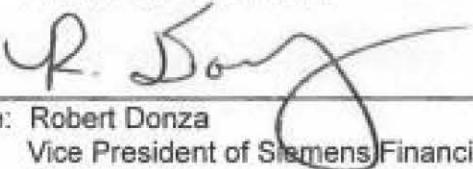
executed in counterparts, each of which, when taken together, shall be deemed to be one and the same instrument.

This Guarantee has been duly executed by authorized representatives of the Guarantor as follows:

SIEMENS CORPORATION

By: 

*Name: Jeffrey S. Cain
Title: Senior Vice President of Siemens
Financial Services, Inc.

By: 

*Name: Robert Donza
Title: Vice President of Siemens Financial
Services, Inc.

*[Under Power of Attorney from Siemens Corporation]

Accepted:

Municipal Transportation Agency

By 

Director of Transportation

Copy

E. Robert Lupone
Senior Vice President
General Counsel & Secretary

January 8, 2010

Mr. Jeffrey Cain
Senior Vice President, Project Export Finance
Siemens Financial Services, Inc.
170 Wood Avenue South
Iselin, New Jersey 08830

Mr. Kirk D. Nesbeitt
Vice President, Project Export Finance
Siemens Financial Services, Inc.
170 Wood Avenue South
Iselin, New Jersey 08830

Mr. Robert Simonini
Vice President, Project Export Finance
Siemens Financial Services, Inc.
170 Wood Avenue South
Iselin, New Jersey 08830

Mr. Robert Donza
Vice President, Project Export Finance,
Guaranty Instruments
Siemens Financial Services, Inc.
170 Wood Avenue South
Iselin, New Jersey 08830

Re: Power of Attorney to execute Siemens Corporation Guaranties

Dear Messrs. Cain, Nesbeitt, Simonini, & Donza:

Enclosed please find an executed Power of Attorney, which authorizes the persons identified therein to execute guarantees in the name of Siemens Corporation.

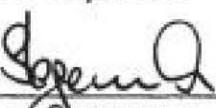
It is extremely important that you understand that there are serious limitations on the use of this Power of Attorney. The authority granted via this Power of Attorney may only be used in connection with guarantees that meet each and every criteria of the guaranty guidelines, circulars, or other policies that have been and/or may in the future be promulgated by Siemens AG and Siemens Corporation.

Further, the authority granted via this Power of Attorney may only be used in connection with guarantees that have been reviewed and approved by one of the attorneys of Siemens Corporation's Legal Department who have been designated to review such guarantees, which at present are Robert C. Mignella, Esq., Jonathan P. Falk, Esq., or Timothy M. McVey, Esq.

Sincerely,

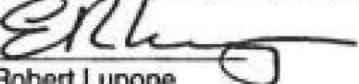
Siemens Corporation

By:


Klaus Siegemann

Executive Vice President and Chief Financial Officer

By:


E. Robert Lupone
Senior Vice President, General Counsel and Secretary

Copy

POWER OF ATTORNEY

SIEMENS CORPORATION, a corporation organized and existing under the laws of the State of Delaware, does hereby constitute and appoint: (1) any two of the following four individuals, acting jointly:

- (a) Jeffrey Cain, Senior Vice President, Project Export Finance of Siemens Financial Services, Inc.;
- (b) Kirk D. Nesbeitt, Vice President, Project Export Finance of Siemens Financial Services, Inc.;
- (c) Robert Simonini, Vice President, Project Export Finance of Siemens Financial Services, Inc.; and
- (d) Robert Donza, Vice President, Project Export Finance, Guaranty Instruments of Siemens Financial Services, Inc.;

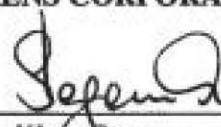
or (2) any one of the foregoing individuals acting jointly with one other officer of Siemens Corporation holding one of the positions set forth on Schedule A annexed hereto, as its true and lawful attorneys for it, and in its name and place, to negotiate, execute, deliver, and file (a) any guaranties of the payment and/or performance obligations of any entity in which Siemens Corporation has more than a fifty percent (50%) direct or indirect ownership or controlling interest, (b) any confidentiality agreements whereby the financial statements of Siemens Corporation would be disclosed to existing or potential beneficiaries of such guaranties, and (c) any ancillary or related documents with respect to any of the foregoing; with Siemens Corporation giving and granting to the named individuals, acting jointly, full power and authority to do and perform any and all acts necessary or incident to the performance and execution of the power herein expressly granted. This Power of Attorney may be revoked at any time by Siemens Corporation.

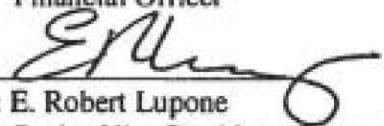
This Power of Attorney, and all disputes arising hereunder, shall be governed by the laws of the State of New York, without giving effect to the principles of conflicts of laws thereof.

Place: New York, New York

Date: January 8, 2010

SIEMENS CORPORATION

By: 
Name: Klaus Stegemann
Title: Executive Vice President and Chief
Financial Officer

By: 
Name: E. Robert Lupone
Title: Senior Vice President, General
Counsel and Secretary

Copy

SCHEDULE A

AUTHORIZED COUNTERSIGNATORIES OF SIEMENS CORPORATION

The President & Chief Executive Officer
The Executive Vice President and Chief Financial Officer
The Senior Vice President, General Counsel and Secretary
The Senior Vice President, Corporate Human Resources
The Vice President, Mergers & Acquisitions
The Vice President, Treasurer and Controller



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

**MODIFICATION NO. 1 TO
AGREEMENT BETWEEN SIEMENS INDUSTRY, INC.
AND
THE CITY AND COUNTY OF SAN FRANCISCO FOR
PROCUREMENT OF NEW LIGHT RAIL VEHICLES (LRV4)
(SFMTA No. 2013-19)**

This Modification No. 1 to Agreement is made and entered into this 31ST day of March 2015, by and between Siemens Industry 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. The SFMTA now wishes to modify the Agreement to exercise Option 1 in accordance with Section 64.1 of the Agreement, to procure 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.

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

1. Section 7.5.4 (Escalation for Price of Spare Parts) is amended in its entirety to read as follows:

7.5.4. Escalation for Price of Spare Parts. Any price adjustment for spare parts shall be determined according to the methodology described above for escalating the price of Vehicles and in accordance with the table below.

Schedule of Prices Reference	Base Phase 1 Cars 1-24	Base Phase 2 Cars 25-175	Option Vehicles Cars 1-85
Nominal Spare (item 5)	NO ESCALATION	In accordance with Phase 2, Section 7.5.3(c)(ii)	
Optional Spare (item 8)	NO ESCALATION	In accordance with Phase 2, Section 7.5.3(c)(ii)	
Spares for Option Vehicles (item 9)			In accordance with Section 7.5.3(c)(iii)

2. Section 10.1 (Payment of Taxes) amended in its entirety to read as follows:

10.1 Payment of Taxes. The City will pay the sales taxes levied by the State of California directly to the State provided that Contractor indicates on each invoice it submits the amount of sales taxes due. Contractor shall be solely responsible for any penalties, interest or fees assessed as a result of incorrect sales tax amounts listed on the invoices.

The City warrants that it is a public entity exempt from certain federal excise taxes and in connection therewith that it has obtained a federal excise tax exemption certificate. Contractor will pay all other taxes, including possessory interest taxes, licenses, imposts, duties, and all other governmental charges of any type whatsoever levied upon or as a result of this Agreement or Work performed pursuant hereto.

3. Section 29 (Subcontracting) is amended in its entirety to read as follows:

Contractor may subcontract portions of the Work only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the performance of the Work. City's execution of this Agreement constitutes its approval of the major subcontractors/suppliers listed below. Neither party shall, on the basis of this Agreement, contract on behalf of or in the name of the other party. Any agreement made in violation of this provision shall be null and void.



	COMMODITY	SUPPLIER
1	Automatic Passenger Counting System	INIT
2	Automatic Train Control System	Thales
3	CCTV System	Kratos
4	Communications - Radio	Harris
5	Doors	Ultimate Transportation N. America
6	Event Recorder	Hasler Rail
7	Friction Brake System	Wabtec
8	HVAC	Thermo King Corp.

5. *Exhibit 1 is deleted in its entirety and replaced with the Exhibit 1 attached to this Modification No. 1.*
6. *Exhibit 3 is deleted in its entirety and replaced with the Exhibit 3 attached to this Modification No. 1.*
7. *Exhibit 6 is modified by adding after Exhibit 6.1 a new Exhibit 6.2 as attached to this Modification No. 1.*
8. **Release.** The compensation (time and cost) set forth in this Modification comprises the total of all compensation due to Contractor, and all Subcontractors and Suppliers (collectively, Contractor), as a result of the events giving rise to the Modification and for the additional Work described in this Modification, including, but not limited to, costs for labor, materials, equipment, delay, escalation, profit, inefficiency, overhead and administration. The execution of this Modification constitutes a release and accord and satisfaction of any claim that Contractor may bring, as of the date of this Modification, for additional compensation or time arising from, or related to, the procurement and delivery of Option Vehicles to the City as described in this Modification. The Option Vehicles will be delivered in accordance with Exhibit 3 (Project Delivery Schedule). Exhibit 3 (Project Delivery Schedule), represents the full amount of time that Contractor has to deliver the Phase 1, Phase 2 and Option Vehicles to the City.
9. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.
10. **Legal Effect.** Except as expressly modified by this Modification No. 1, 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. 1 on the date set forth on page 1 above.

CITY

San Francisco Municipal Transportation Agency


Edward D. Reiskin
Director of Transportation

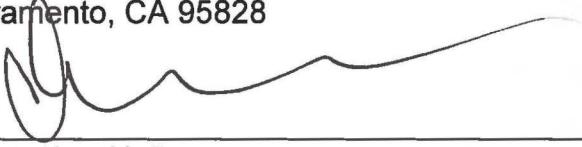
Approved as to Form:

Dennis J. Herrera
City Attorney


By 
Robin M. Reitzes
Deputy City Attorney

CONTRACTOR



Michael Cahill
President
Rolling Stock
Siemens Industry, Inc.
7464 French Road
Sacramento, CA 95828


Christopher Halleus
Vice President, FBA
Rolling Stock
Siemens Industry, Inc.
7464 French Road
Sacramento, CA 95828

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

Attachments

Exhibit 1 – Schedule of Prices
Exhibit 3 – Project Delivery Schedule
Exhibit 6 - Parent Company Guarantee

EXHIBIT 1
A. Schedule of Prices

BASE

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 1	Engineering Design, Project Management and Design Qualification Testing	Lump Sum	x 1	\$37,541,102
Item 1.1	Allowance for regulatory mandated changes, requested passenger enhancements and system modifications resulting from changes to project interfaces	Lump Sum	x 1	\$10,000,000
Item 2.1	Vehicle Price for Base Order Phase 1	\$3,327,250	x 24 cars	\$79,854,000
Item 2.2	Vehicle Price for Base Order Phase 2	\$3,327,250 * ¹	x 151 cars	\$502,414,750
Item 3	Operating, Maintenance and Parts Manuals	Lump Sum	x 1	\$809,478
Item 4.1	Training	Lump Sum	x 1	\$361,557
Item 4.2	Train Simulator (1) (In accordance with Section 22.2.8 of Technical Specifications)	Lump Sum	x 1	\$1,704,650
Item 5.1	Spare Parts (Total of Exhibit 1.B Phase 1)	Lump Sum	x 1	\$14,153,840
Item 5.2	Spare Parts (Total of Exhibit 1.B Phase 2) ¹	Lump Sum	x 1	
Item 6	Special Tools, Test and Diagnostic Equipment (Total of Exhibit 1.D)	Lump Sum	x 1	\$1,792,624
Item 7.1	Option 1 for 40 Additional New Light Rail Vehicles	\$ 3,349,270	x 40 cars	\$133,970,800
Item 8.1	Additional Spare Parts (Exhibit 1.C Phase 1)	Lump Sum	x 1	\$11,269,527
Item 8.2	Additional Spare Parts * ¹ (Exhibit 1.C Phase 2)	Lump Sum	x 1	
Item 9	Spare Parts for Option Cars * ¹	Lump Sum	x 1	\$15,000,000
Item 10	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) * ¹	Lump Sum	x 1	\$ 1,704,650
Items 1 – 10				\$810,576,978

Note *1: The prices do not include escalation. Escalation will be applied in accordance with Agreement Section 7.5.

Item 7.1: Price includes escalation.

OPTIONS

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 7.2	Option 2 for 1 to 45 Additional New Light Rail Vehicles	\$3,329,011* ¹	x 45 cars	\$149,805,495
Total Options:				\$149,805,495

Note *1: The Price does not include escalation. Escalation will be applied in accordance with Agreement Section 7.5.

Exhibit 3: PROJECT DELIVERY SCHEDULE

Item	Calendar Days after Notice to Proceed
Project Plan	60
Delivery of 1st Vehicle to SFMTA	737
Delivery of 2nd Vehicle to SFMTA	810
Training Starts	870
Training Complete	990
Special Tools / Diagnostic Test Equipment	870
Delivery of Publications (Manuals, Parts Book, Drawings) - Prelim	870
Delivery of Publications (Manuals, Parts Book, Drawings) - Final	1080
Delivery of Spare Parts (Phase 1)	990
Testing Complete / Acceptance of Vehicle	990
Delivery Rate of Base Phase 1 Vehicles (3-24)	1 Car every 2 weeks
Delivery of 24th Vehicle (Phase 1) to SFMTA	1298
Delivery of 1st Vehicle (Phase 2) to SFMTA	May 15, 2021
Delivery Rate of Phase 2 Vehicles	1 Car every 2 weeks
Delivery of 151st Vehicle (Phase 2) to SFMTA	2114 days after delivery of 1 st Car (Phase 2)
Delivery of Spare Parts (35% of Phase 2 Quantity)	May 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)
Delivery of 1st Option 1 Vehicle to SFMTA	1312
Delivery Rate of Option 1 Vehicles	1 Car every 2 weeks
Delivery of the 40th Option 1 Vehicle	1858



Item	Calendar Days after Notice to Proceed
Acceptance of Training Simulator 1	870
Delivery of 1st Option 2 Vehicle to SFMTA	TBD
Delivery Rate of Option 2 Vehicles	TBD
Delivery of the last Option 2 Vehicle	TBD
Delivery of Additional Spare Parts (Exhibit 1 C)	TBD
Deliver of Spare Parts for Option Vehicles	TBD
Delivery of Training Simulator 2	TBD

EXHIBIT 6.2 – PARENT COMPANY GUARANTEE

March 25, 2015

RE: Procurement of New Light Rail Vehicles (LRV4) Contract No. SFMTA-2013-19 between Siemens Industry Inc. (“Obligor”) and the City and County of San Francisco (“City”), through its Municipal Transportation Agency (“Beneficiary”) dated September 29, 2014 (“Contract”).

The Contract requires that Obligor provide a performance bond, labor and materials bond, warranty bond (the “bonds”), letters of credit or other security, as approved by the City’s Risk Manager, to secure Obligor’s performance, warranty and other obligations under the Contract. Siemens Corporation (“Guarantor”), the parent company of Obligor, offers to provide Beneficiary with the following guarantee in lieu of the bonds or letters of credit required under the Contract for the Option 1 Vehicles (Option 1), as defined in Section 64.1 of the Contract.

For value received, Guarantor, a corporation duly organized and validly existing under the laws of the state of Delaware, unconditionally guarantees to Beneficiary the prompt and complete payment when due, whether by acceleration or otherwise, of all amounts owing by Obligor under Option 1 of the Contract (including any liquidated damages). If at any time Obligor fails, neglects or refuses to timely or fully pay any sum due under Option 1 of the Contract, and if within 15 calendar days after the written notice of such failure from the Beneficiary and the expiration of any grace period applicable with respect thereto under the Contract, Obligor has not made such payment in full, then upon receipt of written notice from Beneficiary specifying such default, Guarantor shall promptly make such payment in immediately available funds to the order of the Beneficiary. This guaranty is one of payment and not of collection. If more expeditious and appropriate than a direct payment to SFMTA (and if agreed to by SFMTA and Guarantor), in the event of any default on the part of the Obligor regarding its obligations under Option 1 of the Contract, Guarantor agrees to perform all such obligations under the Contract that are necessary to cure the default and complete performance of all such work under the Contract.

Guarantor waives notice of acceptance of this Guarantee and notice of any liability to which it may apply, and waives presentment, demand for payment, protest, and notice of dishonor or non-payment of any kind.

Beneficiary may at any time and from time to time without notice to or consent of the Guarantor and without impairing or releasing the obligations of the Guarantor hereunder: (1) agree to any change in the terms of any obligation or liability of the Obligor to Beneficiary under the Contract, (2) grant any waivers to Obligor, (3) take or fail to take any action of any kind in respect of Option 1 of the Contract, or (4) exercise or refrain from exercising any rights against Obligor under the Contract. In addition, Guarantor agrees that its obligations hereunder shall not

be impaired in any manner whatsoever by any bankruptcy, extensions, moratoria or other relief granted to Obligor.

Notwithstanding anything contained in this Guarantee to the contrary, Guarantor's liability under this Guarantee shall not exceed the sum of (1) Eighty Million, Nine Hundred Seventy Two Thousand, Four Hundred Eighty Eight United States Dollars and 50 United States Cents (\$80,972,488.50 US) (the "Stated Amount") plus (2) the Additional Amount, which covers providing additional security for progress payments made by the Beneficiary for such Option 1 (as referenced in Section 7.3 of the Contract) and which on each Date of Change reflected on Table A shall be automatically adjusted to the adjacent Additional Amount as set forth in Table A of this Guarantee. Together, the Stated Amount and the Additional Amount covers all Option 1 obligations. Once 80 percent of the Option 1 Vehicles have been Accepted (as these terms are defined in the Contract), the Additional Amount may be released from the Guarantee for Option 1. Upon Acceptance or Conditional Acceptance of all Option 1 Vehicles, the Stated Amount will be reduced to five percent of the total price for Option 1 in accordance with Section 15.2.2(c) of the Contract.

With respect to any claim, action or proceeding against Guarantor in connection with this Guarantee, Guarantor shall be entitled to assert those defenses which Obligor would be able to assert if such claim, action or proceeding were to be asserted or instituted against Obligor based upon the Contract. By its acceptance hereof, reliance hereon, Beneficiary affirms to Guarantor any and all representations, warranties, and covenants made by the Beneficiary to the Obligor under the Contract.

This Guarantee shall continue in full force and effect until Guarantor gives Beneficiary notice of termination of this Guarantee, except that, notwithstanding any such termination, this Guarantee shall continue in full force and effect with respect to all obligations and/or liabilities incurred prior to such termination. Notwithstanding the foregoing, however, this Guarantee shall terminate and cease of further effect on the earlier of: (a) December 31, 2024 (b) the Acceptance or Conditional Acceptance of the last Vehicle of Option 1, provided that the Contractor has furnished a separate Parent Company Guarantee or other security for the warranty provisions that meets the requirements of section 15.2.4. of the Contract; (c) end of the agreed warranty period of the Option 1 Vehicles; (d) the date of any permitted assignment of Obligor's interest in the Contract; or (e) the date that (i) the Guarantor no longer owns or controls, directly or indirectly, more than 50 percent of the ownership interests of the Obligor, and (ii) the Beneficiary has been provided with a replacement guaranty, letter of credit, or other financial accommodation from a party with a credit rating equal to or better than that of Guarantor as of the date of this Guarantee, which financial accommodation provides Beneficiary with no less protection than that which is contained in this Guarantee (the acceptance of such replacement guarantee being within the sole and reasonable discretion of the Beneficiary). Guarantor shall, as of such date (the "Expiration Date"), have no further obligations or liability under this Guarantee, whether or not the Guarantee is returned to the Guarantor. To the extent feasible, Beneficiary will return the original of this Guarantee to the Guarantor after the Expiration Date.

Nothing contained herein shall be construed as conferring any rights upon persons or entities other than the Beneficiary.

This Guarantee shall be governed and construed in accordance with the laws of the State of California without giving effect to principles of conflicts of law. Guarantor submits, and by its acceptance hereof Beneficiary hereby submits, to the jurisdiction of the courts of the state of California and to federal courts located within the city of San Francisco. Neither Guarantor nor Beneficiary may assign its rights or delegate its duties without the written consent of the other party. Any amendments to this Guarantee must be in writing. This Guarantee may be executed in counterparts, each of which, when taken together, shall be deemed to be one and the same instrument.

This Guarantee has been duly executed by authorized representatives of the Guarantor as follows:

SIEMENS CORPORATION

By: 

*Name: Kirk Nesbeitt

Title: Vice President of Siemens Financial Services, Inc.

By: 

*Name: Robert Donza

Title: Vice President of Siemens Financial Services, Inc.

*[Under Power of Attorney from Siemens Corporation]

Accepted:

Municipal Transportation Agency

By 

Exhibit 6.2 Table A

Date of Adjustment	Increase Amount in USD at Date of Adjustment	Additional Amount in USD
9/01/15	2,679,416.00	2,679,416.00
9/01/17	669,854.00	3,349,270.00
10/01/17	1,339,708.00	4,688,978.00
11/01/17	1,339,708.00	6,028,686.00
12/01/17	669,854.00	6,698,540.00
1/01/18	2,009,562.00	8,708,102.00
2/01/18	2,009,562.00	10,717,664.00
3/01/18	3,349,270.00	14,066,934.00
4/01/18	2,679,416.00	16,746,350.00
5/01/18	2,679,416.00	19,425,766.00
6/01/18	2,679,416.00	22,105,182.00
7/01/18	2,679,416.00	24,784,598.00
8/01/18	4,019,124.00	28,803,722.00
9/01/18	2,009,562.00	30,813,284.00
10/01/18	3,349,270.00	34,162,554.00
11/01/18	2,009,562.00	36,172,116.00
12/01/18	2,679,416.00	38,851,532.00
1/01/19	3,349,270.00	42,200,802.00
2/01/19	2,679,416.00	44,880,218.00
3/01/19	2,679,416.00	47,559,634.00
4/01/19	2,679,416.00	50,239,050.00
5/01/19	2,009,562.00	52,248,612.00
6/01/19	1,339,708.00	53,588,320.00
7/01/19	1,339,708.00	54,928,028.00
8/01/19	1,339,708.00	56,267,736.00

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

**MODIFICATION NO. 2 TO
AGREEMENT BETWEEN SIEMENS INDUSTRY, INC.
AND
THE CITY AND COUNTY OF SAN FRANCISCO FOR
PROCUREMENT OF NEW LIGHT RAIL VEHICLES (LRV4)
(SFMTA No. 2013-19)**

This Modification No. 2 to Agreement is made and entered into this 30th day of October, 2015, by and between Siemens Industry 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 modified 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. The parties now wish to modify 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.

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

1. Section 29 (Subcontracting) of the Agreement is deleted and replaced in its entirety with the following:

29. Subcontracting

Contractor may subcontract portions of the Work only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the performance of the Work. City's execution of this Agreement constitutes its approval of the major subcontractors/suppliers listed below. Neither party shall, on the basis of this Agreement, contract on behalf of or in the name of the other party. Any agreement made in violation of this provision shall be null and void.

	Commodity	Supplier
1	Propulsion	Siemens PD LD
2	Friction Brake	Wabtec
3	HVAC (Air Comfort)	Thermo King Corp.
4	Event Recorder	Hasler Rail
5	Door Operators & Controls	Ultimate Transportation N. America
6	ATCS (Train Control)	Thales
7	Coupler	Voith
8	Radio	Harris
9	Communication	Televic
10	CCTV	Kratos
11	APC	INIT

2. Exhibit 1.A (Schedule of Prices) is deleted and replaced in its entirety with the revised Exhibit 1 attached to this Modification.
3. Exhibit 2 (Payment Schedule) is deleted and replaced in its entirety with the revised Exhibit 2 attached to this Modification.
4. **Release.** The compensation (time and cost) set forth in this Modification comprises the total of all compensation due to Contractor, and all Subcontractors and Suppliers (collectively, Contractor), as a result of the events giving rise to the Modification and for the additional Work described in this Modification, including, but not limited to, costs for labor, materials, equipment, delay, escalation, profit, inefficiency, overhead and administration. The execution of this Modification constitutes a release and accord and satisfaction of any claim that Contractor may bring, as of the date of this Modification, for additional compensation or time arising from, or related to, the procurement and delivery of work as described in this Modification.
5. **Effective Date.** Each of the modifications set forth above shall be effective on and after all parties have signed the Modification.

6. Legal Effect. Except as expressly modified by this Modification No. 2, 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. 2 on the date set forth on page 1 above.

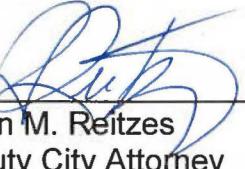
CITY

San Francisco Municipal Transportation Agency


Edward D. Reiskin
Director of Transportation

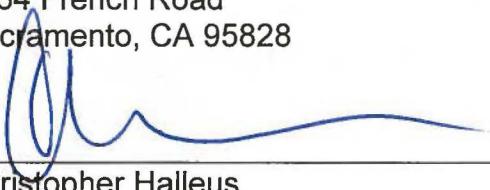
Approved as to Form:

Dennis J. Herrera
City Attorney

By 
Robin M. Reitzes
Deputy City Attorney

CONTRACTOR


Michael Cahill
President
Siemens Industry, Inc.
Mobility Division
7464 French Road
Sacramento, CA 95828


Christopher Halleus
Vice President, FBA
Siemens Industry, Inc.
Mobility Division
7464 French Road
Sacramento, CA 95828

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

Attachments

Exhibit 1.A – Schedule of Prices
Exhibit 2 – Payment Schedule

EXHIBIT 1
A. Schedule of Prices

BASE

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 1	Engineering Design, Project Management and Design Qualification Testing	Lump Sum	x 1	\$37,541,102
Item 1.1	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	x 1	\$10,000,000
Item 2.1	Vehicle Price for Base Order Phase 1	\$3,327,250	x 24 cars	\$79,854,000
Item 2.2	Vehicle Price for Base Order Phase 2	\$3,327,250*	x 151 cars	\$502,414,750
Item 3	Operating, Maintenance and Parts Manuals	Lump Sum	x 1	\$809,478
Item 4.1	Training	Lump Sum	x 1	\$361,557
Item 4.2	Train Simulator (1) (In accordance with Section 22.2.8 of Technical Specifications)	Lump Sum	x 1	\$1,704,650
Item 5.1	Spare Parts (Total of Exhibit 1.B, Phase 1)	Lump Sum	x 1	\$14,153,840
Item 5.2	Spare Parts (Total of Exhibit 1.B, Phase 2*)			
Item 6	Special Tools, Test and Diagnostic Equipment (Total of Exhibit 1.D)	Lump Sum	x 1	\$1,792,624
Item 7.1	Option 1 for 40 Additional New Light Rail Vehicles	\$3,349,270**	x 40 cars	\$133,970,800
Item 8.1	Additional Spare Parts (Exhibit 1.C Phase 1)	Lump Sum	x 1	\$11,269,527
Item 8.2	Additional Spare Parts (Exhibit 1.C Phase 2*)			
Item 9	Spare parts for Option Cars*	Lump Sum	x 1	\$15,000,000
Item 10	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications)*	Lump Sum	x 1	\$1,704,650
Total Base: Items 1 – 10				\$810,576,978

Notes: *The prices do not include escalation. Escalation will be applied in accordance with Agreement Section 7.5.

**Price includes escalation.

OPTIONS

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 7.2	Option 2 for 1 to 45 Additional New Light Rail Vehicles	\$3,329,011	x 45 cars	\$149,805,495
Total Options:				\$149,805,495

Note: The Price for Item 7.2 does not include escalation. Escalation will be applied in accordance with Agreement Section 7.5.

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 1.1 – 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).

Progress payments will be made in accordance with Items 1, 2A, 2B, 3, 4.1, 4.2, and 7 listed in this exhibit, as applicable.

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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	2%

	Milestone	Percent of Bid Item
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 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)

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 25 – 175).* <ul style="list-style-type: none"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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		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.

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 4.1 – 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 4.1		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

Progress payments will be made in accordance with Item 7.1 and 7.2 below:

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

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.

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

**MODIFICATION NO. 3 TO
AGREEMENT BETWEEN SIEMENS INDUSTRY, INC.
AND
THE CITY AND COUNTY OF SAN FRANCISCO FOR
PROCUREMENT OF NEW LIGHT RAIL VEHICLES (LRV4)
(SFMTA No. 2013-19)**

This Modification No. 3 to Agreement is made and entered into this 16th day of August 2016, by and between Siemens Industry 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. The SFMTA now wishes to modify 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 guarantee, and make miscellaneous changes to the Technical Specifications.

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

1. *Section 29 (Subcontracting) is amended in its entirety to read as follows:*

Contractor may subcontract portions of the Work only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the performance of the Work. City's execution of this Agreement constitutes its approval of the major subcontractors/suppliers listed below. Neither party shall, on the basis of this Agreement, contract on behalf of or in the name of the other party. Any agreement made in violation of this provision shall be null and void.

	COMMODITY	SUPPLIER
1	Automatic Passenger Counting System	INIT
2	Automatic Train Control System	Thales
3	CCTV System	Kratos
4	Communications - Radio	Harris
5	Doors	Ultimate Transportation N. America
6	Event Recorder	Hasler Rail
7	Friction Brake System	Tec Tran Brakes (Wabtec)
8	Heating, Ventilation and Air Conditioning	Thermo King Corp.
9	Passenger Information System, Infotainment	Televic
10	CAD/AVL	Xerox
11	Couplers	Voith
12	Lighting (exterior)	TDG
13	Lighting (interior)	TDG
14	Pantograph	Schunk
15	Sanders	Knorr
16	Seats (passenger)	Freedman Seating Company
17	Seats (driver)	Seats Incorporated
18	Steps	Vapor Stone Rail Sys (Wabtec)
19	Train to Wayside Communication System	Vecom

2. *A new Exhibit 1A.A (Schedule of Prices-Modification No. 3 Work) is added to the Agreement and is attached to this Modification.*
3. *A new Exhibit 2.1 (Payment Schedule-Modification No. 3 Work) is added to the Agreement and is attached to this Modification.*

4. *Exhibit 3 (Project Delivery Schedule) is replaced with a new Exhibit 3 (Delivery Schedule), which is attached to this Modification.*
5. *Exhibit 6 is modified by adding after Exhibit 6.2 a new Exhibit 6.3, which is attached to this Modification.*
6. *Subsection 1 of Section 2.9.2 (Maintenance Plan) of the Technical Specification is modified in its entirety to read as follows.*
 1. The Contractor's maintainability program shall include a detailed plan outlining all schedules and activities for vehicle preventive maintenance. **(CDRL 63)**
7. *Section 6.3.7 (Step System) of the Technical Specification is modified by adding a new subsection 12 to read as follows:*
 12. The front right step shall be capable of being operated in UP and DOWN position independently from the other steps by using a switch on the operator control panel in the cab. This operation shall be available in the leading Vehicle only; the trailing Vehicle shall be unaffected.
8. *Section 13.3.2 (Information Signs) of the Technical Specification is modified by adding new subsection 4 to read as follows:*
 4. The destination signs (front destination and exterior side of the side destination signs) shall have a red green blue (RGB) LED color-block beside the amber LED that shows the destination. The color-block RGB shall visualize the letter designating the line on a background color defined by the Digital Voice Communication System (DVCS) automatic announcement and display database.
9. *Section 13.4 (Interface with Radio CAD AVL System) of the Technical Specification is modified in its entirety to read as follows:*

13.4 INTERFACE WITH RADIO, CAD/AVL SYSTEM

The following interfaces shall be furnished between the radio, CAD/AVL system and other vehicle systems. All the software shall be installed to SFMTA latest version at the time of delivery:

1. Farebox - The radio vehicle logic unit and farebox shall exchange the information through SAE J1587 messaging protocol over the SAE J1708 physical connection.

DG

2. Destination Sign - Destination signs shall be controlled by radio vehicle logic unit through the interface between the Digital Vehicle Communication System (DVCS) and the CAD/AVL System.
3. EA switch (each cab) shall be interfaced with radio vehicle logic unit.
4. GPS signal information shall be provided from the CAD/AVL System to the CCTV System (Surveillance Camera system).
5. Critical Control Point Speakers (CCP Speakers), Destination signs, stop request, doors status shall interface with the Digital Vehicle Communication System (DVCS). The DVCS is connected to the radio vehicle logic unit through cable connection.
6. Speed Sensors - Speed sensor information shall be provided to radio vehicle logic unit.
7. Mobile Access Router - Router shall be connected to radio vehicle logic unit via 4 port Ethernet switch. The Surveillance camera system is connected to the CCTV router.
8. Door Status – Door status signal shall be connected to radio vehicle logic unit.
9. Stop Request - Stop request shall be connected to radio vehicle logic unit.

Details of the required integration are provided in Appendix C.

10. *The Technical Specification is modified by adding a new section 14.1.5 to read as follows:*

14.1.5 Train ID

1. Each train shall have the capability to set the Train ID for each cab in the train consist from the lead cab.

11. *Section 20.10 (CDRL List) of the Technical Specification is modified by adding CDRL Nos. 61 – 63 to Table 20-1 as follows.*

61	Hazard Mitigation Traceability Matrix	21.3.7.6
62	Reliability Demonstration Plan (RDP)	21.3.11
63	Maintenance Plan	2.9.2

12. Section 21.3.7.6 (Hazard Mitigation Traceability Matrix) of the Technical Specification is modified in its entirety to read as follows.

21.3.7.6 Hazard Mitigation Traceability Matrix

The Contractor shall develop and maintain a matrix of all Category I and II hazards. The matrix shall describe each hazard and its ultimate resolution, and identify current status. The resolution of each hazard must be verified by identifying a specific drawing, procedure, analysis, or report. (CDRL 61)

13. Subsection 1 of Section 21.3.11 (Reliability Demonstration) of the Technical Specification is modified to read as follows.

1. The Contractor shall submit a Reliability Demonstration Plan (RDP) 90 Days before delivery of the first car that defines the following for a demonstration to prove compliance with the specified MDBTD and MDBCF requirements and failure definitions in Section 2.8. (CDRL 62)

14. Subsection 2 of Section 22.1 (General) of the Technical Specification is modified by adding item g. to read as follows:

- g. SIBAS Expert 2 Software.

15. Section 23.3.3 (Radio [Voice and Data]) of the Technical Specification is modified by adding No. 3-12 to Table 23-3. Radio as follows:

3-12		Handheld Radio Charger	2	One in each cab
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16. The Technical Specification is modified by adding Appendix C (Radio/CAD/AVL Onboard and Wayside Systems) thereto, which Appendix is attached to this Modification.

17. Release. Contractor acknowledges and agrees that the amounts agreed for the work described in this Modification No. 3, and/or any extension of time granted herein, with or without cost, shall be full accord and satisfaction for all past, current and prospective costs incurred in connection with Contractor's performance of all work under the contract up to and including the work covered under this Modification No. 3, without limitation. 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 hereby made, as set forth above.

18. *Effective Date.* Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.

19. *Legal Effect.* Except as expressly modified by this Modification No. 3, 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. 3 on the date set forth on page 1 above.

CITY

San Francisco Municipal Transportation Agency


Edward D. Reiskin
Director of Transportation

Approved as to Form:

Dennis J. Herrera
City Attorney

By 
Robin M. Reitzes
Deputy City Attorney

San Francisco Municipal Transportation Agency
Board of Directors

Resolution No. 110-111
Dated: 8/16/16

Attest: R. Bodner
Secretary

Attachments

Exhibit 1A.1 – Schedule of Prices – Modification No. 3 Work
Exhibit 2.1 – Payment Schedule
Exhibit 3 – Project and Vehicle Delivery Schedules
Exhibit 6 - Parent Company Guarantee
Appendix C – Radio/CAD/ Onboard and Wayside Systems

EXHIBIT 1A.1
Schedule of Prices – Modification No. 3 Work

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 11	Modification No. 3 (Non-Recurring Costs)			
Item 11.1	Engineering	Lump Sum	x 1	\$6,128,416
Item 11.2	SIBAS Expert 2 Monitoring and Diagnostic Software	Lump Sum	X1	\$71,000
Item 12	Modification No. 3 (Base Recurring Costs)			
Item 12A	Base Phase 1	\$62,313	x 24 cars	\$1,495,514
Item 12B	Base Phase 2	\$62,313*	x 151 cars	\$9,409,275
Item 13	Modification No. 3 Option 1 (Recurring Costs)	\$62,313	x 40 cars	\$2,492,523
TOTAL Items 11-13				\$19,596,728

Note: *The price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement.

Exhibit 2.1
PAYMENT SCHEDULE
(All Item references are to Exhibit 1A.1)

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%

EXHIBIT 3
PROJECT AND VEHICLE DELIVERY SCHEDULES

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
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	4/17/2017
Delivery of Additional Spare Parts (Exhibit 1 C)	TBD
Delivery of Spare Parts for Option Vehicles	TBD
Delivery of Training Simulator 2	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)	12/13/2016	8/15/2017
LRV 2002	2/28/2017	9/21/2017
LRV 2003	5/2/2017	9/28/2017
LRV 2004	8/17/2017	10/27/2017
LRV 2005	8/31/2017	11/3/2017
LRV 2006	9/15/2017	11/13/2017
LRV 2007	10/3/2017	11/30/2017
LRV 2008	10/13/2017	12/12/2017
LRV 2009	10/27/2017	12/27/2017
LRV 2010	11/7/2017	1/5/2018
LRV 2011	11/16/2017	1/22/2018
LRV 2012	12/4/2017	1/31/2018
LRV 2013	12/13/2017	2/9/2018
LRV 2014	12/22/2017	2/27/2018
LRV 2015	1/10/2018	3/7/2018
LRV 2016	1/19/2018	3/16/2018
LRV 2017	1/30/2018	3/27/2018
LRV 2018	2/8/2018	4/5/2018
LRV 2019	2/20/2018	4/13/2018
LRV 2020	2/27/2018	4/23/2018
LRV 2021	3/6/2018	4/30/2018
LRV 2022	3/13/2018	5/7/2018
LRV 2023	3/20/2018	5/14/2018
LRV 2024	3/27/2018	5/21/2018
Delivery of 1st Option 1 Vehicle to SFMTA (LRV 2025)	4/10/2018	6/4/2018
LRV 2026	4/24/2018	6/18/2018
LRV 2027	5/8/2018	7/2/2018
LRV 2028	5/22/2018	7/16/2018
LRV 2029	6/5/2018	7/30/2018
LRV 2030	6/19/2018	8/13/2018
LRV 2031	7/3/2018	8/27/2018
LRV 2032	7/17/2018	9/10/2018
LRV 2033	7/31/2018	9/24/2018

Item	Vehicle Delivery Date	Completion of Acceptance Testing
LRV 2034	8/14/2018	10/8/2018
LRV 2035	8/28/2018	10/22/2018
LRV 2036	9/11/2018	11/5/2018
LRV 2037	9/25/2018	11/19/2018
LRV 2038	10/9/2018	12/3/2018
LRV 2039	10/23/2018	12/17/2018
LRV 2040	11/6/2018	12/31/2018
LRV 2041	11/20/2018	1/14/2019
LRV 2042	12/4/2018	1/28/2019
LRV 2043	12/18/2018	2/11/2019
LRV 2044	1/1/2019	2/25/2019
LRV 2045	1/15/2019	3/11/2019
LRV 2046	1/29/2019	3/25/2019
LRV 2047	2/12/2019	4/8/2019
LRV 2048	2/26/2019	4/22/2019
LRV 2049	3/12/2019	5/6/2019
LRV 2050	3/26/2019	5/20/2019
LRV 2051	4/9/2019	6/3/2019
LRV 2052	4/23/2019	6/17/2019
LRV 2053	5/7/2019	7/1/2019
LRV 2054	5/21/2019	7/15/2019
LRV 2055	6/4/2019	7/29/2019
LRV 2056	6/18/2019	8/12/2019
LRV 2057	7/2/2019	8/26/2019
LRV 2058	7/16/2019	9/9/2019
LRV 2059	7/30/2019	9/23/2019
LRV 2060	8/13/2019	10/7/2019
LRV 2061	8/27/2019	10/21/2019
LRV 2062	9/10/2019	11/4/2019
LRV 2063	9/24/2019	11/18/2019
LRV 2064	10/8/2019	12/2/2019
Delivery of 1st vehicle (Phase 2) to SFMTA	5/15/2021	TBD
Delivery Rate of Phase 2 Vehicles	1 car / 2 weeks	
Delivery of 151th vehicle (Phase 2) to SFMTA	2/27/2027	TBD
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

MODIFICATION TO PARENT COMPANY GUARANTEE
G-ID 466742

THIS AGREEMENT is entered into as of August 26, 2016 by and among **Siemens Corporation**, a corporation of the State of Delaware ("Guarantor"), **Siemens Industry, Inc.**, a corporation of the State of Delaware ("Obligor"), and the City and County of San Francisco ("City"), through its Municipal Transportation Agency ("Beneficiary").

RECITALS

A. Obligor and the Beneficiary entered into an agreement for the supply of up to 260 S200SF light rail vehicles plus spare parts, special tools, training and manuals, Contract No. SFMTA-2013-19, dated as of September 29, 2014 (the "Contract"), and Guarantor issued a Guarantee dated as of September 8, 2014, to secure the performance of Obligor under the Contract (as same has been, is being, and may further be amended, modified and/or restated from time to time) (the "Guarantee").

B. Guarantor, Obligor, and the Beneficiary each desire and have agreed to modify the terms of the Guarantee as set forth in this Modification To Guarantee ("Agreement").

Now, therefore, in consideration of the mutual promises contained herein and of other good and valuable consideration, the sufficiency of which is acknowledged, the parties agree as follows:

AGREEMENT

1. **MODIFICATION.** Notwithstanding anything contained in the Guarantee to the contrary, the Guarantee is modified as follows:

(A) The fifth paragraph of the Guarantee is deleted and replaced with the following paragraph:

Notwithstanding anything contained in this Guarantee to the contrary, Guarantor's liability under this Guarantee shall not exceed the value of (1) \$76,956,090.96 (Seventy-Six Million, Nine Hundred Fifty-Six Thousand, Ninety and 96/100 United States Dollars) (the "Stated Amount"), plus (2) \$52,079,710 (Fifty-Two Million, Seventy-Nine Thousand Seven Hundred Ten and 00/100 United States Dollars) (the "Additional Amount"), which covers providing additional security for progress payments made by the Beneficiary for such phase (as referenced in Section 7.3 of the Contract). Together, the Stated Amount and the Additional Amount covers all Phase 1 obligations. Once 80 percent of the Phase 1 Vehicles have been Accepted or Conditionally Accepted (as these terms are defined in the Contract), the Additional Amount may be released from the Guarantee for Phase 1. Upon Acceptance or Conditional Acceptance of all Phase 1 Vehicles, the Stated Amount will be reduced to 12.5 percent of the total price for Phase 1, in accordance with Section 15.2.2(a)(ii) of the Contract.

2. **ACKNOWLEDGMENTS.** The parties hereto acknowledge and agree that:

- (A) the Guarantee, as amended and modified hereby, is in full force and effect and incorporated herein;
- (B) no default by Obligor in the performance of its duties under the Contract has occurred;
- (C) no default by Guarantor under the Guarantee has occurred;

MODIFICATION TO PARENT COMPANY GUARANTEE

G-ID 484678

THIS AGREEMENT is entered into as of August 29, 2016 by and among **Siemens Corporation**, a corporation of the State of Delaware ("Guarantor"), **Siemens Industry, Inc.**, a corporation of the State of Delaware ("Obligor"), and City and County of San Francisco ("City"), through its Municipal Transportation Agency ("Beneficiary").

RECITALS

A. Obligor and the Beneficiary entered into an agreement for the supply of up to 260 S200SF light rail vehicles ("LRVs") plus spare parts, special tools, training and manuals, Contract No. SFMTA-2013-19, dated as of September 29, 2014 (the "Contract"). The Contract included an option for 40 additional LRVs, which was exercised as of March 31, 2015 (the "Option"). Guarantor issued a Guarantee dated as of March 25, 2015, to secure the performance of Obligor under the Option (as same has been, is being, and may further be amended, modified and/or restated from time to time, the "Guarantee").

B. Guarantor, Obligor, and the Beneficiary each desire and have agreed to modify the terms of the Guarantee as set forth in this Modification To Guarantee ("Agreement").

Now, therefore, in consideration of the mutual promises contained herein and of other good and valuable consideration, the sufficiency of which is acknowledged, the parties agree as follows:

AGREEMENT

1. MODIFICATION. Notwithstanding anything contained in the Guarantee to the contrary, the Guarantee is modified as follows:

A. The fifth paragraph of the Guarantee is deleted and replaced with the following paragraph:

"Notwithstanding anything contained in this Guarantee to the contrary, Guarantor's liability under this Guarantee shall not exceed the sum of (1) Eighty-Four Million, Eight Hundred Ninety-Eight Thousand, One Hundred Sixty Six Thousand United States Dollars and 10 United States Cents (\$84,898,166.10 US) (the "Stated Amount") plus (2) the Additional Amount, which covers providing additional security for progress payments made by the Beneficiary for such Option 1 (as referenced in Section 7.3 of the Contract) and which on each Date of Change reflected on Table A shall be automatically adjusted to the adjacent Additional Amount as set forth in Table A of this Guarantee. Together, the Stated Amount and the Additional Amount covers all Option 1 obligations. Once 80 percent of the Option 1 Vehicles have been Accepted (as those terms are defined in the Contract), the Additional Amount may be released from the Guarantee for Option 1. Upon Acceptance or Conditional Acceptance of all Option 1 Vehicles, the Stated Amount will be reduced to five percent of the total price for Option 1, in accordance with Section 15.2.2(c) of the Contract."

2. ACKNOWLEDGMENTS. The parties hereto acknowledge and represent that:

- A. the Guarantee, as amended and modified hereby, is in full force and effect and incorporated herein;
- B. no default by Obligor in the performance of its duties under the Contract has occurred;

APPENDIX C - RADIO/CAD/AVL ONBOARD AND WAYSIDE SYSTEMS

C.1 GENERAL

The work described in this section shall apply to the LRV4 Radio/CAD/AVL onboard and wayside systems, and shall be in addition to the work required by the original Contract No. SFMTA-2013-19.

C.2 SCOPE OF WORK

The scope of work is to provide a reliable and fully functional revenue service ready radio/CAD/AVL system with all supporting interfaces. This includes integration of the LRV4 on-board digital vehicle communication system (DVCS) equipment with SFMTA's wayside components and radio/CAD/AVL infrastructure. This also includes providing fully functional solutions and equipment to fulfill all of the functionalities in the operational needs (Table C-1). The scope of work also includes fitting of SFMTA defined Operator's Cab communications equipment, compliant with the ergonomic, arrangement, and visibility requirements of the TS.

Contractor is responsible for all aspects of the LRV4 vehicle design and system integration. Contractor is the primary contractor and is responsible for working with their sub-suppliers to make the vehicles ready for revenue service, including complete integration with the wayside and any required safety certification support. Execution of this scope of work shall not delay the progress of other non-related activities under this Contract. Specific requirements are defined elsewhere in this document.

C.3 GENERAL ENGINEERING DESIGN

Contractor's design shall comply with Contract No. SFMTA-2013-19, and the operational needs list provided as Table C-1 of this Appendix.

Within 21 days of the notice to proceed of Modification No. 3, Contractor shall update and resubmit all existing design submittals relevant to this scope of work. The revised submittals shall provide acceptable designs that are fully functional and revenue service ready.

Compliant with the Section 20.7.1, Contractor shall provide a design submittal for interfaces between the LRV4 on-board equipment and the respective wayside CAD/AVL components and software. For example, the interface between LRV4 automatic passenger counter or passenger information system equipment, and the wayside software supporting its functionality. The design submittals shall establish the data management amongst LRV4 equipment, between LRV4 equipment and wayside components, and how the end-to-end functionality is compliant with all operational performance requirements as defined in C.4.

The design submittals shall specify radio/CAD/AVL operations in multi-car consists and address redundancy under failure conditions.

C.4 OPERATIONAL NEEDS

Contractor shall deliver LRV4 vehicles with a fully functional and revenue service ready radio/CAD/AVL system in accordance with the performance requirements listed in Contract No. SFMTA-2013-19, and the operational needs provided in Table C-1.

C.5 WAYSIDE INTERFACES

The design shall provide integration between the LRV4 INIT APC system and the wayside components responsible for transfer, storage, and management of the LRV4 APC data within SFMTA's backend systems. This includes wayside APC software required to manipulate or manage the LRV4 APC data. The design shall provide real-time and bulk data APC reporting interfaces to the wayside CAD/AVL components including CAD stations, data interchange station, long term database, and reports servers.

The design shall provide integration of Televic software with the wayside CAD/AVL components for management and distribution of vehicle signage, audible messages, infotainment, and software and firmware updating for components under the DVCS scope.

The design shall provide for on-board Televic and INIT software to be remotely maintained and updated from wayside systems that are not part of SFMTA's core OrbCAD system.

C.6 OPERATOR'S CAB

The revised submittals for the design and ergonomics of the Operator's Cab shall provide a compliant design and demonstrate an integrated approach to fitting of equipment under this scope of work.

Additionally, Contractor shall provide an Operator's Cab forward visibility study with considerations made towards fitting of cab equipment consistent with frequency of use, while maximizing safety of the Operator, automobile drivers, and pedestrians. Contractor shall utilize the study to optimize cab space while avoiding direct placement of equipment within the area of the cab windows, potentially creating blind spots or otherwise obstructing the Operator's view (refer to Section 5.2).

C.7 TRAINING

Training is required for the additional scope of work covered by this Appendix which is above and beyond that already covered by the base Contract. All training required to operate, maintain, and update the on-board and wayside components shall be provided. Contractor shall provide software administrator training for the scope of work involving wayside components. All training shall comply with the Conformed Contract Documents.

Contractor shall include the training plan for all additional training required by this scope of work within CDRL 58 (Training Program Plan), for SFMTA's acceptance (refer to Section 22.2.6.1).

C.8 DOCUMENTATION

Documentation is required for the additional scope of work covered by this Appendix which is above and beyond that already covered by the base Contract. All manuals required to operate, maintain, and update the on-board and wayside components shall be provided. The radio/CAD/AVL wiring and cable assembly drawings shall be integrated into the vehicle wiring

documentation. Manuals shall be provided for the Televic and INIT wayside application software. Contractor shall provide interface control documents for the Televic, INIT, and wayside software elements. Documentation shall comply with the requirements of the original Contract No. SFMTA-2013-19 (refer to Section 22.2).

C.9 TESTING, COMMISSIONING, SAFETY CERTIFICATION

Design validation and safety certification support is required for the additional scope of work covered by this Appendix which is above and beyond that already covered by the base Contract. All existing terms of the Section 21 shall apply including but not limited to design verification, commissioning, and safety certification. Contractor shall submit qualification and routine test procedures relevant to this scope of work, and include the procedures into CDRL 40 (Requirements Traceability Matrix (RTM)).

Qualification testing shall encompass all on-board and wayside components involved with radio/CAD/AVL and DVCS. Testing shall reasonably account for all operational scenarios and failure modes.

Table C-1 Operational Needs

No	<u>Operational Need</u>
1	A Mobile Data Terminal (MDT) shall be provided in each Cab. The MDT provides the Train Operator interface to the CAD/AVL System. The MDT contains a covert Microphone.
2	Central Control Dispatcher shall be able to hear all conversations after Emergency Alarm (EA) Activation. When the EA button is activated an Event Marker will be activated on the CCTV system and a silent indication will be shown on the MDT.
3	The Public Address (PA) to the Train from the Central Dispatcher shall be heard in the Operator's Cab as well as in the passenger area.
4	All of the onboard communications equipment shall be controlled by the VLU using the Radio and CAD/AVL System. Design documentation shall provide system description, and functionality of Televic/INIT/Xerox system. Wayside servers and software shall be provided as needed to support software/firmware updates/revisions to remotely maintain the on-board Televic/INIT/Xerox equipment.
5	Wireless Bulk Data Transfer (WBDF) shall support all necessary data transmission between the vehicle and the wayside. Design documentation shall provide system description, and functionality of Televic/INIT/Xerox system. Wayside servers and software shall be provided as needed to support software/firmware updates/revisions to remotely maintain the on-board Televic/INIT/Xerox equipment.
6	The Mobile Access Router (MAR) shall support: system segregation through Virtual LANs (VLANs), IPSec, VPN tunneling (including a deep inspection firewall) and Gigabit Ethernet ports with backwards compatibility to 100 Megabit.
7	The Mobile Access Router (MAR) shall distribute Network Time Protocol (NTP) System time and Vehicle Health Monitoring.
8	NMEA GPS string from VLU shall be compatible with onboard equipment.
9	The Mobile Access Router (MAR) also shall provide 3G and Wi-Fi module.
10	The CAD/AVL system shall provide single point logon for all systems dependent upon vehicle/Block ID, including but not limited to: Destination Signs, Passenger Information Signs, VLU, MDTs, Farebox, CAD system, DVCS, and Radio.
11	The transition from "inactive" to "active" CAB shall be seamless and instantaneous.
12	The radio shall be compatible with OpenSky2 radio infrastructure.
13	The Train Operator (TO) shall be able to communicate with the Central dispatcher from the active cab within a consist. Handling of voice communications in trailing cabs in the consist shall be functionally equivalent to LRV2/3 design.

No	Operational Need
14	The Mobile radio in the active cab shall be able to Request To Talk to the Central dispatch console. Handling of voice communications in trailing cabs in the consist shall be functionally equivalent to LRV2/3 design.
15	In multicar consists, the VLUs shall be functionally redundant. If the Master VLU fails, then another shall take control. The design documentation shall address DVCS fall back modes.
16	The voice and data via the MDT in each Cab shall be functionally equivalent to LRV2/3 design.
17	Harris XG-75 Portable Radio Chargers shall be installed in each Cab.
18	The APC data shall be compatible with SFMTA wayside system. Wayside servers and software shall be provided as needed to support handling/storage/processing of APC data on the wayside.
19	The data collected by the APC shall be compatible with the wayside database. Wayside servers and software shall be provided as needed to support handling/storage/processing of APC data on the wayside.
20	Positions of the steps (up or down) at each stop shall be logged and transmitted via VLU Wireless Bulk Data Transfer (WBDT). Wayside servers and software shall be provided as needed to support software/firmware updates/revisions to remotely maintain the on-board Televic/INIT/Xerox equipment.
21	APC real-time passenger loading data shall be provided to the VLU upon door close events.
22	APC data shall be uploaded daily via VLU Wireless Bulk Data Transfer (WBDT) infrastructure. Wayside servers and software shall be provided as needed to support software/firmware updates/revisions to remotely maintain the on-board Televic/INIT/Xerox equipment.
23	An exception notification shall be sent to the vehicle health monitoring system, if APC data is not being collected or is incomplete. Design documentation shall include the handling and processing of the diagnostic data from APC.
24	Interface with Radio and CAD/AVL System shall include the following systems: Farebox, Destination Signs, EA Switches, GPS, Critical Control Point Speakers (CCP Speakers), Speed Sensor, Mobile Access Router (MAR), Door Status, Stop Request, Accessible Stop Request, Passenger Information Signs and APC.
25	Speed sensors shall be connected to the VLU for "Dead Reckoning" in the event of the loss of GPS signal.

No	<u>Operational Need</u>
26	<p>The Mobile Access Router (MAR) shall be connected to the VLU. The MAR shall have sufficient ports for integration of all required onboard equipment provided.</p> <p>CCTV system uses its own wayside communication method and does not require interface with the MAR.</p>
27	<p>Wireless Bulk Data Transfer (WBDT) shall perform the following: automatic uploading and downloading of data files at the Depot and push to corresponding equipment on the vehicle. These files will include: Audio Visual Annunciation (AVA), Destination Sign Image, Scheduling Data, Fare Collection Data, Logged Data, and Firmware for all subsystems. The logged Data shall include APC, Fare Collection, and Vehicle Location Logging. The onboard storage shall be sufficient to store all files and data for 7 days in the event of the unavailability of the WBDT.</p> <p>Equipment required to perform WBDT shall be provided.</p> <p>Design documentation shall provide system description, and functionality of LiveCom tool to generate audio and visual announcement data for PIS system.</p> <p>Design documentation shall describe process to update announcement data.</p>
28	System shall include 700/800 MHz and GPS Antennas.
29	Not applicable
30	Vehicle shall transmit location to the wayside every 60 seconds on the surface and every 20 seconds in subway, these transmissions are archived on the wayside.
31	<p>The Farebox will be connected to the VLU via J1708. The Farebox will dispense a Fare receipt.</p> <p>Farebox will be connected to VLU in the same method as on LRV2/3.</p> <p>Clipper® does not have bidirectional communication with VLU.</p>

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

MODIFICATION NO. 4 TO
AGREEMENT BETWEEN SIEMENS INDUSTRY, INC.
AND
THE CITY AND COUNTY OF SAN FRANCISCO FOR
PROCUREMENT OF NEW LIGHT RAIL VEHICLES (LRV4)
(SFMTA No. 2013-19)

This Modification No. 4 to Agreement is made and entered into this 14 day of JULY, 2017, by and between Siemens Industry, 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 guarantee; and make miscellaneous changes to the Technical Specifications.

E. The SFMTA now wishes to modify 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 Specifications, and all prior design approvals and Buy America audits will include these four Vehicles.

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

1. *The Definitions section is amended to modify the term "Base Order" and to add a new definition for "Phase W" to read as follows:*

* * *

Base Order: Work referenced as Items 1-6 in Exhibit 1A.

* * *

Phase W: Work related to the acquisition of four Vehicles to supplement the existing fleet.

2. *Section 15.2.1 (General) is modified in its entirety to read as follows:*

15.2.1. General. The following provisions set forth financial guarantees that must be met by Contractor. Contractor may choose to meet the requirements of this Section 15.2 by obtaining either the required bonds or an irrevocable letter of credit ("Letter of Credit") in an equivalent amount, or a combination of the two types of instruments. In addition, for each subsequent Vehicle delivery phase described below, Contractor may elect to change how the obligations are met by furnishing a bond to cover an obligation previously covered by a Letter of Credit or vice-versa, subject to approval of the SFMTA and the City's Risk Manager. The Contractor may provide a Parent Company Guarantee in lieu of bonds or other security required under this Agreement, subject to the approval of the SFMTA and the City's Risk Manager. The form of the Parent Company Guarantee is provided in Exhibits 6, 6.1, 6.2 (modified on August 26, 2016 as Exhibit 6.3), and 6.4. The City has accepted the Parent Company Guarantees as substitution for the required bonds or other security.

3. *Section 15.2.2 (Security) is modified by adding a new subsection (d) to read as follows:*

(d) Phase W (4 Vehicles) Contractor shall furnish to the City a performance bond or Letter of Credit in the amount of 25% of the total price for Phase W within 20 Days of Contractor's receipt of a notice of award from City to modify the Contract for Phase W. The amount of the performance bond may be reduced (or the City may authorize a reduction in the amount of the Letter of Credit) from 25 percent to five percent of the original amount upon Acceptance or Conditional Acceptance of the last Phase W Vehicle. The City will release the performance bond, or authorize the release of the Letter of Credit, upon the

expiration of the warranty period of the last Phase W Vehicle. Alternatively, the City may release the performance bond, or authorize the release of the Letter of Credit, upon Acceptance or Conditional Acceptance of the last Phase W Vehicle provided that Contractor has furnished the City with a warranty bond or Letter of Credit in accordance with the requirements of Section 15.2.4.

4. *Section 15.2.3 (Labor and Material Bond) is modified by adding after subsection c a new subsection (d) to read as follows :*

(d) Phase W (4 Vehicles). Within 20 days of receipt of a notice of award from the City to modify the Contract for delivery of four Phase W Vehicles, the Contractor shall furnish to the City either a separate labor and materials bond or a Letter of Credit in the amount of 25 percent of the total cost for Phase W, to guarantee performance of all Contract obligations with respect to Phase W. Provisions for releasing or reducing the amount of the bond or Letter of Credit shall apply in the same manner as described above in Section 15.2.2(d). The original bond shall also be retained by the City.

5. *Section 15.2.4 (Warranty Bond) is modified in its entirety to read as follows :*

15.2.4 Warranty Bond. Once all Vehicles have been Accepted or Conditionally Accepted for Phase 1, Phase 2, Phase W, or for Option Delivery, Contractor may replace the performance bond for that phase, or request that the City authorize the release of a Letter of Credit provided in lieu of a performance bond by obtaining a warranty or guaranty bond or an additional Letter of Credit in the amount of 10 percent of the Contract amount for that phase or for the Option Vehicles, as appropriate. Where Contractor's performance is secured by a Letter of Credit and Contractor obtains a warranty bond to cover Contractor's warranty obligations for a given phase or the Option Delivery period, Contractor may request that the Letter of Credit be released to reflect that the Contractor's obligations under that delivery phase have otherwise been fulfilled. A bond or Letter of Credit under this paragraph 15.2.4 shall be for the purpose of covering all of Contractor's warranty obligations under the Contract for that phase or for Option delivery, and shall become effective upon release of the performance bond or City's authorization to release the Letter of Credit specified in Subsection 15.2.2 above. At the end of each year of warranty coverage, the Contractor may request a reduction of coverage, which may be approved at the discretion of SFMTA and the City's Risk Manager.

6. *Section 19.1 (Liquidated Damages) is modified in its entirety to read as follows :*

19.1 Liquidated Damages

By entering into this Agreement, the Contractor agrees that in the event the Work, as provided under Section 4, is delayed beyond the scheduled milestones and timelines as provided in the Project Delivery

Schedule in Exhibit 3 of this Agreement, as may be revised by Contract Modifications, City will suffer damages that will be impracticable or extremely difficult to determine; further, Contractor agrees that the amounts listed below for each day of delay beyond scheduled milestones and timelines are not a penalty, but are a reasonable estimate of the loss that City will incur based on the delay, established in light of the circumstances existing at the time this contract was awarded. Except where the delay is the result of an Unavoidable Delay, City may deduct a sum representing the liquidated damages from any money due to Contractor. Such deductions shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Contractor's failure to deliver to City within the time fixed or such extensions of time permitted in writing by the SFMTA.

<u>Milestone</u>	<u>Amount per Day</u>
Delivery of first 2 Vehicles	\$2000 per Vehicle
Delivery of Vehicles 3 – 260	\$1000 per Vehicle
Delivery of 4 Phase W Vehicles	\$1000 per Vehicle
Completion of training program	\$500
Completion of delivery of Phase 1 spare parts	\$500
Completion of delivery of Phase 2 spare parts	\$500
Conditional Acceptance of manuals (operation, maintenance and parts manuals)	\$500
Delivery of diagnostic test equipment and special tools	\$500
Failure to provide a plan for correction of fleet defects	\$500 per Vehicle
Failure to fully correct fleet defects according to approved plan	\$500 per Vehicle

Liquidated Damages imposed under this Agreement shall be in addition to any other damages which are recoverable by the City specified elsewhere in the Contract. The total amount of liquidated damages shall not exceed 10 percent of the total amount of the Contract.

7. *A new Exhibit 1A.2 (Schedule of Prices-Modification No. 4) is added to the Agreement and is attached to this Modification.*
8. *A new Exhibit 2.2 (Payment Schedule—Modification No. 4) is added to the Agreement and is attached to this Modification.*
9. *Exhibit 3B (Vehicle Delivery Schedule) is replaced with a new Exhibit 3B (Vehicle Delivery Schedule), which is attached to this Modification.*
10. *Exhibit 5 (Warranty Provisions), subsection 1.1.6, is modified in its entirety to read as follows*

1.1.6 Fleet Defects

A fleet defect is defined as cumulative failures of any kind in the same components in the same or similar application where such items are covered by the warranty and such failures occur within the warranty period in at least 10 percent of the Vehicles delivered under the same phase of this Contract. For the purposes of this Section only:

(a) The first phase of this Contract consists of Phase 1 (24 Vehicles), Option 1 (40 Vehicles), and Phase W (4 Vehicles), for a total of 68 Vehicles. For the first phase, the Contractor shall begin root cause failure investigations when the number of failures reach 3.5 percent (3 Vehicles). The full fleet defect criteria will be reached when the failure rate occurs in 10 percent of the Vehicles delivered in this phase (7 Vehicles).

(b) The second phase of this Contract consists of Phase 2 (151 Vehicles) and Option 2 (up to 45 Vehicles, to the extent the Option is exercised), for a total of up to 196 Vehicles. For the second phase, the Contractor shall begin root cause failure investigations when the number of Vehicle failures reach 8.0 percent. The full fleet defect criteria will be reached when the failure rate occurs in 10% of the Vehicles delivered in this phase. The SFMTA shall have final approval of corrections or changes under these conditions.

11. *Exhibit 6 is modified by adding after Exhibit 6.3 a new Exhibit 6.4, which is attached to this Modification.*
12. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modification Nos. 1-3 and this Modification No. 4 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. 4, 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 any 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, and 3.

13. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.
14. **Legal Effect.** Except as expressly modified by this Modification No. 4, all other terms and conditions of the Contract remain unchanged and in full force and effect.

IN WITNESS WHEREOF, the parties have executed this Amendment No. 4 on the date first above written.

Contractor: *[Signature]*
Date: *[Signature]*

IN WITNESS WHEREOF, the parties hereto have entered into and executed this Modification No. 4 on the date set forth on page 1 above.

CITY

San Francisco Municipal Transportation Agency


Edward D. Reiskin
Director of Transportation

San Francisco Municipal Transportation Agency
Board of Directors

Resolution No. 170620-081

Dated: 7.19.2017

Attest:


R. Boerner
Secretary

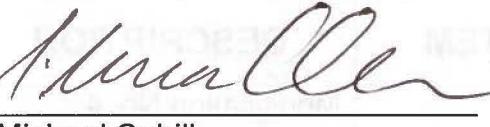
Approved as to Form:

Dennis J. Herrera
City Attorney

By 
Robin M. Reitzes
Deputy City Attorney

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CONTRACTOR


Michael Cahill
President
Mobility Division, Rolling Stock
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7464 French Road
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Christopher Halleus
Vice President, FBA
Mobility Division, Rolling Stock
Siemens Industry, Inc.
7464 French Road
Sacramento, CA 95828

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

Attachments

- Exhibit 1A.2 – Schedule of Prices – Modification No. 4 Work
- Exhibit 2.2 – Payment Schedule
- Exhibit 3.B – Vehicle Delivery Schedules
- Exhibit 6.4 - Parent Company Guarantee

EXHIBIT 1A.2
Schedule of Prices – Modification No. 4 Work

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 14	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750	x 4 cars	\$15,875,000
MOD 4 TOTAL Item 14				\$15,875,000

Exhibit 2.2
PAYMENT SCHEDULE
 (All Item references are to Exhibit 1A.2)

Item 14 - Modification No. 4 (Vehicle Price for Phase W)

Progress payments will be made in accordance with Item 2B of Exhibit 2.

	Milestone	Percent of Bid Item
A	Placement of contracts with the following major subcontractors (Cars 25, 27, 29, and 31). [*] <ul style="list-style-type: none"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 payments under Section 7.3 of the Agreement.

EXHIBIT 3
PROJECT AND VEHICLE DELIVERY SCHEDULES

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)	1/13/2017	8/15/2017
LRV 2002	2/28/2017	9/21/2017
LRV 2003	5/2/2017	9/28/2017
LRV 2004	8/17/2017	10/27/2017
LRV 2005	8/31/2017	11/3/2017
LRV 2006	9/15/2017	11/13/2017
LRV 2007	10/3/2017	11/30/2017
LRV 2008	10/13/2017	12/12/2017
LRV 2009	10/27/2017	12/27/2017
LRV 2010	11/7/2017	1/5/2018
LRV 2011	11/16/2017	1/22/2018
LRV 2012	12/4/2017	1/31/2018
LRV 2013	12/13/2017	2/9/2018
LRV 2014	12/22/2017	2/27/2018
LRV 2015	1/10/2018	3/7/2018
LRV 2016	1/19/2018	3/16/2018
LRV 2017	1/30/2018	3/27/2018
LRV 2018	2/8/2018	4/5/2018
LRV 2019	2/20/2018	4/13/2018
LRV 2020	2/27/2018	4/23/2018
LRV 2021	3/6/2018	4/30/2018
LRV 2022	3/13/2018	5/7/2018
LRV 2023	3/20/2018	5/14/2018
LRV 2024	3/27/2018	5/21/2018
LRV 2025 (Delivery of 1 st Phase W Vehicle to SFMTA)	4/3/2018	5/28/2018
LRV 2026 (Delivery of 1st Option 1 Vehicle to SFMTA)	4/10/2018	6/4/2018
LRV 2027 (Delivery of 2 nd Phase W Vehicle to SFMTA)	4/17/2018	6/11/2018
LRV 2028	4/24/2018	6/18/2018
LRV 2029 (Delivery of 3 rd Phase W Vehicle to SFMTA)	5/1/2018	6/25/2018
LRV 2030	5/8/2018	7/2/2018
LRV 2031(Delivery of 4 th Phase W Vehicle to SFMTA)	5/15/2018	7/9/2018
LRV 2032	5/22/2018	7/16/2018
LRV 2033	6/5/2018	7/30/2018
LRV 2034	6/19/2018	8/13/2018
LRV 2035	7/3/2018	8/27/2018

Item	Vehicle Delivery Date	Completion of Acceptance Testing
LRV 2036	7/17/2018	9/10/2018
LRV 2037	7/31/2018	9/24/2018
LRV 2038	8/14/2018	10/8/2018
LRV 2039	8/28/2018	10/22/2018
LRV 2040	9/11/2018	11/5/2018
LRV 2041	9/25/2018	11/19/2018
LRV 2042	10/9/2018	12/3/2018
LRV 2043	10/23/2018	12/17/2018
LRV 2044	11/6/2018	12/31/2018
LRV 2045	11/20/2018	1/14/2019
LRV 2046	12/4/2018	1/28/2019
LRV 2047	12/18/2018	2/11/2019
LRV 2048	1/1/2019	2/25/2019
LRV 2049	1/15/2019	3/11/2019
LRV 2050	1/29/2019	3/25/2019
LRV 2051	2/12/2019	4/8/2019
LRV 2052	2/26/2019	4/22/2019
LRV 2053	3/12/2019	5/6/2019
LRV 2054	3/26/2019	5/20/2019
LRV 2055	4/9/2019	6/3/2019
LRV 2056	4/23/2019	6/17/2019
LRV 2057	5/7/2019	7/1/2019
LRV 2058	5/21/2019	7/15/2019
LRV 2059	6/4/2019	7/29/2019
LRV 2060	6/18/2019	8/12/2019
LRV 2061	7/2/2019	8/26/2019
LRV 2062	7/16/2019	9/9/2019
LRV 2063	7/30/2019	9/23/2019
LRV 2064	8/13/2019	10/7/2019
LRV 2065	8/27/2019	10/21/2019
LRV 2066	9/10/2019	11/4/2019
LRV 2067	9/24/2019	11/18/2019
LRV 2068	10/8/2019	12/2/2019
Delivery of 1st vehicle (Phase 2) to SFMTA	5/15/2021	TBD
Delivery Rate of Phase 2 Vehicles	1 car / 2 week	
Delivery of 151th vehicle (Phase 2) to SFMTA	2/27/2027	TBD
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

EXHIBIT 6.4 PARENT COMPANY GUARANTEE



(G-556963)

EXHIBIT 6.4 – PARENT COMPANY GUARANTEE

July 6, 2017

RE: Procurement of New Light Rail Vehicles (LRV4) Contract No. SFMTA-2013-19 between Siemens Industry Inc. ("Obligor") and the City and County of San Francisco ("City"), through its Municipal Transportation Agency ("Beneficiary") dated September 29, 2014 ("Contract").

The Contract requires that Obligor provide a performance bond, labor and materials bond, warranty bond (the "bonds"), letters of credit or other security, as approved by the City's Risk Manager, to secure Obligor's performance, warranty and other obligations under the Contract. Siemens Corporation ("Guarantor"), the parent company of Obligor, offers to provide Beneficiary with the following guarantee in lieu of the bonds or letters of credit required under the Contract for Phase W, as defined in Modification No. 4 of the Contract.

For value received, Guarantor, a corporation duly organized and validly existing under the laws of the state of Delaware, unconditionally guarantees to Beneficiary the prompt and complete payment when due, whether by acceleration or otherwise, of all amounts owing by Obligor under Phase W of the Contract (including any liquidated damages). If at any time Obligor fails, neglects or refuses to timely or fully pay any sum due under Phase W of the Contract, and if within 15 calendar days after the written notice of such failure from the Beneficiary and the expiration of any grace period applicable with respect thereto under the Contract, Obligor has not made such payment in full, then upon receipt of written notice from Beneficiary specifying such default, Guarantor shall promptly make such payment in immediately available funds to the order of the Beneficiary. This guaranty is one of payment and not of collection. If more expeditious and appropriate than a direct payment to SFMTA (and if agreed to by SFMTA and Guarantor), in the event of any default on the part of the Obligor regarding its obligations under Phase W of the Contract, Guarantor agrees to perform all such obligations under the Contract that are necessary to cure the default and complete performance of all such work under the Contract.

Guarantor waives notice of acceptance of this Guarantee and notice of any liability to which it may apply, and waives presentment, demand for payment, protest, and notice of dishonor or non-payment of any kind.

Beneficiary may at any time and from time to time without notice to or consent of the Guarantor and without impairing or releasing the obligations of the Guarantor hereunder: (1) agree to any change in the terms of any obligation or liability of the Obligor to Beneficiary under the Contract, (2) grant any waivers to Obligor, (3) take or fail to take any action of any kind in

respect of Phase W of the Contract, or (4) exercise or refrain from exercising any rights against Obligor under the Contract. In addition, Guarantor agrees that its obligations hereunder shall not be impaired in any manner whatsoever by any bankruptcy, extensions, moratoria or other relief granted to Obligor.

Notwithstanding anything contained in this Guarantee to the contrary, Guarantor's liability under this Guarantee shall not exceed Fourteen Million, Six Hundred Five Thousand Dollars (\$14,605,000), which is the sum of Seven Million, Nine Hundred Thirty-Seven Thousand, Five Hundred Dollars (\$7,937,500) US (the "Stated Amount") plus (2) the "Additional Amount" of Six Million, Six Hundred Sixty-Seven Thousand, Five Hundred Dollars (\$6,667,500), which covers providing additional security for progress payments made by the Beneficiary for such Phase W Vehicles (see Section 7.3 of the Contract). For the Phase W Vehicles, the Payment Milestones comprising the Additional Amount are Milestones A, B, and C of Item 14 (Exhibit 2.2 to Modification No. 4). Together, the Stated Amount and the Additional Amount covers all Phase W obligations. Once all Phase W Vehicles have been Accepted (as these terms are defined in the Contract), the Additional Amount may be released from the Guarantee for Phase W. Upon Acceptance or Conditional Acceptance of all Phase W Vehicles, the Stated Amount will be reduced to five percent of the total price for Phase W in accordance with Section 15.2.2(d) of the Contract.

With respect to any claim, action or proceeding against Guarantor in connection with this Guarantee, Guarantor shall be entitled to assert those defenses which Obligor would be able to assert if such claim, action or proceeding were to be asserted or instituted against Obligor based upon the Contract. By its acceptance hereof, reliance hereon, Beneficiary affirms to Guarantor any and all representations, warranties, and covenants made by the Beneficiary to the Obligor under the Contract.

This Guarantee shall continue in full force and effect until Guarantor gives Beneficiary notice of termination of this Guarantee, except that, notwithstanding any such termination, this Guarantee shall continue in full force and effect with respect to all obligations and/or liabilities incurred prior to such termination. Notwithstanding the foregoing, however, this Guarantee shall terminate and cease to be of further effect on the earlier of: (a) July 7, 2023, (b) the Acceptance or Conditional Acceptance of the last Vehicle of Phase W, provided that the Contractor has furnished a separate Parent Company Guarantee or other security for the warranty provisions that meets the requirements of section 15.2.4. of the Contract; (c) end of the agreed warranty period of the Phase W Vehicles; (d) the date of any permitted assignment of Obligor's interest in the Contract; or (e) the date that (i) the Guarantor no longer owns or controls, directly or indirectly, more than 50 percent of the ownership interests of the Obligor, and (ii) the Beneficiary has been provided with a replacement guaranty, letter of credit, or other financial accommodation from a party with a credit rating equal to or better than that of Guarantor as of the date of this Guarantee, which financial accommodation provides Beneficiary with no less protection than that which is contained in this Guarantee (the acceptance of such replacement guarantee being within the sole and reasonable discretion of the Beneficiary). Guarantor shall, as of such date (the "Expiration Date"), have no further obligations or liability under this

QD.M

Guarantee, whether or not the Guarantee is returned to the Guarantor. To the extent feasible, Beneficiary will return the original of this Guarantee to the Guarantor after the Expiration Date.

Nothing contained herein shall be construed as conferring any rights upon persons or entities other than the Beneficiary.

This Guarantee shall be governed and construed in accordance with the laws of the State of California without giving effect to principles of conflicts of law. Guarantor submits, and by its acceptance hereof Beneficiary hereby submits, to the jurisdiction of the courts of the state of California and to federal courts located within the city of San Francisco. Neither Guarantor nor Beneficiary may assign its rights or delegate its duties without the written consent of the other party. Any amendments to this Guarantee must be in writing. This Guarantee may be executed in counterparts, each of which, when taken together, shall be deemed to be one and the same instrument.

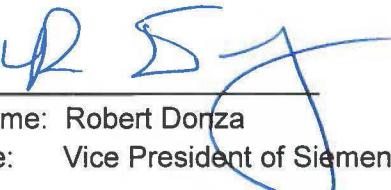
This Guarantee has been duly executed by authorized representatives of the Guarantor as follows:

SIEMENS CORPORATION

By: 

*Name: Jeffrey Cain

Title: Senior Vice President
of Siemens Financial Services, Inc.

By: 

*Name: Robert Dorza

Title: Vice President of Siemens Financial Services, Inc.

*[Under Power of Attorney from Siemens Corporation]

Accepted:

Municipal Transportation Agency

By



Edward D. Reiskin

Director of Transportation

Approved as to Form:

Dennis J. Herrera, City Attorney

By



Robin M. Reitzes

Deputy City Attorney





CITY AND COUNTY OF SAN FRANCISCO HUMAN RIGHTS COMMISSION

S.F. ADMINISTRATIVE CODE CHAPTERS 12B and 14B WAIVER REQUEST FORM (HRC Form 201)

► Section 1. Department Information

Department Head Signature: 

Name of Department: SF MUNICIPAL TRANSPORTATION AGENCY

Department Address: 1 South Van Ness - 7th Flr., San Francisco CA 94103

Contact Person: JANET GALLEGOS

Phone Number: 415-579-9791

Fax Number:

FOR HRC USE ONLY
Request Number:

► Section 2. Contractor Information

Contractor Name: Siemens Industry Inc.

Contact Person: Viorel Aninoiu

Contractor Address: 7464 French Road, Sacramento, CA 95828

Vendor Number (if known): 50009

Contact Phone No.: 916 267 8787

► Section 3. Transaction Information

Date Waiver Request Submitted: 6/12/2017

Type of Contract: Contract Modification

Contract Start Date: TBD

End Date: TBD

Dollar Amount of Contract: \$15,875,000

► Section 4. Administrative Code Chapter to be Waived (please check all that apply)

Chapter 12B
 Chapter 14B *Note: Employment and LBE subcontracting requirements may still be in force even when a 14B waiver (type A or B) is granted.*

► Section 5. Waiver Type (Letter of Justification *must* be attached, see Check List on back of page.)

A. Sole Source
 B. Emergency (pursuant to Administrative Code §6.60 or 21.15)
 C. Public Entity
 D. No Potential Contractors Comply – Copy of waiver request sent to Board of Supervisors on:
 E. Government Bulk Purchasing Arrangement – Copy of waiver request sent to Board of Supervisors on:
 F. Sham/Shell Entity – Copy of waiver request sent to Board of Supervisors on:
 G. Local Business Enterprise (LBE) (for contracts in excess of \$5 million; see Admin. Code §14B.7.I.3)
 H. Subcontracting Goals

HRC ACTION

12B Waiver Granted: _____
12B Waiver Denied: _____

14B Waiver Granted: _____
14B Waiver Denied: _____

Reason for Action: _____

HRC Staff: _____ Date: _____

HRC Staff: _____ Date: _____

HRC Director: _____ Date: _____

DEPARTMENT ACTION – This section must be completed and returned to HRC for waiver types D, E & F.

Date Waiver Granted: _____ Contract Dollar Amount: _____



MEMORANDUM

June 12, 2017

To: Ed Reiskin
Director of Transportation

Through: John Haley
Director of Transit

From: Janet Gallegos
Project Manager

Subject: Sole Source Procurement for four additional Light Rail Vehicles

The arena and event center proposed by the Golden State Warriors is under construction on an 11-acre site on Blocks 29-32 within the Mission Bay South Redevelopment Plan Area (Project). Development of the site will significantly increase transportation and other public service needs in the area during events. The developer of the Project, along with stakeholders, produced the Transportation Service Plan (TSP) as part of a strategy to mitigate impacts to residents, medical facilities, and businesses in the area. The TSP includes elements under the jurisdiction of the SFMTA. These include the procurement of four additional light rail vehicles to provide enhanced service during basketball games and other events. These vehicles are in addition to the replacement of the existing fleet and the planned expansions.

These vehicles were not anticipated as part of the current LRV4 Procurement of up to 260 light rail vehicles for both expansion and fleet replacement. This memo requests approval for a sole-source procurement of four additional light rail vehicles through the existing Contract with Siemens. The vehicles will be identical to those currently being delivered as part of the first Phase of 24 expansion vehicles, and will be used interchangeably in order to most effectively serve the entire system.

Since Siemens is the supplier for the LRV4 Procurement, and is the only source for these vehicles, it holds that a Sole Source Procurement is necessary to procure these vehicles. The vehicles will be procured through Contract Modification No. 4 to the existing contract with Siemens.

Approved: 
Edward D. Reiskin, Director of Transportation

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

**MODIFICATION NO. 5 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. 5 to Agreement is made and entered into on 10/22/2019, 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 guarantee, and make miscellaneous changes to the Technical Specifications.

- 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 Specifications, 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. The SFMTA now wishes to modify the Agreement to commence design of and initiate the addition of track brakes to the power trucks as a method to reduce the size and frequency of flat spots on wheels caused by activation of the push button emergency brake (PBEB) in service. The change will provide operational commonality with the LRV2/3 vehicle in response to emergency brake applications initiated by the PBEB.
- H. This Modification No. 5 expedites the start of this work in order to avoid service disruptions caused by the occurrence of flat spots. The Modification provides for engineering, testing and the implementation of the track brakes on eight Vehicles. Future implementation for the remaining LRVs to be procured under the Agreement will be included in a forthcoming modification.

The parties agree that the Agreement shall be modified as follows:

1. *A new definition is added to the Agreement to read as follows:*

Confidential Information: Confidential City information including, but not limited to, personally-identifiable information (PII), protected health information (PHI), or individual financial information (collectively, "Proprietary or Confidential Information") that is subject to local, state or federal laws restricting the use and disclosure of such information, including, but not limited to, Article 1, Section 1 of the California Constitution; the California Information Practices Act (Civil Code § 1798 et seq.); the California Confidentiality of Medical Information Act (Civil Code § 56 et seq.); the federal Gramm-Leach-Bliley Act (15 U.S.C. §§ 6801(b) and 6805(b)(2)); the privacy and information security aspects of the Administrative Simplification provisions of the federal Health Insurance Portability and Accountability Act (45 CFR Part 160 and Subparts A, C, and E of part 164); and San Francisco Administrative Code Chapter 12M (Chapter 12M).

2. A new Section 10.3 (Withholding) is added to the Agreement to read as follows:

10.3 Withholding. Contractor agrees that it is obligated to pay all amounts due to the City under the San Francisco Business and Tax Regulations Code during the term of this Agreement. Pursuant to Section 6.10-2 of the San Francisco Business and Tax Regulations Code, Contractor further acknowledges and agrees that City may withhold any payments due to Contractor under this Agreement if Contractor is delinquent in the payment of any amount required to be paid to the City under the San Francisco Business and Tax Regulations Code. Any payments withheld under this paragraph shall be made to Contractor, without interest, upon Contractor coming back into compliance with its obligations.

3. Section 24 (Proprietary or Confidential Information of City) is deleted in its entirety.

4. Section 30 of Agreement (Assignment) is replaced in its entirety to read as follows:

30 Assignment

The Services to be performed by Contractor are personal in character. Neither this Agreement, nor any duties or obligations hereunder, may be directly or indirectly assigned, novated, hypothecated, transferred, or delegated by Contractor, or, where the Contractor is a joint venture, a joint venture partner (collectively referred to as an "Assignment") unless first approved by City by written instrument executed and approved as required under City law and under the policy of the SFMTA Board of Directors. The City's approval of any such Assignment is subject to the Contractor demonstrating to City's reasonable satisfaction that the proposed transferee is: (a) reputable and capable, financially and otherwise, of performing each of Contractor's obligations under this Agreement and any other documents to be assigned, (b) not forbidden by applicable law from transacting business or entering into contracts with City; and (c) subject to the jurisdiction of the courts of the State of California. A change of ownership or control of Contractor or a sale or transfer of substantially all of the assets of Contractor shall be deemed an Assignment for purposes of this Agreement. Contractor shall immediately notify City about any Assignment. Any purported Assignment made in violation of this provision shall be null and void.

5. Section 41 (Notification of Limitations on Contributions) of the Agreement is replaced in its entirety to read as follows:

41. Limitation on Contributions

By executing this Agreement, Contractor acknowledges its obligations under section 1.126 of the City's Campaign and Governmental Conduct Code, which prohibits any person who contracts with, or is seeking a contract with, any department of 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, for a grant, loan or loan guarantee, or for a development agreement, from making any campaign contribution to (a) a City elected official if the contract must be approved by that official, a board on which that official serves, or the board of a state agency on which an appointee of that official serves, (b) a candidate for that City elective office, or (c) a committee controlled by such elected official or a candidate for that office, at any time from the submission of a proposal for the contract until the

later of either the termination of negotiations for such contract or twelve months after the date the City approves the contract. 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 10% in Contractor; any subcontractor listed in the bid or contract; and any committee that is sponsored or controlled by Contractor. Contractor certifies that it has informed each such person of the limitation on contributions imposed by Section 1.126 by the time it submitted a proposal for the contract, and has provided the names of the persons required to be informed to the City department with whom it is contracting.

6. *Section 53 (Reserved) is replaced in its entirety with a new Section 53 (Consideration of Salary History), to read as follows:*

53 Consideration of Salary History.

Contractor shall comply with San Francisco Administrative Code Chapter 12K, the Consideration of Salary History Ordinance or "Pay Parity Act." Contractor is prohibited from considering current or past salary of an applicant in determining whether to hire the applicant or what salary to offer the applicant to the extent that such applicant is applying for employment to be performed on this Agreement or in furtherance of this Agreement, and whose application, in whole or part, will be solicited, received, processed or considered, whether or not through an interview, in the City or on City property. The ordinance also prohibits employers from (a) asking such applicants about their current or past salary or (b) disclosing a current or former employee's salary history without that employee's authorization unless the salary history is publicly available. Contractor is subject to the enforcement and penalty provisions in Chapter 12K. Information about and the text of Chapter 12K is available on the web at <https://sfgov.org/olse/consideration-salary-history>. Contractor is required to comply with all of the applicable provisions of 12K, irrespective of the listing of obligations in this Section.

7. *Section 55 (Protection of Private Information) is replaced in its entirety by a new Section 55 (Management of Private, Proprietary or Confidential Information and City Data), to read as follows:*

55. Management of Private, Proprietary or Confidential Information and City Data

55.1 Protection of Private Information. If this Agreement requires City to disclose "Private Information" to Contractor within the meaning of San Francisco Administrative Code Chapter 12M, Contractor and subcontractor shall use such information only in accordance with the restrictions stated in Chapter 12M and in this Agreement and only as necessary in performing the Services. Contractor is subject to the enforcement and penalty provisions in Chapter 12M. However, the Parties acknowledge that the Agreement does not require the City to provide, and

the City will not provide, Contractor with any "Private Information" within the meaning of San Francisco Administrative Code Chapter 12M

55.2 Confidential Information. In the performance of Services, Contractor may have access to City's proprietary or Confidential Information, the disclosure of which to third parties may damage City. If City discloses proprietary or Confidential Information to Contractor, such information must be held by Contractor in confidence and used only in performing the Agreement. Contractor shall exercise the same standard of care to protect such information as a reasonably prudent contractor would use to protect its own proprietary or Confidential Information.

55.3 Access to City Data. City shall at all times have access to and control of all data given to Contractor by City in the performance of this Agreement (City Data or Data), and shall be able to retrieve it in a readable format, in electronic form and/or print, at any time, at no additional cost.

55.4 Use of City Data and Confidential Information. Contractor agrees to hold City's Confidential Information received from or created on behalf of the City in strictest confidence. Contractor shall not use or disclose City's Data or Confidential Information except as permitted or required by the Agreement or as otherwise authorized in writing by the City. Any work using, or sharing or storage of, City's Confidential Information outside the United States is subject to prior written authorization by the City. Access to City's Confidential Information must be strictly controlled and limited to Contractor's staff assigned to this project on a need-to-know basis only. The City provides Contractor with a limited non-exclusive license to use the City Data or Confidential Information solely for performing its obligations under the Agreement and not for Contractor's own purposes or later use. Nothing herein shall be construed to confer any license or right to the City Data or Confidential Information, by implication, estoppel or otherwise, under copyright or other intellectual property rights, to any third party. Unauthorized use of City Data or Confidential Information by Contractor, subcontractors or other third-parties is prohibited. For purpose of this requirement, the phrase "unauthorized use" means the data mining or processing of data, stored or transmitted by the service, for commercial purposes, advertising or advertising-related purposes, or for any purpose other than security or service delivery analysis that is not explicitly authorized.

55.5 Disposition of Confidential Information. Upon termination of Agreement or request of City, Contractor shall, within 48 hours, return all Confidential Information, including all original media. Once Contractor has received written confirmation from City that Confidential Information has been successfully transferred to City, Contractor, within 10 business days, shall purge all Confidential Information from its servers, any hosted environment Contractor has used in performance of this Agreement,

work stations that were used to process the Data or for production of the Data, and any other work files stored by Contractor in whatever medium. Contractor shall provide City with written certification that such purge occurred within five business days of the purge.

55.6 Notification of Legal Requests. Contractor shall immediately notify City upon receipt of any subpoenas, service of process, litigation holds, discovery requests and other legal requests (Legal Requests) related to all City Data given to Contractor by City in the performance of this, or which in any way might reasonably require access to City Data, and in no event later than 24 hours after it receives the request. Contractor shall not respond to Legal Requests related to City without first notifying City other than to notify the requestor that the information sought is potentially covered under a non-disclosure agreement. Contractor shall retain and preserve City Data in accordance with the City's instruction and requests, including, without limitation, any retention schedules and/or litigation hold orders provided by the City to Contractor, independent of where the City Data is stored.

8. *A new Exhibit 1A.3 (Schedule of Prices-Modification No. 5 Work) is added to the Agreement and is attached to this Modification.*
9. *A new Exhibit 2.3 (Payment Schedule—Modification No. 5 Work) is added to the Agreement and is attached to this Modification.*
10. *Exhibit 3A (Project Delivery Schedule) is replaced in its entirety by a new Exhibit 3A, attached to this Modification.*
11. *A new Section 12.2.4 (Track Brakes) is added to the Technical Specifications of the Agreement to read as follows (currently applicable to the Vehicles retrofitted under this Modification):*

12.2.4 Track Brakes

All trucks shall contain track brakes. Track brakes shall be used in all emergency braking modes as well as with manual, track brake-only applications.

12. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modification Nos. 1-4 and this Modification No. 5 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. 5, 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

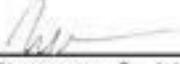
may include, but are not limited to, costs for labor, materials, equipment, disruption, lost productivity, escalation, delay, extended overhead, administration and extended performance time. Contractor releases the City from all claims for which full accord and satisfaction is made, as set forth above. Notwithstanding the foregoing, this Release does not apply to any 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 and 4.

13. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.
14. **Legal Effect.** Except as expressly modified by this Modification No. 5, 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. 5 on the date set forth on page 1 above.

CITY

San Francisco Municipal Transportation Agency



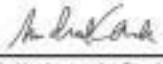
Thomas G. Maguire
Interim Director of Transportation

Approved as to Form:

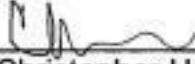
Dennis J. Herrera
City Attorney

By: Robin Reitzes
Robin M. Reitzes
Deputy City Attorney

CONTRACTOR



Michael Cahill
President



Christopher Halleus
Vice President, FBA

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

Attachments

Exhibit 1A.3 – Schedule of Prices – Modification No. 5 Work
Exhibit 2.3 – Payment Schedule - Modification No. 5 Work
Exhibit 3.A – Project Delivery Schedule

EXHIBIT 1A.3
Schedule of Prices – Modification No. 5 Work

ITEM	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE
Item 15.1	Non-recurring Costs for track brake, including engineering, testing, and updates to manuals.	Lump Sum	1	\$286,617
Item 15.2	Installation of track brakes on Phase 1 fleet.	\$22,486	8 Vehicles	\$179,888*
TOTAL				\$466,505**

Notes: * Prices reflect the total of all labor (\$245,924) and all materials (\$220,581) to retrofit and test track brakes.

**Prices do not include sales taxes.

Exhibit 2.3
PAYMENT SCHEDULE
(All Item references are to Exhibit 1A.3)

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%

EXHIBIT 3
PROJECT DELIVERY AND VEHICLE DELIVERY SCHEDULES

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
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	4/17/2017
Delivery of Additional Spare Parts (Exhibit 1 C)	TBD
Delivery of Spare Parts for Option Vehicles	TBD
Delivery of Training Simulator 2	TBD

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



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

Tom Maguire, Interim Director of Transportation

DATE: October 17, 2019

**MUNICIPAL TRANSPORTATION AGENCY
SFMTA SIGNATURE ROUTING**

SUBJECT: Requesting Signature from the Director of Transportation to execute Contract Modification No. 5 to Contract No. CPT 762, Procurement of New Light Rail Vehicles (LRV4) with Siemens Industry, Inc.

Modification No. 5 will commence design of and initiate the addition of track brakes to the power trucks as a method to reduce the size and frequency of flat spots on wheels caused by activation of the push button emergency brake (PBEB) in service. The change will provide operational commonality with the LRV2/3 vehicle in response to emergency brake applications initiated by the PBEB.

Final Routing	Approval Authority	Initials	Date	Comments
6	Leo Levinson, Director of Finance & Information Technology	LL	October 22, 2019	
5	Tom Maguire, Interim Director of Transportation	<i>TM</i>	October 22, 2019	
4	Robin Reitzes, Deputy City Attorney	RR	October 21, 2019	
3	Virginia Harmon, Manager of Contract Compliance	VR	October 19, 2019	
2	Trinh Nguyen, Manager Contracts & Procurement, Federal	TN	October 18, 2019	
1	Douglas Lee for Janet Gallegos Program and Delivery Support	DL	October 17, 2019	

Contact: Alexandra Hallowell at 415.646.4112



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

Tom Maguire, Interim Director of Transportation

DATE: November 25, 2019

**MUNICIPAL TRANSPORTATION AGENCY
SFMTA SIGNATURE ROUTING**

SUBJECT: Requesting signature from the Director of Transportation to execute Contract Modification No. 6 to Contract No. CPT 762, Procurement of New Light Rail Vehicles (LRV4) with Siemens Mobility, Inc.

Modification No. 6 will provide enhancements to the vehicle design including passenger comforts, updated operator cab features, and engineering refinements that improve fleet performance; and will 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.

Final Routing	Approval Authority	Initials	Date	Comments
6	Leo Levenson, Director of Finance & Information Technology	ll	December 4, 2019	
5	Julie Kirschbaum Director of Transit	JK	December 2, 2019	
4	Robin Reitzes, Deputy City Attorney	RR	November 27, 2019	
3	Virginia Harmon, Manager of Contract Compliance	ll	November 27, 2019	
2	Trinh Nguyen. Contract and Procurement Manager, Federal	TN	November 26, 2019	
1	Janet Gallegos LRV4 Program Manager, Program and Delivery Support	JG	November 26, 2019	

Contact: Janet Gallegos at 415.579.9791

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

**MODIFICATION NO. 6 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. 6 to Agreement is made and entered into on December 6, 2019, 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 (PBEB).
- H. The SFMTA now wishes to modify the Agreement to (i) update the Vehicles with multiple changes and enhancements to improve passenger comfort, operational functionality, and maintainability and fleet reliability, some of which will be installed in the field, and some by the Contractor during production of the Vehicles; (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 increase existing parent company guarantees and add a new parent company guarantee (corporate guarantee).

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

1. *Section 7.5 of the Agreement (Escalation) is replaced in its entirety to read as follows:*

7.5. Escalation. The SFMTA will make price adjustments to this Contract to protect Contractor from economic inflation as set forth below. This adjustment will apply to the Base Order Phase 2 Vehicles, the Option Vehicles (Section 64.1), the optional Train Simulator, the spare parts for Phase 2, and the Option spare parts and special tools (see Section 7.5.4 below).

2. *Section 7.5.1 of the Agreement (Sole Remedy for Cost Increases) is replaced in its entirety to read as follows:*

7.5.1. Sole Remedy for Cost Increases. This escalation adjustment shall be the sole remedy for any increases or decreases in the Contractor's costs for Phase 2 Vehicles, Option Vehicles, equipment, spare parts and special tools due to inflation or deflation. Adjustments will be calculated and applied independently for each Option exercised.

3. *Section 7.5.4 of the Agreement (Escalation for Price of Spare Parts) is replaced in its entirety to read as follows:*

7.5.4 Escalation for Price of Spare Parts and Special Tools. Any price adjustment for spare parts and special tools shall be determined according to the methodology described above for escalating the price of Vehicles and in accordance with the table below.

4. *Section 19.2 of the Agreement (Weight Limits and Incentives), is replaced in its entirety to read as follows :*

19.2. Weight Limits and Incentives

The nominal Vehicle weight shall be 78,770 pounds at AW0. Vehicles shall be weighed prior to delivery, and, for each pound in excess of the nominal weight, the City will deduct \$10 per pound per Vehicle from the Contractor's invoice. For each pound below the nominal weight, the City will pay an incentive payment of \$10 per pound per Vehicle. To allow for manufacturing variations, neither penalties nor incentives will be assessed on the first one percent in excess of or under the nominal weight. The SFMTA will reject Vehicles weighing in excess of 80,000 pounds at AW0 and shall not be required to pay any amount for rejected Vehicles.

The penalties or weight incentives due to Contractor as described above will be based on the average weight of the last 10 Vehicles delivered in Option 1 (Vehicles 2059 - 2068), taking into account SFMTA-directed changes on these 10 Vehicles as of the date of this Modification, without further recalculation. This average amount shall become the Agreed Delivery Weight for all Vehicles for the purpose of calculating weight incentives and penalties. All Vehicles will be weighed to determine whether they exceed the 80,000-pound weight limit without regard to penalties or incentives. This weight incentive is included as Bid Item 16 and will be paid in accordance with Exhibit 2.4, Bid Item 16.

5. *Section 59 (Reserved) of the Agreement is replaced with a new Section 59 (Production Acceleration Activities) to read as follows:*

59. Production Acceleration Activities

59.1. General. The Contractor agrees to accelerate delivery of the Phase 2 Vehicles, and perform all activities needed to establish a second production facility for carshells (Production Acceleration Activities), which will include:

- 59.1.1.** Facility Lease and Tenant Improvements. Enter into a lease and fit out a new carshell production facility with required infrastructure.
 - 59.1.2.** Production Equipment. Acquire and install crane, lifting, welding, and integration equipment.
 - 59.1.3.** Management and Supervision. Retain staff for production ramp-up management at satellite facility.
 - 59.1.4.** Logistics and Materials Handling. Establish site-specific materials management structures and processes.
 - 59.1.5.** Supplier Ramp-Up. Coordinate suppliers.
 - 59.1.6.** Industrial Engineering. Other costs associated with facility start-up.
- 59.2.** **Reimbursement**. The City shall reimburse the Contractor for the preliminary activities of the Production Acceleration Activities up to the amount set forth in Exhibit 1A, Item 21 (Initial Production Acceleration Activities) and according to the milestones in Exhibit 2.4, Item 21 (Production Acceleration). The Contractor shall deliver Phase 2 Vehicles in accordance with the milestones in Exhibit 3B (Vehicle Delivery Schedule).
- 59.3.** **Additional Modifications**
 - 59.3.1.** To maintain the accelerated schedule in Exhibit 3B, prior to February 28, 2020, the City must approve an additional Contract Modification to pay the Contractor for those Production Acceleration Activities costing in excess of the not-to-exceed amount in Item 21 of Exhibit 1A.4.
 - 59.3.2.** Should the City not approve such additional Modification, the Project Delivery Schedule would revert back to the non-accelerated Phase 2 delivery dates in Exhibit 3 of Modification No. 4 of the Agreement. In such a case, the Contractor shall be entitled to full payment for item 17 of Exhibit 1A.4, and the City shall not be responsible for any other costs related to the acceleration.

6. *Section 64.1 of the Agreement (Option for New Light Rail Vehicles) is deleted and replaced in its entirety to read as follows:*

64.1 Option for New Light Rail Vehicles. At the option of the City, the Contractor shall provide additional Vehicles in quantities indicated in the Schedule of Prices. Option 1 shall be for an additional 1 to 40 Vehicles and

Option 2 shall be for an additional 45 Vehicles. (See Item 7 on Exhibit 2 -- Payment Schedule.) Either Option may be executed at intervals and at any time within seven years after NTP. The price of Option Vehicles will be adjusted in accordance with Section 7.5 of this Agreement. Options will only be exercised to the extent that there is sufficient escalation allowance remaining to cover the escalated price.

7. *Section 64.3 of the Agreement (Spare Parts For Options) is deleted and replaced in its entirety to read as follows:*

64.3. Spare Parts and Special Tools. At the option of the City, Contractor shall provide spare parts and special tools (Item 9 on the Exhibit 2 Payment Schedule). The price of spare parts and special tools will be adjusted in accordance with Section 7.5 of this Agreement.

8. *Section 64.4 of the Agreement (Optional Train Simulator) is deleted and replaced in its entirety to read as follows:*

64.4. Optional Train Simulators. At the option of the City, Contractor shall provide six additional hybrid train simulators, as delivered under Item 4.2 of Exhibit 1A, and one additional training station (Item 10 on the Exhibit 2 Payment Schedule), as defined in Technical Specification Section 22.2.8. The price of optional train simulators will be adjusted in accordance with Section 7.5 of this Agreement.

9. *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. Exhibits 1A.1, 1A.2, and 1A.3 are deleted.*
10. *A new Exhibit 2.4 (Payment Schedule–Modification No. 6 Work) is added to the Agreement and is attached to this Modification.*
11. *Exhibit 3A (Project Delivery Schedule) of the Agreement is replaced in its entirety with a new Exhibit 3A (Project Delivery Schedule), which is attached to this Modification.*
12. *Exhibit 3B (Vehicle Delivery Schedule) of the Agreement is replaced in its entirety with a new Exhibit 3B (Vehicle Delivery Schedule), which is attached to this Modification.*
13. *Exhibit 6 is modified by adding a new Exhibit 6.5 (Phase 2 Corporate Guarantee Form), which is attached to this Modification. Additionally, 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 \$879,822 for*

the 24 Base Order Vehicles (Guarantee number 466742), \$1,466,371 for the Option 1 Vehicles (Guarantee number 484678) and \$146,637 for the Phase W Vehicles (Guarantee number 556963) until the Phase 1, Option 1, Phase W Modification 6 work is complete. To facilitate increases to the existing Guarantees, Contractor shall execute amended Guarantees upon approval of this Modification.

14. *Section 3.4 of the Technical Specification (Maintenance Requirements) is modified to add a new subsection 3 to read as follows:*
 3. The carbody shall include lockable, folding exterior steps allowing access to the roof.
15. *Subsection 3 of Section 5.3.4.1 (General) of the Technical Specification is modified to read as follows :*
 3. The deadman feature shall be active, and shall not delay when the brakes are applied.
16. *Section 5.3.5 (Emergency Stop Pushbutton) of the Technical Specification is modified to add subsection 2 to read as follows:*
 2. The emergency stop pushbutton shall be illuminated and of a twist-to-release style.
17. *Subsection 2 of Section 5.3.9 (Fire Extinguisher) of the Technical Specification is modified to read as follows :*
 2. The fire extinguisher shall be 5 lb. capacity.
18. *A new Section 5.3.10.4 (Track Iron Retention) is added to the Technical Specification to read as follows:*

5.3.10.4 Track Iron Retention

 1. The carbuilder shall supply adequate means to hold a standard track iron in place during revenue operations, subject to approval by the SFMTA.
19. *Subsection 1 of Section 6.3.4.3 (Operator's Console Door Control Pushbuttons) of the Technical Specification is modified to read as follows:*
 1. The door control panel shall include the following functions:
 - (a) Open/close right front door of the Vehicle with a blue button
 - (b) Open all right side doors
 - (c) Release all right side doors and enable passenger door controls
 - (d) Close/lock all right side doors

- (e) Open/close left front door of the Vehicle with a blue button
- (f) Open all left side doors
- (g) Release all left side doors and enable passenger door controls
- (h) Close/lock all left side doors

20. *Section 6.3.4.4 (Passenger Controls) of the Technical Specification is modified to add a new subsection 4 to read as follows:*

- 4. Each door portal shall include a “Keep Door Open” tape switch located on the door post cover closest to each door panel.

21. *Subsection 6 of Section 6.3.7 (Step System) of the Technical Specification is modified to read as follows:*

- 6. An audible and visual warning shall sound at the step location whenever the high/low switch is activated and 1.5 seconds prior to the steps changing position.

22. *Subsection 12 of Section 6.3.7 (Step System) of the Technical Specification is modified to read as follows:*

- 12. The front right step shall be capable of being operated in UP and DOWN position independently from the other steps by using a momentary switch on the operator control panel in the cab. This operation shall be available in the leading Vehicle only; the trailing Vehicle shall be unaffected.

23. *A new Section 15.1.10 (Additional Interfaces) is added to the Technical Specification to read as follows:*

15.1.10 Additional Interfaces

- 1. The interior shall include a passenger emergency stop button located on a corner hatch, one in each carbody half. Upon application, the push button shall command an irretrievable full service brake.

24. *Section 17.1 (Performance Requirements of the Technical Specification is modified to add subsections 2 and 3 to read as follows:*

- 2. The MDS system shall transmit all diagnostic information and the Vehicle mileage to the wayside when the LRVs are within range of the depots.
- 3. The Vehicle mileage shall be displayed on the train operator's display screen.

25. *Section 22.2.8 (Train Simulator) of the Technical Specification is modified to read as follows:*

1. The Contractor shall provide two hybrid functional cab simulators that mimic the operational functions with the following features (CDRL 60):
 - (a) Complete cab layout including cab seat and other typical cab equipment;
 - (b) Functional controls, including, but not limited to, throttle and brake stand, deadman, switches, indicator lights, horn, bell, gong, CCTV viewing screens;
 - (c) Viewing screen in place of the windshield with high quality graphics;
 - (d) Ability to simulate actual SFMTA lines and record round trip times and operator performance;
 - (e) Open architecture allowing interchangeable rolling stock controls;
 - (f) Work station for trainer monitoring

26. The table in Exhibit 7 lists all change orders that are incorporated into this Modification. Change Order Nos. 9-14, 18, and 21-24 are included in the above modifications to the Technical Specification.

Change Order Nos. 8, 15-20, and 25-27 (FAI Changes) are changes directed by the SFMTA after the First Article Inspection process in Section 20.9.3 of the Technical Specification (FAI Changes). The Contractor agrees to perform the following FAI Changes:

- A. Change Order 8 (Flip Seats) – Provide a four-passenger flip seat for 68 Phase 1, Option 1, and Phase W Vehicles in the multi-purpose area to allow the options of additional seating or standee capacity.
- B. Change Order 15 – (Relocate Clipper® Display Control Unit (DCU)). Relocate Clipper® DCU to improve the operator's camera view.
- C. Change Order 16 (Firetide Router Rotation) – Reinstall and rotate the Firetide router located in the cab of the Vehicle 180 degrees, reroute cables, and test.
- D. Change Order 17 (Additional Decals) – Add decals to the Vehicle, which includes the engineering work required to make the decal changes.
- E. Change Order 19 (Floor Hatch Fasteners) – Replace current hex hardware to Phillips head for all floor access hatches.
- F. Change Order 20 (Remove J-Holder for Advertising) – Remove the J-holder for advertising placards from corner hatches for Phase 2 vehicles.
- G. Change Order 25 (Track Brake Continued Installation) – Install track brakes on 60 Phase 1, Option 1, and Phase W Vehicles (completing the installation on all 68 Phase 1, Option 1, and Phase W Vehicles).

H. Change Orders 26 and 27 (Seating Design Development) – Perform preliminary design and engineering work for seats and carshell to realize transverse seating configurations requested by the SFMTA. (Implementation costs are not included and will be part of a future modification.)

These activities shall be compensated according to payment milestones as shown in Exhibit 2.4. These activities shall be completed as provided in Exhibits 3A and 3B.

27. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modifications Nos. 1-5 and this Modification No. 6 shall be full accord and satisfaction for all past, current and prospective costs incurred in connection with Contractor's performance of all work under the Contract up to and including the work covered under this Modification No. 6, 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 and 5.

28. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.

29. **Legal Effect.** Except as expressly modified by this Modification No. 6, 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. 6 on the date set forth on page 1 above.

CITY

San Francisco Municipal Transportation Agency


Thomas G. Maguire
Interim Director of Transportation

San Francisco Municipal Transportation Agency
Board of Directors
Resolution No. 191119-143
Dated: November 19, 2019

Attest:


R. Boerner
Secretary

Approved as to Form:

Dennis J. Herrera
City Attorney

By: 
Robin M. Reitzes
Deputy City Attorney

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Attachments

Exhibit 1A – Schedule of Prices
Exhibit 2.4 – Payment Schedule - Modification No. 6 Work
Exhibit 3.A and 3.B – Project Delivery Schedules
Exhibit 6.5 – Corporate Guarantee
Exhibit 7 – Modification No. 6 Change Orders

EXHIBIT 1A
Schedule of Prices

BASE

ITEM	ORIGINAL CONTRACT/ MOD NO.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ³
Item 1	Original	Engineering Design, Project Management and Design Qualification Testing	Lump Sum		\$37,541,102
Item 1.1	Original	Allowance for Regulatory- Mandated Changes, Requested Passenger Enhancements and System Modifications Resulting from Changes to Project Interfaces	Lump Sum		\$10,000,000
Item 2.1	Original	Vehicle Price for Base Order Phase 1	\$3,327,250	24 Cars	\$79,854,000
Item 2.2	Original	Vehicle Price for Base Order Phase 2	\$3,327,250 ¹	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	Original	Spare Parts (Total of Exhibit 1.B, Phase 1)	Lump Sum		\$14,153,840
Item 5.2	Original	Spare Parts (Total of Exhibit 1.B, Phase 2) ¹			
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 ²	40 Cars	\$133,970,800

Item 8.1	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 1)	Lump Sum		\$11,269,527
Item 8.2	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 2) ¹			
Item 9	Mod 1	Spare parts for Option Cars ¹	Lump Sum		\$15,000,000
Item 10	Mod 1	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) ¹	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	24 Cars	\$1,495,514
Item 12B	Mod 3	Base Phase 2	\$62,313 ¹	151 Cars	\$9,409,275
Item 13	Mod 3	Modification No. 3 Option 1 (Recurring Costs)	\$62,313	40 Cars	\$2,492,523
Item 14	Mod 4	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750	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, and Phase W Engineering Costs for Changes 8 – 25	Lump Sum	1	\$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, and 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 ¹	151 Cars	\$629,972
Item 20	Mod 6	Track Brake Installation on 60 Phase 1, Option 1, and Phase W Vehicles	\$21,411	60 Cars	\$1,284,660
Item 21	Mod 6	Initial Production Acceleration Activities	Lump Sum	1	\$5,603,000
				SUBTOTAL	\$856,314,899

Option

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

Escalation

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ³
Allowance	Original, Mod 6 adjustment	Allowance for Escalation in accordance with Agreement Section 7.5	n/a	n/a	\$186,531,183

Not to exceed CONTRACT LIMIT	\$1,192,651,577
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Notes:

¹ This price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement.

² Price for Item 7.1 includes escalation.

³ Prices do not include sales taxes.

Exhibit 2.4
PAYMENT SCHEDULE
 (All Item references are to Exhibit 1A)

Item 16 – Weight Incentives – *Actual amount will be determined when Vehicles are delivered.*

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 – Production Acceleration

	Milestone	Percent of Bid Item
A	Occupation of Facility for Change Order 28	50%
B	Completed Installation of Major Equipment Items (Crane, Integration and Lifting/Turning Equipment) for Change Order 28	50%

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, and 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, and 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, and 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, and 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 Phase 1, Option 1, and Phase W Cars, Completion of Installation of modifications for Track Brakes in 28 Cars (Change Order 25)	2/15/20
Contract Mod 6, Item 20.1 B – Retrofit Track Brakes in 60 Phase 1, Option 1, and Phase W Cars, Completion of Installation of modifications for Track Brakes in 48 Cars (Change Order 25)	3/15/20
Contract Mod 6, Item 20.1 C – Retrofit Track Brakes in 60 Phase 1, Option 1, and Phase W Cars, Completion of Installation of modifications for Track Brakes in 68 Cars (Change Order 25)	4/15/20
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

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

Item	Vehicle Delivery Date	Completion of	B. Vehicle Delivery Schedule ¹
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 st 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 th 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

		Acceptance Testing
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	10/8/2019	12/2/2019
LRV 2069	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
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
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
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
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

¹ This schedule assumes Contract Modification 6 NTP no later than November 30, 2019.

Exhibit 6.5
Phase 2 Corporate Guarantee



Guarantee November ... , 2019

RE: Procurement of New Light Rail Vehicles (LRV4) Contract No. SFMTA-2013-19 between Siemens Mobility Inc. (as successor by assignment from Siemens Industry Inc., hereafter "Obligor") and the City and County of San Francisco ("City"), through its Municipal Transportation Agency ("Beneficiary") dated September 29, 2014 ("Contract").

The Contract requires that Obligor provide a performance bond, labor and materials bond, warranty bond (the "bonds"), letters of credit or other security, as approved by the City's Risk Manager, to secure Obligor's performance, warranty and other obligations under the Contract. Siemens Corporation ("Guarantor") offers to provide Beneficiary with the following guarantee in lieu of the bonds or letters of credit required under the Contract for the Phase 2 Work, as set forth in Modification No. 6 of the Contract.

For value received, Guarantor, a corporation duly organized and validly existing under the laws of the state of Delaware, unconditionally guarantees to Beneficiary the prompt and complete payment when due, whether by acceleration or otherwise, of all amounts owing by Obligor under Phase 2 of the Contract (including any liquidated damages). If at any time Obligor fails, neglects or refuses to timely or fully pay any sum due under Phase 2 of the Contract, and if within 15 calendar days after the written notice of such failure from the Beneficiary and the expiration of any grace period applicable with respect thereto under the Contract, Obligor has not made such payment in full, then upon receipt of written notice from Beneficiary specifying such default, Guarantor shall promptly make such payment in immediately available funds to the order of the Beneficiary. This guaranty is one of payment and not of collection. If more expeditious and appropriate than a direct payment to SFMTA (and if agreed to by SFMTA and Guarantor), in the event of any default on the part of the Obligor regarding its obligations under Phase 2 of the Contract, Guarantor agrees to perform all such obligations under the Contract that are necessary to cure the default and complete performance of all such work under the Contract.

Guarantor waives notice of acceptance of this Guarantee and notice of any liability to which it may apply, and waives presentment, demand for payment, protest, and notice of dishonor or non-payment of any kind.

Beneficiary may at any time and from time to time without notice to or consent of the Guarantor and without impairing or releasing the obligations of the Guarantor hereunder: (1) agree to any change in the terms of any obligation or liability of the Obligor to Beneficiary under the Contract, (2) grant any waivers to Obligor, (3) take or fail to take any action of any kind in respect of Phase 2 of the Contract, or (4) exercise or refrain from exercising any rights against Obligor under the Contract. In addition, Guarantor agrees that its obligations hereunder shall not be impaired in any manner whatsoever by any bankruptcy, extensions, moratoria or other relief granted to Obligor.

Notwithstanding anything contained in this Guarantee to the contrary, Guarantor's liability under this Guarantee shall not exceed \$7,306,858.

With respect to any claim, action or proceeding against Guarantor in connection with this Guarantee, Guarantor shall be entitled to assert those defenses which Obligor would be able to assert if such claim, action or proceeding were to be asserted or instituted against Obligor based upon the Contract. By its acceptance hereof, reliance hereon, Beneficiary affirms to Guarantor any and all representations, warranties, and covenants made by the Beneficiary to the Obligor under the Contract.

This Guarantee shall continue in full force and effect until Guarantor gives Beneficiary notice of termination of this Guarantee, except that, notwithstanding any such termination, this Guarantee shall continue in full force and effect with respect to all obligations and/or liabilities incurred prior to such termination. Notwithstanding the foregoing, however, this Guarantee shall terminate and cease to be of further effect on the earlier of: (a) 2/24/2031; (b) the Acceptance or Conditional Acceptance of the last Vehicle of Phase 2, provided that the Contractor has furnished a separate Guarantee or other security for the warranty provisions that meets the requirements of section 15.2.4. of the Contract; (c) the end of the agreed warranty period of the Phase 2 Vehicles; (d) the date of any permitted assignment of Obligor's interest in the Contract; or (e) the Beneficiary has been provided with a replacement guaranty, letter of credit, or other financial accommodation from a party with a credit rating equal to or better than that of Guarantor as of the date of this Guarantee, which financial accommodation provides Beneficiary with no less protection than that which is contained in this Guarantee (the acceptance of such replacement guarantee being within the sole and reasonable discretion of the Beneficiary). Guarantor shall, as of such date (the "Expiration Date"), have no further obligations or liability under this Guarantee, whether or not the Guarantee is returned to the Guarantor. To the extent feasible, Beneficiary will return the original of this Guarantee to the Guarantor after the Expiration Date.

Nothing contained herein shall be construed as conferring any rights upon persons or entities other than the Beneficiary. This Guarantee shall be governed and construed in accordance with the laws of the State of California without giving effect to principles of conflicts of law. Guarantor submits, and by its acceptance hereof Beneficiary hereby submits, to the jurisdiction of the courts of the state of California and to federal courts located within the city of San Francisco. Neither Guarantor nor Beneficiary may assign its rights or delegate its duties without the written consent of the other party. Any amendments to this Guarantee must be in

writing. This Guarantee may be executed in counterparts, each of which, when taken together, shall be deemed to be one and the same instrument.

This Guarantee has been duly executed by authorized representatives of the Guarantor as follows:

SIEMENS CORPORATION

By: _____

*Name:

Title:

By: _____

*Name:

Title:

Accepted:

Municipal Transportation Agency

By _____
Thomas G. Maguire
Interim Director of Transportation

Approved as to Form:
Dennis J. Herrera, City Attorney

By _____
Robin M. Reitzes
Deputy City Attorney

Exhibit 7
Modification No. 6 Change Orders

Change Order No.	Description	Technical Specification (TS) Change vs. FAI Change	Total
8	Additional flip seats	FAI Change	\$702,959
9	Exterior carshell roof access steps	TS Change	\$831,846
10	Additional of door open tape switch	TS Change	No cost
11	Passenger emergency stop pushbutton	TS Change	No cost
12	MDS wireless communication to wayside	TS Change	\$93,237
13	Front step momentary switch	TS Change	\$74,642
14	Step audible and visual alert 1.5s before moving	TS Change	No cost
15	Relocation of Clipper® door control unit	FAI Change	\$60,300
16	Rotation of CCTV Firetide router	FAI Change	\$34,921
17	LRV4 decals	FAI Change	\$104,258
18	Bracket for 5lb. fire extinguisher	TS Change	No cost
19	Floor hatch fasteners to Philips head	FAI Change	No cost
20	Remove J-holder for advertising placards	FAI Change	No cost
21	Illuminated and twisting emergency stop pushbutton	TS Change	\$136,031
22	Reduce Deadman delay to zero seconds	TS Change	No cost
23	Track iron holder clips	TS Change	No cost
24	Change front door pushbutton to blue	TS Change	No cost
25	Track brakes - remainder of Phase 1, Option 1, and Phase W Vehicles	FAI Change	\$1,284,660
26	Engineering for interior seating - single transverse 50 Vehicles (2A)	FAI Change	\$714,694
27	Engineering for interior seating - double transverse 101 Vehicles (2B)	FAI Change	\$159,140
		Change Orders Total	\$4,196,688
n/a	Initial Production Acceleration Activities	n/a	\$5,603,000
		Mod. 6 Total	\$9,799,688

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 191119-143

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, Through Contract Modification Nos. 1 through 4, the SFMTA Board approved various updates to the vehicle design, the procurement of 44 additional LRVs (including four vehicles to provide enhanced service during basketball games and other events at the new Chase Center), the addition of optional spare parts and equipment, and miscellaneous other changes to 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 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; and,

WHEREAS, The proposed Contract Modification No. 6 will enhance the Phase 1 vehicle design with feedback-driven passenger comforts, including seating changes, updated operator cab features, and engineering refinements that improve overall fleet performance; will continue the installation of track brakes as a means to reduce flat wheels, and will finalize payment of weight incentives; and,

WHEREAS, Contract Modification No. 6 will also provide funding to advance Phase 2 long-lead 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 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 Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report and the Event Center Final Subsequent Environmental Impact Report 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 than those identified in those documents; and be it further

RESOLVED, That the SFMTA Board authorizes the Director of Transportation to execute Contract Modification No. 6 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., 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.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of November 19, 2019.



Secretary to the Board of Directors
San Francisco Municipal Transportation Agency



SFMTA

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	<i>*Lome Aseron signed on behalf of Virginia Harmon</i>
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, 7TH 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.

- o 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:


R. Boone
Secretary

Approved as to Form:

Dennis J. Herrera
City Attorney

By: 
Robin M. Reitzes
Deputy City Attorney

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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 ⁴
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 ¹
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 ²	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) ²⁵			
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 ³	40 Cars	\$133,970,800

Item 8.1	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 1) ⁵	Lump Sum		\$11,269,527
Item 8.2	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 2) ²⁵			
Item 9	Mod 1	Spare parts for Option Cars ^{2 5}	Lump Sum		\$15,000,000
Item 10	Mod 1	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) ²	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 ⁶	24 Cars	\$1,495,514
Item 12B	Mod 3	Base Phase 2	\$62,313 ^{2 6}	151 Cars	\$9,409,275
Item 13	Mod 3	Modification No. 3 Option 1 (Recurring Costs)	\$62,313 ⁶	40 Cars	\$2,492,523
Item 14	Mod 4	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750 ³	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 ²	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
				SUBTOTAL	\$889,828,945

Option

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

Escalation

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

Not to exceed CONTRACT LIMIT	\$1,192,651,577
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Notes:

- ¹ Allowance used and incorporated into Contract Modification No. 7, Items 26 and 27.
- ² This price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement.
- ³ Price includes escalation.
- ⁴ Prices do not include sales taxes.
- ⁵ 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.
- ⁶ 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 63rd 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">• Propulsion• Friction Brake• Air Comfort• Door Operators & Controls• Carbody• Train Control• Coupler• Communication	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 st 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 th 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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Change Order No.	Description	Technical Specification (TS) Change vs. FAI Change	Total
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
		Change Orders Total	\$22,614,493
n/a	Continued Acceleration Activities	n/a	\$19,899,553.00
	Additional Training	n/a	\$1,000,000
		Mod 7 Total	\$43,514,046

**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 than 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.

R.Boomer
Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

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

**MODIFICATION NO. 8 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)**

October 30, 2020

This Modification No. 8 to Agreement is made and entered into on _____, 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 enhancements to improve passenger comfort, operational functionality, and maintainability and fleet reliability; (ii) continue installation of the track brakes; and (iii) initiate activities for the accelerated Phase 2 delivery schedule.
- I.** On March 27, 2020, the City approved Modification No. 7 to the Agreement to (i) further update the Vehicle enhancements, including seating changes; (ii) complete installation of the track brakes; and (iii) complete activities for the accelerated Phase 2 delivery schedule.
- J.** The SFMTA now wishes to modify the Agreement to (i) further enhance the Vehicles, including adding larger cab monitors and a second sensitive edge to the middle doors; and (ii) delete fareboxes for 141 of the Vehicles. Modification No. 8 provides for engineering, testing and implementation of the cab monitors and door modifications on 40 Phase 1 Vehicles and the first 10 Phase 2 Vehicles. Implementation of the enhancements on the remaining LRVs to be procured under the Agreement will be included in a future modification.
- K.** Modification No. 8 expedites the start of this work in order to avoid Phase 2 production delays and to maximize the work accomplished during the subway shutdown.

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

- 1.** *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.*

2. *Exhibit 2 (Payment Schedule) of the Agreement is replaced in its entirety by a new Exhibit 2 (Payment Schedule), which is attached to this Modification.*
3. *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 Modification¹.*
4. *A new Exhibit 9 (Modification No. 8 Change Orders) is added to the Agreement and is attached to this Modification.*

Change Orders Nos. 41 and 43 are changes requested by the SFMTA after the First Article Inspection (FAI) process in Section 20.9.3 of the Technical Specification (FAI Changes).

- A. Change Order 41 (Rear View Monitors and Exterior Cameras Upgrade, Step 1) – Interim upgrade to touch-sensitive screens on Phase 1 vehicles and subsequent replacement with newly defined Phase 2 technology enhancements of larger monitors and improved cameras on 40 Phase 1 and 10 Phase 2 vehicles.
- B. Change Order 43 (Sensitive Edge on Middle Doors) – Both door leafs of the middle doors to be modified to each include a sensitive edge. Changes to the single end doors are being modified at Siemens' expense.

5. *Section 23.3.1 of the Technical Specifications (Fare Collection) is replaced in its entirety to read as follows:*

23.3.1 Fare Collection

1. Contractor shall supply and install a fare collection system compatible with the SFMTA LRT system per Section 23.1.2, except as specified below:
 - Fareboxes shall not be provided for Vehicles 2079 - 2219. Contractor shall install all materials and equipment necessary for the installation of such fareboxes, including the base and cables.

The Table below shows the current equipment on the existing fleet.

¹ Exhibit 3, Project Delivery and Vehicle Delivery Schedule, as included in this Modification 8, does not include any adjustments required by the ongoing effects of the COVID-19 Force Majeure event as notified to the SFMTA in serial letter SII-MTA-1127, et. al, which adjustments, if any, will be incorporated in a future Modification.

Table 23-1. Fare Collection

No.	Defined System	Equipment	Qty	Current Location
1-1	Fare Collection	Farebox	2	One in each cab
1-2		Drivers Console	2	One in each cab
1-3		Passenger Device	4	Two in each carbody half
1-4		Power Module	2	One for each carbody half

6. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modifications Nos. 1-7 and this Modification No. 8 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. 8, 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, 6 and 7.
7. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.
8. **Legal Effect.** Except as expressly modified by this Modification No. 8, 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. 8 on the date set forth on page 1 above.

CITY

San Francisco Municipal Transportation Agency


Jeffrey P. Tumlin
Director of Transportation

Approved as to Form:

Dennis J. Herrera
City Attorney

By: 
Robin M. Reitzes
Deputy City Attorney

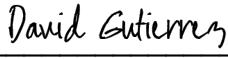
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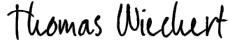
Attachments

Exhibit 1A – Schedule of Prices
Exhibit 2 – Payment Schedule
Exhibit 3 – Project Delivery Schedules
Exhibit 9 – Modification No. 8 Change Orders

CONTRACTOR

Siemens Mobility, Inc.


David Gutierrez
Director, Light Rail Projects


Thomas Wiechert
Director, FBA Light Rail Projects

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

EXHIBIT 1A

Schedule of Prices

BASE

ITEM	ORIGINAL CONTRACT/ MOD NO.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
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 ¹
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 ²	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) ²⁵			
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 ³	40 Cars	\$133,970,800

Item 8.1	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 1) ⁵	Lump Sum		\$11,269,527
Item 8.2	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 2) ^{2 5}			
Item 9	Mod 1	Spare parts for Option Cars ^{2 5}	Lump Sum		\$15,000,000
Item 10	Mod 1	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) ²	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 ⁶	24 Cars	\$1,495,514
Item 12B	Mod 3	Base Phase 2	\$62,313 ^{2 6}	151 Cars	\$9,409,275
Item 13	Mod 3	Modification No. 3 Option 1 (Recurring Costs)	\$62,313 ⁶	40 Cars	\$2,492,523
Item 14	Mod 4	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750 ³	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 ²	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
Item 29	Mod 8	Non recurring Costs Change Orders 41, 43	Lump Sum	1	\$1,000,546
Item 30	Mod 8	Recurring Costs Phase 1, Option 1 and Phase W			
Item 30.1	Mod 8	Recurring Costs Securitas Monitors Change order 41	\$6947	68 Cars	\$472,396
Item 30.2	Mod 8	Recurring Costs Phase 1, Option 1, Phase W, Retrofit of Door system changes (Change Order 43)	\$19,198	40 Cars	\$767,920
Item 30.3	Mod 8	Recurring Costs Phase 1, Options 1, Phase W Retrofit of Rear View Monitor system (Change Order 41)	\$38,201	40 Cars	\$1,528,040
Item 31	Mod 8	Recurring Costs Phase 2			
Item 31.1	Mod 8	Recurring Costs Phase 2 Recurring (Change Orders 41, 43)	\$24,395	10 Cars	\$243,950
Item 31.2	Mod 8	Recurring Costs Phase 2 Recurring costs (Change Orders 42)	- \$27,294	141 Cars	- \$3,848,454
				SUBTOTAL	\$889,993,343

Option

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

Escalation

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
Allowance	Original, Mod 6, Mod 7, Mod 8 adjustment	Allowance for Escalation in accordance with Agreement, Section 7.5	n/a	n/a	\$152,852,739

Not to exceed CONTRACT LIMIT	\$1,192,651,577
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Notes:

- ¹ Allowance used and incorporated into Contract Modification No. 7, 8 Items 26 - 35.
- ² This price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement.
- ³ Price includes escalation.
- ⁴ Prices do not include sales taxes.
- ⁵ 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.
- ⁶ 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 63rd 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 4.1		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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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

Item 29 – Non-Recurring Costs for Modification No. 8

	Milestone	Percent of Bid Item
A	Approval of FDR supplement (Change Orders 41, Monitors)	60 %
B	Approval of FDR Supplement (Change Orders 43, Doors)	40 %

Item 30 – Recurring Costs for Modification No. 8 – Phase 1, Option 1, Phase W – Securitas Monitors

	Milestone	Percent of Bid Item
30.1	Installation, testing and acceptance of Modifications in 68 Phase 1, Option 1, Phase W Cars (Change Order 41)	100% Per Vehicle
30.2	Installation, testing and acceptance of Door Modifications in 40 Phase 1, Option 1, Phase W Cars (Change Order 43)	100% Per Vehicle
30.3	Installation, testing and acceptance of Modifications Rear View Monitor System in 40 Phase 1, Option 1, Phase W Cars (Change Order 41)	100% Per Vehicle

Item 31.1 – Recurring Costs for Modification No. 8 – 10 Phase 2 Vehicles, (Change Orders 41, 43)

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

Item 31.2 – Recurring Costs for Modification No. 8 – 141 Phase 2 Vehicles, (Change Orders 42)

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

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 Cars Phase 1, Option 1, Phase W, Completion of Installation of modifications for Track Brakes in 28 Cars (Change Order 25)	2/15/2020

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
Contract Mod 8, Item 29 – Approval of FDR Supplement for Modification of Rear View Monitor System (Change Order 42)	12/15/2020
Contract Mod 8, Item 30 – Approval of FDR Supplement for Modification of Door System (Change Order 43)	12/31/2020
Contract Mod 8, Item 31 – Completion of Retrofit of Securitas Monitors for 68 vehicles Phase 1, Option 1, Phase W (Change Order 41)	10/31/2020
Contract Mod 8, Item 32 – Completion of Retrofit of Door Modification for 40 Phase 1, Option 1, Phase W Vehicles (Change Order 43)	12/22/2022
Contract Mod 8, Item 33 – Completion of Retrofit of Rear View Monitor System for 40 Phase 1, Option 1, Phase W Vehicles (Change Order 41)	8/31/2021

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 st 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 th 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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Item	Vehicle Delivery Date	Completion of Acceptance Testing
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

Exhibit 9
Modification No. 8 Change Orders

Change Order No.	Description	Technical Specification (TS) Change vs. FAI Change	Total
41	Upgrades and replacements including interim upgrade to touch-sensitive screens on Phase 1 vehicles and subsequent replacement with newly defined Phase 2 technology enhancements of larger monitors and improved cameras on 40 Phase 1 and 10 Phase 2 vehicles	FAI Change	\$2,811,825
42	Farebox Phase 2 Scope Reduction (Provision of fareboxes only on cars 2079 – 2219)	TS Change	(\$3,848,454)
43	Additional Sensitive Edge on Middle Doors (Engineering, 40 Phase 1, Option 1, Phase W Vehicles; 10 Phase 2 Vehicles)	FAI Change	\$1,201,027
		Mod 8 Total	\$164,398

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

**MODIFICATION NO. 9 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. 9 to Agreement is made and entered into on _____, 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 enhancements to improve passenger comfort, operational functionality, and maintainability and fleet reliability; (ii) continue installation of the track brakes; and (iii) initiate activities for the accelerated Phase 2 delivery schedule.
- I.** On March 27, 2020, the City approved Modification No. 7 to the Agreement to (i) further update the Vehicles enhancements including seating changes; (ii) complete installation of the track brakes; and (iii) complete activities for the accelerated Phase 2 delivery schedule.
- J.** On October 30, 2020, the City approved Modification No. 8 to the Agreement to (i) further modify the Vehicles including adding larger cab monitors and a second sensitive edge to the middle doors; and (ii) delete fareboxes for 141 of the Vehicles; as well as expedite work to avoid Phase 2 production delays.
- K.** The SFMTA now wishes to modify the Agreement to add design refinements for Phase 2 production and updates to Phase 1 Vehicles, including (i) upgrading the center doors with additional sensing capabilities; (ii) completing installation of larger monitors and improved cameras initiated in Modification No. 8; (iii) making changes to the operator cab and controls in response to operator feedback; and (iv) providing for the next-generation Clipper equipment implementation on LRV4. In addition, using funds from the escalation allowance, the parties have resolved an issue regarding Phase 2 Vehicle escalation costs. These changes do not increase the overall Contract amount.

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

1. *Section 29 (Subcontracting) is amended in its entirety to read as follows:*

Contractor may subcontract portions of the Work only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the performance of the Work. City's execution of this Agreement constitutes its approval of the major subcontractors/suppliers listed below. Neither party shall contract on behalf of or in the name of the other party. Any agreement made in violation of this provision shall be null and void.

	COMMODITY	SUPPLIER
1	Automatic Passenger Counting System (APC)	INIT
2	Advanced Train Control System (ATCS)	Thales
3	CCTV System	Kratos, Securitas, DTI Group, Televic
4	Communications - Radio	Harris
5	Doors	Ultimate Transportation N. America
6	Event Recorder	Hasler Rail
7	Friction Brake System	Tec Tran Brakes (Wabtec)
8	Heating, Ventilation and Air Conditioning (HVAC)	Thermo King Corp.
9	Passenger Information System, Infotainment (PIS)	Televic
10	CAD/AVL	Xerox, Conduent
11	Couplers	Voith
12	Lighting (exterior)	TDG
13	Lighting (interior)	TDG
14	Pantograph	Schunk
15	Sanders	Knorr
16	Seats (passenger)	Freedman Seating Company
17	Seats (driver)	Seats Incorporated
18	Steps	Vapor Stone Rail Sys (Wabtec)
19	Train to Wayside Communication System	Vecom

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. Price items reflect escalation totaling 14.7091% cumulatively over 5 years and 8 months. The Phase 2 Vehicle price (Exhibit 1A, item 2.2) of \$3,826,439 reflects escalation.*

3. *Exhibit 2 (Payment Schedule) of the Agreement is replaced in its entirety by a new Exhibit 2 (Payment Schedule), which is attached to this Modification.*
4. *Exhibit 3A (Project Delivery Schedule) of the Agreement is replaced in its entirety with a new Exhibit 3A (Project Delivery Schedule), which is attached to this Modification.¹*
5. *Exhibit 5, Section 1.1.3 (Exceptions to Warranty) is amended in its entirety to read as follows:*

The warranty shall not apply to scheduled maintenance items and items furnished by the SFMTA, except to the extent such equipment may be damaged by the failure of a part or component for which the Contractor is responsible.

The warranty on owner-specified Clipper equipment (purchased and installed by Contractor) shall be for one year. However, related brackets, wiring, and similar hardware used by Contractor to install the Clipper equipment are not included as owner-specified Clipper equipment.

The Contractor is not required to provide a warranty on owner-specified Genfare farebox equipment (purchased and installed by Contractor) after Vehicle Acceptance.

6. *Exhibit 6 of the Agreement, as amended, is further modified; the Contractor shall increase the existing Parent Company Guarantees to reflect the increase in the Contract Amounts for each one, respectively, as follows, until the work is complete:*

- \$1,576,757 for the 24 Base Order Vehicles (Guarantee number 466742);
- \$2,627,929 for the Option 1 Vehicles (Guarantee number 484678);
- \$262,793 for the Phase W Vehicles (Guarantee number 556963);
- \$36,663,876 for the Phase 2 Vehicles (Guarantee number 634590)

Contractor shall execute amended Guarantees upon execution of this Modification.

7. *A new Exhibit 10 (Modification No. 9 Change Orders) is added to the Agreement and is attached to this Modification.*

Change Order Nos. 44-49, and 54-55 are changes requested by the SFMTA after the First Article Inspection (FAI) process in Section 20.9.3 of the Technical

¹ Exhibit 3A, Project Delivery, as included in this Modification No. 9, does not include any time adjustments that might be required by the ongoing effects of the COVID-19 pandemic, as notified to the SFMTA in serial letter SII-MTA-1127, and subsequent letters.

Specifications (FAI Changes).

- A. Change Order 44 (Sensitive Edge on Middle Doors) – Complete implementation of new door specification for both door leafs of the middle doors to be modified to each include a sensitive edge. This change, initiated in Contract Modification 8, covers remaining installations for 28 Phase 1 and 141 Phase 2 Vehicles.
- B. Change Order 45 (Rear View Monitors and Exterior Cameras Upgrade) – Complete planned upgrades and replacements including interim upgrade to touch-sensitive screens on Phase 1 Vehicles and subsequent replacement with newly defined Phase 2 technology enhancements of larger monitors and improved cameras. This change, initiated in Contract Modification No. 8, covers remaining installations for 28 Phase 1 and 141 Phase 2 Vehicles.
- C. Change Order 46 (Additional Cab Mirrors) – Add adjustable mirror allowing operators to look through the curved cab wall at passengers in the lead car.
- D. Change Order 47 (Master Controller Additional Adjustability) – Increase adjustability of the master controller towards the dash.
- E. Change Order 48 (Reversal of Sanding and Gong Footswitches) – Reverse the position of the sanding and gong footswitches.
- F. Change Order 49 (Moving Flasher Light Button) – Move the emergency light pushbutton to a location accessible by the operator's right hand.
- G. Change Order 54 (Tow Bars and Strap Adaptors) – Provide an additional 18 tow bars and 18 strap adaptors over and above the two of each previously supplied during Phase 1 implementation.
- H. Change Order 55 (Interior Seating Mock-Up) – Provide a seating mock-up to demonstrate the new interior layouts previously approved and funded under Contract Modification No. 7, and refine design concepts prior to serial production for Phase 2 Vehicles, and prior to the retrofit of previously Accepted Vehicles.

8. *Section 15.1.4.1 of the Technical Specification (Seat Construction) is modified to add a new subsection 2 to read as follows:*

- 2. The seat construction and attachments of the seat to the carbody shall also comply with APTA-RT-LRT-RP-001-11 and be tested accordingly.

9. *Section 22.2.7.3 of the Technical Specification (On-Site Personnel) is modified to add a new subsection 2 to read as follows (Change Order 53):*

- 2. Contractor shall provide maintenance support to augment SFMTA capabilities and capacity to manage wheel slide incidents and tire replacements, including the replacement of up to 20 cars of tires.

10. *Section 23.3.1 of the Technical Specification (Fare Collection), is replaced in its entirety (Change Orders 50-52) to read as follows:*

23.3.1 Fare Collection

1. Contractor shall supply and install a fare collection system compatible with the SFMTA LRT system, as specified in the table below for Vehicles 2001-2068.

Table 23-1. Fare Collection

No.	Defined System	Equipment	Qty	Current Location
1-1	Fare Collection	Farebox	2	One in each cab
1-2		Drivers Console	2	One in each cab
1-3		Passenger Device	4	Two in each carbody half
1-4		Power Module	2	One for each carbody half

2. Beginning with Phase 2, Contractor shall make provisions for owner-supplied fare collection equipment for both cash (Genfare) and electronic fare collection (Clipper C2 next generation) systems. Provisions shall include power, cabling, connections, and attachment points specific to equipment provided by the SFMTA. Contractor shall make provisions for a fare collection system compatible with the SFMTA LRT system per Section 23.1.2, as specified below:
 - Contractor shall provide fareboxes for Vehicles 2069 – 2078, but not for Vehicles 2079 and beyond. Contractor shall install all materials and equipment necessary for the installation of such fareboxes, including the base and cables.
 - Clipper C2 equipment (driver's consoles, passenger devices, and power modules) shall not be provided for Vehicles 2069 and beyond.
 - For Clipper power provisions, Contractor shall provide electrical circuit breakers appropriate for C2 equipment.
 - For Clipper wiring, Contractor shall provide 50 C2 wiring harnesses; required harnesses beyond 50 will be owner-supplied. Contractor shall install wiring harnesses on all Vehicles.
 - For the Clipper antenna, Contractor shall install the C2 Clipper antenna, which will be owner-supplied equipment.

11. **Release.** Contractor acknowledges and agrees that the amounts agreed for the work described in Modifications Nos. 1-8 and this Modification No. 9 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. 9, 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, 6, 7, and 8.

12. **Effective Date.** Each of the amendments set forth above shall be effective on and after all parties have signed the Amendment.
13. **Legal Effect.** Except as expressly modified by this Modification No. 9, 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. 9 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.
Dated:

Attest:

Secretary

Approved as to Form:

Dennis J. Herrera
City Attorney

By:

Robin M. Reitzes
Deputy City Attorney

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Attachments

Exhibit 1A – Schedule of Prices
Exhibit 2 – Payment Schedule
Exhibit 3A – Project Delivery Schedule
Exhibit 10 – Modification No. 9 Change Orders

CONTRACTOR

Siemens Mobility, Inc.

Michael Cahill

Michael Cahill
President

Christopher Halleus

Christopher Halleus
Vice President, FBA

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

EXHIBIT 1A

Schedule of Prices

BASE

ITEM	ORIGINAL CONTRACT/ MOD NO.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
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 ¹
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	\$3,826,439 ³	151 Cars	\$577,792,289
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) ²⁵			
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 ³	40 Cars	\$133,970,800

Item 8.1	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 1) ⁵	Lump Sum		\$11,269,527
Item 8.2	Mod 1	Additional Spare Parts (Exhibit 1.C Phase 2) ^{2 5}			
Item 9	Mod 1	Spare parts for Option Cars ^{2 5}	Lump Sum		\$15,000,000
Item 10	Mod 1	Train Simulator (2) (In accordance with Section 22.2.8 of Technical Specifications) ²	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 ⁶	24 Cars	\$1,495,514
Item 12B	Mod 3	Base Phase 2	\$62,313 ⁶	151 Cars	\$9,409,275
Item 13	Mod 3	Modification No. 3 Option 1 (Recurring Costs)	\$62,313 ⁶	40 Cars	\$2,492,523
Item 14	Mod 4	Modification No. 4 (Vehicle Price for Phase W)	\$3,968,750 ³	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		\$714,694
Item 17.3	Mod 6	Phase 2 Preliminary Design Work, Double Transverse Seat	Lump Sum		\$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	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		\$5,603,000
Item 22	Mod 7	Continued Production Acceleration Activities	Lump Sum		\$19,899,553
Item 23	Mod 7	Engineering Costs for Modification 7 (Change Orders 28-36, 38-40)	Lump Sum		\$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 ²	101 Cars	\$8,711,654
Item 28	Mod 7	Additional Training Allowance	Lump Sum		\$1,000,000
Item 29	Mod 8	Non recurring Costs Change Orders 41, 43	Lump Sum		\$1,000,546
Item 30	Mod 8	Recurring Costs Phase 1, Option 1 and Phase W			
Item 30.1	Mod 8	Recurring Costs Securitas Monitors Change order 41	\$6,947	68 Cars	\$472,396
Item 30.2	Mod 8	Recurring Costs Phase 1, Option 1, Phase W, Retrofit of Door system changes (Change Order 43)	\$19,198	40 Cars	\$767,920
Item 30.3	Mod 8	Recurring Costs Phase 1, Options 1, Phase W Retrofit of Rear View Monitor system (Change Order 41)	\$38,201	40 Cars	\$1,528,040
Item 31	Mod 8	Recurring Costs Phase 2			
Item 31.1	Mod 8	Recurring costs Phase 2 Recurring (Change Orders 41, 43)	\$24,395	10 Cars	\$243,950
Item 31.2	Mod 8	Recurring costs Phase 2 Recurring costs (Change Orders 42)	- \$27,294	141 Cars	- \$3,848,454
Item 32	Mod 9	Non-recurring costs	Lump Sum		\$885,063
Item 33	Mod 9	Tire replacement per truck set	\$65,477	20 Cars	\$1,309,540
Item 34	Mod 9	Retrofit of door system changes Change Order 44	\$18,589	28 Cars	\$520,492

Item 35	Mod 9	Retrofit of rear view monitor system Change Order 45	\$37,759	28 Cars	\$1,057,252
Item 36	Mod 9	Retrofit of Phase 1 Change Orders 46 to 52	\$14,445	68 Cars	\$982,260
Item 37	Mod 9	Phase 2 recurring costs - Change Orders 44 & 45	\$18,021	141 Cars	\$2,540,961
Item 38	Mod 9	Phase 2 Recurring costs Orders 46 to 52	-\$18,133	151 Cars	-\$2,738,083
Item 39	Mod 9	Retrofit of Phase 2 Change Orders 46 to 49	Lump Sum	15 Cars	\$150,436
				SUBTOTAL	\$970,078,803

Option

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
Item 7.2		Option 2 for 1 to 45 additional Light Rail Vehicles	\$3,329,011 ²	45 Cars	\$149,805,495

Escalation

ITEM	CONTRACT MOD.	DESCRIPTION	UNIT PRICE	QUANTITY	EXTENDED PRICE ⁴
Allowance	Original, Mod 6, Mod 7, Mod 8 adjustment	Allowance for escalation in accordance with Agreement, Section 7.5	n/a	n/a	\$72,767,279

Not to exceed CONTRACT LIMIT	\$1,192,651,577
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Notes:

- ¹ Allowance used and incorporated into Contract Modification Nos. 7 and 8 (Items 26-35).
- ² This price does not include escalation. Escalation will be applied in accordance with Section 7.5 of the Agreement; the parties have agreed that the escalation will be 14.7091% for Phase 2, items 5.2 and 8.2.
- ³ Price includes escalation. Item 2.2 includes escalation required on items 2.1, 12B, and 19, as per letter SII-MTA 1301, which is incorporated herein by reference as though fully set forth.
- ⁴ Prices do not include sales taxes.
- ⁵ The prices of spare parts (recorded in Exhibits 1B and 1C - Nominal Spare Parts) that are affected by the changes (trucks, wheels, seats) in Modification No. 7 will be adjusted to reflect the cost of those changes as presented in the Change Orders.
- ⁶ 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 Acceptance 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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 63rd 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 Acceptance 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 Acceptance 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 Acceptance 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 Acceptance 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 Acceptance 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 Acceptance 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 approval 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 approval 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 approval 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"> • Propulsion • Friction Brake • Air Comfort • Door Operators & Controls • Carbody • Train Control • Coupler • Communication 	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 approval 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 Acceptance 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 for approval of 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 approval of 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%
	Total for Item 17.1	100%

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%
	Total for Item 17.2	100%

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%
Total for Item 20		100%

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%
Total for Item 21		100%

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%
Total for Item 22		100%

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%
Total for Item 23		100%

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, and 33 Phase 1, Option 1, Phase W Cars	50%
B	Completion of installation of modifications in 34 Cars for Change Orders 28, 30, 31, and 33 Phase 1, Option 1, Phase W Cars	50%
	Total for Item 24	100%

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

Item 29 – Non-Recurring Costs for Modification No. 8

	Milestone	Percent of Bid Item
A	Approval of FDR supplement (Change Order 41)	60%
B	Approval of FDR supplement (Change Order 43 - Doors)	40%
	Total for Item 29	100%

Item 30 – Recurring Costs for Modification No. 8 – Phase 1, Option 1, Phase W

Item 30.1 – Modifications for Change Order 41 (Securitas Monitors)

	Milestone	Percent of Bid Item
A	Installation, testing and Acceptance of modifications in 68 Phase 1, Option 1, Phase W Cars (Change Order 41)	100% Per Vehicle

Item 30.2 – Modifications for Change Order 43 (Doors)

	Milestone	Percent of Bid Item
A	Installation, testing and Acceptance of door modifications in 40 Phase 1, Option 1, Phase W Cars (Change Order 43)	100% Per Vehicle

Item 30.3 – Modifications for Change Order 41 (Rear View Monitors)

	Milestone	Percent of Bid Item
A	Installation, testing and Acceptance of modifications to rear view monitor system in 40 Phase 1, Option 1, Phase W Cars (Change Order 41)	100% Per Vehicle

Item 31 - Recurring Costs for Modification No. 8, Phase 2

Item 31.1 – Recurring Costs for Modification No. 8 – 10 Phase 2 Vehicles, (Change Orders 41, 43)

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

Item 31.2 – Recurring Costs for Modification No. 8 – 141 Phase 2 Vehicles, (Change Orders 42)

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

Item 32 – Non-Recurring Costs for Modification No. 9

	Milestone	Percent of Bid Item
A	Tire replacement set-up complete (Change Order 53)	30%
B	Shipment and approval of tow bars and strap adaptors (Change Order 54)	30%
C	Field modification instructions (FMIs) approved for Change Orders 46-52	40%
Total for Item 32		100%

Item 33 – Costs for Modification No. 9 - Tire Replacement

	Milestone	Percent of Bid Item
A	Tire replacement for trucks on 20 Cars (60 trucks total) complete, returned, and Accepted by SFMTA (Change Order 53)	100% per truck

Item 34 – Recurring Costs for Modification No. 9 Retrofit of Door Systems – 28 Phase 1, Option 1, Phase W Vehicles

	Milestone	Percent of Bid Item
A	Retrofit of door systems (Change Order 44)	100% per Vehicle

Item 35 – Recurring Costs for Modification No. 9 Retrofit of Rear View Monitor Systems – 28 Phase 1, Option1, Phase W Vehicles

	Milestone	Percent of Bid Item
A	Retrofit of rear view monitor systems (Change Order 45)	100% per Vehicle

Item 36 – Recurring Costs for Modification No. 9 – 68 Phase 1, Option 1, Phase W Vehicles

	Milestone	Percent of Bid Item
A	Retrofit of operator cab and Clipper equipment (Change Orders 46-52)	100% per Vehicle

Item 37 – Recurring Costs for Modification No. 9 – 141 Phase 2 Vehicles, (Change Orders 44 and 45)

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

Item 38 – Recurring Costs for Modification No. 9 – 151 Phase 2 Vehicles, (Change Orders 46 to 52)

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

Item 39 – Costs for Modification No. 9 – Retrofit of 15 Phase 2 Vehicles, (Change Orders 46 to 49)

	Milestone	Percent of Bid Item
A	Completion of cab improvement modifications Retrofit of 15 Phase 2 Vehicles, (Change Orders 46 to 49)	100%

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 3, Item 12 Completion Of Vehicle Modifications In Base Vehicles (Modification 3)	Per Vehicle Delivery
Contract Mod 3, Item 13 Completion of Vehicle Modifications in Option 1 Vehicles (Modification 3)	Per Vehicle Delivery
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 - 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 - 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 – 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 Cars Phase 1, Option 1, Phase W, Completion of Installation of modifications for Track Brakes in 28 Cars (Change Order 25)	2/15/2020

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 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 26 – Completion of Installation of Vehicle modifications for Modification No. 7 – 50 Phase 2 Vehicles	Per Phase 2 Vehicle Delivery
Contract Mod 7, Item 27 – Completion of Installation of vehicle modifications for Modification No. 7 – 101 Phase 2 Vehicles	Per Phase 2 Vehicle Delivery
Contract Mod 8, Item 29 A – Approval of FDR Supplement for Modification of Rear View Monitor System (Change Order 42)	12/15/2020
Contract Mod 8, Item 29 B – Approval of FDR Supplement for Modification of Door System (Change Order 43)	12/31/2020
Contract Mod 8, Item 30.1 – Completion of Retrofit of Securitas Monitors for 68 vehicles Phase 1, Option 1, Phase W (Change Order 41)	10/31/2020
Contract Mod 8, Item 30.2 – Completion of Retrofit of Door Modification for 40 Phase 1, Option 1, Phase W Vehicles (Change Order 43)	12/22/2022
Contract Mod 8, Item 30.3 – Completion of Retrofit of Rear View Monitor System for 40 Phase 1, Option 1, Phase W Vehicles (Change Order 41)	8/31/2021
Contract Mod 8, Item 31.1 Completion of Installation of Door and Rear View Monitors upgrades for 10 Phase 2 Vehicles (Change Order 41, 43)	Per Phase 2 Vehicle Delivery
Contract Mod 9, Item 32 A – Tire Replacement Set Up Complete (Change Order 53)	12/15/2022
Contract Mod 9, Item 32 B – Shipment and Approval of Tow Bars and Strap Adaptors (Change Order 54)	12/24/2021
Contract Mod 9, Item 32 C – FMIs Approved for Change Orders 46-52	12/15/2022
Contract Mod 9, Item 33 – Tire Replacement for Trucks on 20 Cars complete, returned, and Accepted by SFMTA (Change Order 53)	12/15/2022
Contract Mod 9, Item 34 – Retrofit of Door Systems (Change Order 44)	12/15/2022
Contract Mod 9, Item 35 – Retrofit of Rear View Monitor Systems (Change Order 45)	3/31/2022
Contract Mod 9, Item 36 – Retrofit of Operator Cab and Clipper Equipment (Change Orders 46-52)	12/15/2022
Contract Mod 9, Item 37 – Completion of Installation of vehicle modifications for Modification No. 9 – 141 Phase 2 Vehicles, (Change Orders 44 and 45)	Per Phase 2 Vehicle Delivery
Contract Mod 9, Item 38 – Completion of Installation of vehicle modifications for Modification No. 9 – 151 Phase 2 Vehicles, (Change Orders 46 to 52)	Per Phase 2 Vehicle Delivery
Contract Mod 9, Item 39 – Retrofit of 15 Phase 2 Vehicles, (Change Orders 46 to 49)	2/28/2022

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

Exhibit 10
Modification No. 9 Change Orders

Change Order No.	Description	Technical Specification (TS) Change vs. FAI Change	Total
44	Sensitive Edge on Middle Doors (NRE + 141 Phase 2 + 28 Phase 1)	FAI Change	\$1,052,370
45	Rear View Monitors and Exterior Cameras Upgrade (141 Phase 2 + 28 Phase 1)	FAI Change	\$3,066,407
46	Additional Cab Mirrors	FAI Change	\$494,662
47	Master Controller Additional Adjustability	FAI Change	\$701,625
48	Reversal of Sanding and Gong Footswitches	FAI Change	\$53,768
49	Moving Flasher Light Button	FAI Change	\$218,707
50	Clipper Equipment Deduction (Contractor no longer providing system equipment for Phase 2)	TS Change	-\$3,157,709
51	Clipper Next Generation Design Changes	TS Change	\$56,656
52	Clipper Next Generation Wiring Retrofits	TS Change	\$287,497
53	Tire Replacement Support	TS Change	\$1,593,750
54	Tow Bars and Strap Adapters	FAI Change	\$281,703
55	Interior Seating Mock Up	FAI Change	\$58,485
		Change Orders Total	\$4,707,921
		Escalation	\$75,377,539
		Mod 9 Total	\$80,085,460

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 14-120

WHEREAS, The San Francisco Municipal Transportation Agency (“SFMTA”) currently operates a fleet of 151 light rail vehicles (LRVs), which are scheduled for retirement starting in 2021; and,

WHEREAS, The start of revenue service for the Central Subway Extension will require an additional 24 light rail vehicles to be delivered by 2018; and,

WHEREAS, Ridership projections and planned service expansions indicate a need for an additional 85 light rail vehicles over the next ten years; including 40 light rail vehicles needed between 2018 and 2021; and,

WHEREAS, In order to procure new LRVs to meet these anticipated needs, the SFMTA issued a Request for Qualifications in March 2013 seeking Statements of Qualification (SOQs) from LRV car builders; and,

WHEREAS, The SFMTA received SOQs from four car builders, and after evaluating the SOQs, found all four car builders eligible to continue on to the Request for Proposals (RFP) phase of the procurement; and,

WHEREAS, In September 2013, the SFMTA issued an RFP for the procurement of up to 260 LRVs, with a scope of work that includes the design, manufacture, delivery and test of LRVs, together with associated services, spare parts, special tools, training and documentation; and,

WHEREAS, In February 2014, the SFMTA received proposals from two car builders; after reviewing the proposals, the selection panel determined Siemens Industry, Inc. to be the highest-ranked proposer; and,

WHEREAS, The SFMTA has negotiated a final agreement with Siemens Industry, Inc., to procure up to 260 LRVs, associated services, spare parts, special tools, training and documentation, for an amount not to exceed \$1,192,651,577, and a term not to exceed 15 years; and,

WHEREAS, The base portion of the contract for 175 LRVs will be funded with federal, state and local funds; and

WHEREAS, The Department of City Planning has determined that the replacement and expansion vehicle portions of the procurement are statutorily exempt under Section 21080(b)(11) of the California Resources Code and Section 15275(a) of the implementing CEQA Guidelines because those portions of the procurement involve an increase of service on rail lines already in use; and

WHEREAS, The vehicles for the Central Subway Project were reviewed as part of the Central Subway Final Supplemental EIS/EIR, certified by the Planning Commission on August 7, 2008, and on August 19, 2008 this Commission, in Resolution No. 08-150 adopted the findings and conclusions with respect to Central Subway Final Supplemental EIS/EIR; and based upon this Commission's review of the Final Supplemental EIS/EIR, the Commission finds that no additional environmental review is required under Public Resources Code section 21166; now, therefore, be it,

RESOLVED, That the SFMTA Board of Directors authorizes the Director of Transportation to execute SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles (LRV4), with Siemens Industry, Inc., to procure up to 260 LRVs, associated services, spare parts, special tools, training and documentation, in an amount not to exceed \$1,192,651,577, and for a term not to exceed 15 years; subject to FTA's resolution of the protest submitted to them by CAF USA; and be it further

RESOLVED, That the SFMTA Board of Directors authorizes the Director of Transportation to enter into negotiations with Siemens Industry, Inc. to provide financing for approximately 40 Option vehicles to be delivered between 2018 and 2021 should SFMTA determine that such financing is feasible and advantageous to the Agency, with any final financing agreement to be approved by this Board; and be it further

RESOLVED, That the SFMTA Board of Directors urges the Board of Supervisors to approve this Agreement.

I certify that the foregoing resolution was adopted by the Municipal Transportation Agency Board of Directors at its meeting of July 15, 2014.

Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 15-019

WHEREAS, On July 15, 2014, the San Francisco Municipal Transportation Agency (SFMTA) Board of Directors authorized the Director of Transportation to execute Contract #2013-19 with Siemens Industry, Inc. (Siemens) to provide up to 260 light rail vehicles (LRVs), including two options for expansion LRVs; and

WHEREAS, On September 3, 2014, the San Francisco Board of Supervisors authorized the SFMTA to enter into Contract #2013-19, to procure up to 260 LRVs in an amount not to exceed \$1.19 billion, subject to the condition that the contract provide for two separate options, Option 1 for 40 LRVs and Option 2 for 45 LRVs, and that the SFMTA obtain approval from the Board of Supervisors prior to exercising Option 2; and

WHEREAS, On January 6th, 2015, the SFMTA Board of Directors declared its intention to exercise the Option 1 under Contract #2013-19 as soon as practicable once funding is secured, subject to further Board approval at that time; and

WHEREAS, The contractual cost for Option 1 is estimated not to exceed \$176 million; with an additional \$34 million in sales tax, engineering and other project costs, the total cost to exercise Option 1 will not exceed \$210 million; and

WHEREAS, The SFMTA will seek up to \$210 million in funding from the Transit and Intercity Rail Capital Program (TIRC), a new State competitive program funded by cap-and-trade dollars, to pay for Option 1; and

WHEREAS, As a back-up plan should the State not approve cap-and-trade dollars for the project, the Metropolitan Transportation Commission (MTC), at its January 28, 2015 meeting, is expected to approve redirecting \$153 million in bridge tolls and federal funds, which are currently programmed for SFMTA vehicle replacements and fixed guideway improvements, to pay for Option 1, so that the SFMTA can demonstrate a funding commitment to exercise Option 1; and

WHEREAS, MTC requires that SFMTA commit to repayment of the \$153 million in the event that cap-and-trade funds are not successfully secured for Option 1; and

WHEREAS, The SFMTA will program \$57 million from various sources, which could include SFMTA Revenue Bonds, development impact fees and other non-federal sources to bridge the gap between \$153 million and the estimated cost of Option 1 should the state not approve cap-and-trade dollars for the project; and

WHEREAS, Based on the funding plan described above, the SFMTA wishes to exercise Option 1; now, therefore be it

RESOLVED, That the SFMTA Board of Directors approves programming of up to \$210 million in various sources including \$25 million in federal funds, \$44 million in AB664 bridge tolls, \$84 million in BATA project savings funds and \$57 million in SFMTA funds in order to exercise the first option for 40 additional light rail vehicles under Contract #2013-19 with Siemens Industry, Inc.; and be it

FURTHER RESOLVED, That the SFMTA Board authorizes the Director of Transportation to negotiate and enter into an agreement with the Metropolitan Transportation Commission to repay up to \$153 million if the SFMTA is unable to secure cap-and-trade funds to finance Option 1; and be it

FURTHER RESOLVED, That the SFMTA Board authorizes the Director of Transportation to execute an amendment to Contract #2013-19 with Siemens Industry Inc. to exercise Option 1 to procure an additional 40 light rail vehicles for an amount not to exceed \$176 million.

I certify that the foregoing resolution was adopted by the Municipal Transportation Agency Board of Directors at its meeting of January 20, 2015.

Secretary to the Board of Directors
San Francisco Municipal Transportation Agency



Edwin M. Lee, *Mayor*

Tom Nolan, *Chairman*

Gwyneth Borden, *Director*

Jerry Lee, *Director*

Cristina Rubke, *Director*

Edward D. Reiskin, *Director of Transportation*

Cheryl Brinkman, *Vice-Chairman*

Malcolm Heinicke, *Director*

Joél Ramos, *Director*

MEMORANDUM

DATE: August 11, 2015

TO: File

FROM: LRV4 Project

SUBJECT: SFMTA 2013-19 - Modification No. 2 - SFMTA Board of Directors' Resolution and
Calendar Item authorizing contract modification/amendment when required

Not required due to all the change in this Modification is administrative change.

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 16-111

WHEREAS, On July 15, 2014, the SFMTA Board of Directors approved Contract No. 2013-19 with Siemens Industry, Inc., to provide up to 260 LRVs, including two options for expansion LRVs; and

WHEREAS, On September 3, 2014, the Board of Supervisors approved the contract in an amount not to exceed \$1.19 billion, subject to the condition that the contract contain Option 1 for 40 LRVs and Option 2 for 45 LRVs, and that the SFMTA obtain approval from the Board of Supervisors prior to exercising Option 2; and,

WHEREAS, On March 31, 2015, the City 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 to exercise Options for additional spare parts and equipment; and,

WHEREAS, On October 30, 2015, the City approved Modification No. 2 to the contract 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; and,

WHEREAS, The SFMTA now wishes to modify the contract 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 guarantee, and make miscellaneous changes to the technical specifications, for a total cost of \$19,596,728; and,

WHEREAS, Contract Modification No. 3 does not increase the total contract amount or extend the term of the contract; 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 LRVs for the Central Subway Project were reviewed as part of the Central Subway Final Supplemental Environmental Impact Statement / Supplemental Environmental Impact Report (Central Subway SEIS/SEIR), certified by the San Francisco Planning Commission on August 7, 2008, and on August 19, 2008, the SFMTA Board of Directors approved Resolution 08-150 adopting Central Subway Project Alternative 3B as the

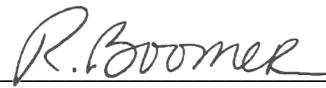
Locally Preferred Alternative, the CEQA Findings, Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Plan; and,

WHEREAS, On July 15, 2014, when the SFMTA Board of Directors adopted Resolution No. 14-12—incorporated herein by reference—to approve the contract to procure the LRVs, the Board found, based on its review of the Final SEIS/SEIR, that no additional environmental review was required under Public Resources Code section 21166; on April 5, 2016, when the SFMTA Board of Directors adopted Resolution No. 16-044—incorporated herein by reference—to issue Revenue Bonds, the Board further reviewed and considered the Central Subway Project Final SEIS/SEIR and the record as a whole, finding that there were no substantial project changes and no substantial changes in project circumstances that would require major revisions to the Central Subway Project Final SEIS/SEIR due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there was no new information of substantial importance that would change the conclusions set forth in the Central Subway Project Final SEIS/SEIR; and,

WHEREAS, The environmental review determinations are on file with 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 authorizes the Director of Transportation to execute Modification No. 3 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles (LRV4) with Siemens Industry, Inc., to provide enhancements to passengers, enable full systems integration, and reduce the life-cycle costs of the LRVs, for an amount not to exceed \$19,596,728, with no increase in the total contract price and no increase in the overall term of the contract.

I certify that the foregoing resolution was adopted by the Municipal Transportation Agency Board of Directors at its meeting of August 16, 2016.



Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 170620-081

WHEREAS, On September 30, 2014, the City entered into a contract with Siemens Industry, Inc. (Contractor) to procure up to 260 light rail vehicles (LRVs), including options, together with associated equipment and spare parts, all for an amount not to exceed \$1,192,651,577, and a term not to exceed 15 years; and,

WHEREAS, On September 3, 2014, the Board of Supervisors approved the contract, subject to the condition that the contract provide for two separate options, Option 1 for 40 LRVs and Option 2 for 45 LRVs, and that the SFMTA obtain approval from the Board of Supervisors prior to exercising Option 2; 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, 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, The arena and event center for the Golden State Warriors is now under construction on an 11-acre site on Blocks 29-32 within the Mission Bay South Redevelopment Plan Area (the Event Center); development of the site will significantly increase transportation and other public service needs in the area during events; and,

WHEREAS, The developer of the arena and event center, along with stakeholders, developed the Transportation Service Plan (TSP) as part of a strategy to mitigate impacts to residents, medical facilities, and businesses in the area.; the TSP includes elements under the jurisdiction of the SFMTA, including the procurement of four additional LRVs to provide enhanced service during basketball games and other events; and,

WHEREAS, On December 8, 2015, the City established the Mission Bay Transportation Improvement Fund in order to finance public improvements and services related to the Event Center, including the procurement of the four LRVs; and,

WHEREAS, The procurement of four new LRVs to provide enhanced Muni service to the Golden State Warriors Event Center Project is subject to the California Environmental Quality Act (CEQA); and,

WHEREAS, The Golden State Warriors Event Center and Mixed Use Development at Mission Bay Blocks 29-32 Final Subsequent Environmental Impact Report (Event Center FSEIR) evaluated the environmental impacts of the Event Center and an associated increase in passenger rail service; specifically, the Event Center FSEIR identified significant environmental impacts on Muni transit service, and thus incorporated Mitigation Measure M-TR-13 to provide enhanced Muni transit service on the T Third light rail line; additionally, the Event Center project evaluated in the FSEIR also included the implementation of a Transportation Management Plan (TMP) and the TSP which specified the increase in light rail service on the T Third line; and,

WHEREAS, On November 3, 2015, the San Francisco Commission on Community Investment and Infrastructure (OCII) certified the Event Center FSEIR, and adopted CEQA Findings, a Mitigation Monitoring and Reporting Program, and a Statement of Overriding Considerations as part of Resolution 69-2015 and Resolution 70-2015, and approved the Event Center Project as part of Resolution 71-2015; and,

WHEREAS, On November 3, 2015, the SFMTA Board of Directors, as part of Resolution 15-154, approved elements of the Event Center Project under SFMTA jurisdiction, including the TMP and the TSP, accepted responsibility to implement applicable transportation-related mitigation measures, and further adopted the CEQA Findings, a Mitigation Monitoring and Reporting Program, and a Statement of Overriding Considerations; and,

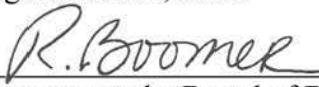
WHEREAS, Copies of the CEQA determinations, Resolutions, and CEQA Findings are on file with the Secretary to the SFMTA Board of Directors, may be found in the records of OCII at One South Van Ness Avenue, 5th Floor, in San Francisco, and are incorporated herein by reference; and

WHEREAS, The SFMTA now wishes to modify the contract to procure the four additional LRVs; now, therefore, be it

RESOLVED, That the SFMTA Board of Directors has subsequently reviewed the Event Center FSEIR and finds that since the certification of the FSEIR, 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 the FSEIR, and that no new information has emerged that would materially change the analysis or conclusions set forth in the FSEIR; the actions approved herein would not necessitate implementation of additional or considerably different mitigation measures than those identified in the FSEIR; and be it further

RESOLVED, That the SFMTA Board of Directors authorizes 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.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of June 20, 2017.



Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 191119-143

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, Through Contract Modification Nos. 1 through 4, the SFMTA Board approved various updates to the vehicle design, the procurement of 44 additional LRVs (including four vehicles to provide enhanced service during basketball games and other events at the new Chase Center), the addition of optional spare parts and equipment, and miscellaneous other changes to 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 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; and,

WHEREAS, The proposed Contract Modification No. 6 will enhance the Phase 1 vehicle design with feedback-driven passenger comforts, including seating changes, updated operator cab features, and engineering refinements that improve overall fleet performance; will continue the installation of track brakes as a means to reduce flat wheels, and will finalize payment of weight incentives; and,

WHEREAS, Contract Modification No. 6 will also provide funding to advance Phase 2 long-lead 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 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 Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report and the Event Center Final Subsequent Environmental Impact Report 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 than those identified in those documents; and be it further

RESOLVED, That the SFMTA Board authorizes the Director of Transportation to execute Contract Modification No. 6 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., 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.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of November 19, 2019.



Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

**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 than 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.

R.Boomer
Secretary to the Board of Directors
San Francisco Municipal Transportation Agency

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS**

RESOLUTION No. 210803-096

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 or Vehicles), 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 (funded by the Golden State Warriors) to serve the Chase Center, 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, On March 27, 2020, the parties entered into Modification No. 7 to complete Phase 2 long-lead activities, implement interior configuration and seating changes based on the approved re-design, complete installation of the track brakes, and provide for other equipment updates and vehicle enhancements; and,

WHEREAS, On October 30, 2020, the Director of Transportation executed Contract Modification No. 8 to the Agreement to further modify the Vehicles including including adding larger cab monitors and a second sensitive edge to the middle doors, delete fareboxes for 141 of the Vehicles, and expedite work to avoid Phase 2 production delays; and,

WHEREAS, Contract Modification No. 9 will update vehicle equipment including center door sensing capabilities, complete enhancements of cameras, make changes to the operator cab and controls, and scope changes in preparation for the next generation Clipper; and,

WHEREAS, Using funds from the escalation allowance, Contract Modification No. 9 resolves an issue between Siemens and the SFMTA regarding the proper method for calculating escalation costs for the 151 replacement 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 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 determination are on file with the Secretary to the SFMTA Board of Directors, and may be found in the records of the Planning Department at <https://sfplanning.org/> and 49 South Van Ness Avenue, Suite 1400 in San Francisco, and such determination is incorporated herein by reference; now, therefore, be it

RESOLVED, That the SFMTA Board of Directors has 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 than those identified in those documents; and be it further

RESOLVED, That the SFMTA Board authorizes the Director of Transportation to execute Contract Modification No. 9 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., to update and enhance Vehicle equipment, and, using funds from the escalation allowance, resolve an issue regarding escalation costs for the 151 Phase 2 Vehicles, for an overall amount not to exceed \$80,085,460, with no increase in the total Contract price or Contract term.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of August 3, 2021.



Secretary to the Board of Directors
San Francisco Municipal Transportation Agency



London Breed, Mayor

Gwyneth Borden, Chair
Amanda Eaken, Vice Chair
Cheryl Brinkman, Director
Steve Heminger, Director

Fiona Hinze, Director
Sharon Lai, Director
Manny Yekutiel, Director

Jeffrey Tumlin, Director of Transportation

July 22, 2021

The Honorable Members of the Board of Supervisors
City and County of San Francisco
1 Dr. Carlton Goodlett Place, Room 244
San Francisco, CA 94102

*Subject: Request for Approval – Contract Modification No. 10 to SFMTA Contract No. 2013-19
with Siemens Mobility, Inc. – Option for 30 Light Rail Vehicles for \$130,409,780 plus
escalation*

Honorable Members of the Board of Supervisors:

The San Francisco Municipal Transportation Agency (SFMTA) requests that the San Francisco Board of Supervisors authorize the Director of Transportation to execute Contract Modification No. 10 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., to exercise an option to procure 30 additional light rail vehicles in the amount of \$130,409,780 plus applicable escalation costs, with cancellation provisions through June 2025, with no increase in the total Contract price or in the term of the Contract.

BACKGROUND

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 or LRV4s), including an option for up to 85 LRVs to handle growth related to the Central Subway Project and systemwide ridership increases (the LRV4 Contract or the Contract), all for an amount not to exceed \$1,192,651,577, and a term not to exceed 15 years.

The first 68 LRV4 vehicles were provided to the SFMTA between 2017 and 2020. These vehicles expanded the fleet to accommodate growing service needs including service to Chase Center and launch of the Central Subway. Phase 2 of the contract is now underway with the first vehicle to be delivered Fall of 2021. Phase 2 provides for the replacement of the 151 Breda LRVs, which are being retired concurrently. Replacing these older and less reliable vehicles is an established need in the SFMTA Capital Plan and will have immediate impact on overall system performance. The LRV4 vehicle now in production is on track to reach required reliability targets. The updated vehicle design resolves Phase 1 issues with doors and brakes and will continue to incorporate the latest generation of new electronic systems as they are adopted, such as the next generation Clipper system coming in 2022.

There have been nine modifications to the Contract:

- Through Contract Modifications Nos. 1 through 5, the SFMTA Board approved updates to the vehicle design, 44 additional vehicles and optional spare parts and equipment.
- Through Contract Modifications Nos. 6, 7 and 8, the SFMTA approved feedback-driven passenger comforts and engineering refinements, updates to vehicle equipment including cameras, provisions for weight incentives, administrative issues, and funding of acceleration activities essential to the early fleet replacement plan.
- Contract Modification No. 9 includes vehicle equipment design enhancements and includes escalation costs for the 151 replacement vehicles and other Phase 2 related items.

MODIFICATION NO. 10

Modification No. 10 exercises the option in the Contract to procure an additional 30 LRVs to be delivered after the Phase 2 vehicles. SFMTA seeks approval at this time based on three considerations described further below:

1. Requirement to Exercise Options by September 2021
2. Benefits of Long-Term Fleet Expansion with LRV4 Vehicles
3. Managing COVID-19 Uncertainty Through a Cancellation Clause

Options for more vehicles were built into the original contract to provide the SFMTA with flexibility to adjust the total number of vehicles purchased depending on changing service projections and/or economic conditions during the 15 years of the contract.

Staff is seeking approval to exercise Option 2 for 30 additional LRVs.

Phase 1 (including Option 1, and Phase W)	68 Vehicles Cars #1 to #68	Delivered 2017 to 2020
Phase 2	151 Vehicles Cars #69 to #219	Delivery Scheduled 2021 to 2025
Option 2	30 Vehicles Cars #220 to #249	TBD, Delivery Planned 2027 to 2029

Requirement to Exercise Options by September 2021

Federal law requires that rolling stock options be exercised within seven years of the date of the original contract, which, in this case would be September 30, 2021 (49 U.S.C. § 5325(e)(1)(B)FTA Circular 4220.1F, Chap. IV, §2.e(10(b).) SFMTA continues to engage the Federal Transit Administration on the deadlines for exercising these options, and potential for future cancellation.

The SFMTA projects a need for 30 additional vehicles before the end of this decade, but the uncertainties of post-COVID-19 recovery make this more difficult to predict. Given that these options will no longer be available after September 30, 2021, and that they can be cancelled until June 2025 (as described in more detail below), SFMTA seeks approval to exercise Option 2 for 30 vehicles.

Benefits of Long-Term Fleet Expansion with LRV4 Vehicles

Despite the near-term uncertainties the SFMTA must navigate over the next several years, there are compelling long-term benefits of exercising the option for 30 additional vehicles to serve riders through the 2040s. Benefits include:

- Maintaining a unified LRV4 Fleet
 - Simplifies maintenance and operations, with resulting cost efficiencies, by having only one type of LRV
 - Avoids future “orphan” fleet of only 30 vehicles with separate parts, procedures, and issues
- Maximizing value from current procurement
 - Uses planned flexibility built into existing contract to meet future needs
 - Delivers a road-tested, fully refined, proven LRV4 design
 - Leverages a very cost competitive bid submitted by Siemens
- Avoiding an entirely new procurement
 - Avoids staff and consulting effort for a new vehicle specification
 - Avoids multi-year RFP, award, and contract process
 - Avoids multi-year vehicle design process
 - Avoids schedule risk of new procurement
 - Avoids new vehicle testing, troubleshooting, and design refinement
- Controlling vehicle price increases and limiting risk
 - LRV4 price increases are contractually tied to escalation and verifiable production costs
 - Current LRV4 Contract includes cancellation opportunities through 2025

The SFMTA has been successful in unifying the fleet around a single LRV4 vehicle, which has also reduced the expense and effort of new vehicle procurements. Setting the groundwork to receive 30 more option vehicles by 2029 builds on this approach and takes full advantage of the flexibility woven into the LRV4 Contract from the start.

Managing COVID-19 Uncertainty Through a Cancellation Clause

The ongoing COVID-19 pandemic and recovery bring a high degree of uncertainty not only to the SFMTA, but to all U.S. transit systems. The speed of recovery, and whether there will be lasting changes to San Francisco mobility patterns, will play out over the next few years.

The addition of 30 vehicles by 2029 aligns with growth scenarios developed prior to the pandemic. Exercising these options before the September 2021 deadline allows the SFMTA to remain optimistic and well-prepared to serve the public as part of a strong economic recovery; however, we must also preserve flexibility and manage financial commitments in ways that track to a slower recovery or lasting changes to transportation demands.

To preserve flexibility necessitated by the pandemic, the SFMTA has negotiated option milestones that provide for no-cost cancellation through June 2025. Contract Modification No. 10 establishes that "Option 2 may be cancelled at no cost to the City at any time prior to issuance of the Release for Production Notice." The SFMTA can provide Siemens a "Release for Production Notice" at any time prior to June 2025. Failure to provide the Release for Production Notice will initiate the no-cost cancellation.

To accommodate the SFMTA's ability to cancel through June 2025, additional milestones and triggers have been added to account for added risks to Siemens. Specifically:

1. Production Restart Fee if Release for Production Notice comes after June 2023

If the SFMTA can provide a Release for Production Notice before June 2023, vehicle production can continue uninterrupted with no additional restart fee. However, if the SFMTA provides notice after June 2023, then the SFMTA is agreeing to pay the actual costs of restarting production, not to exceed approximately \$11M. In restarting a production line, Siemens would bear quantifiable costs, which can be verified at the time, but are difficult to predict at this time.

2. Escalation Minimum

The price for Option vehicles will be escalated using the same methods applied for Phase 2 vehicles but will not be less than 0.15 percent per month compounded – or 1.81 percent per year compounded. Note that the escalation for Phase 2 calculated between 2014 and 2020 was 2.44 percent per year compounded. For budgetary planning purposes, the SFMTA uses 6 percent escalation for 2021 and 2022 and 5 percent for years 2023 through 2027, well above the minimum being established here. As such, the 0.15 percent minimum is a very low threshold and is acceptable to the SFMTA.

3. Accommodation for Future Unusual Market Conditions

If Siemens can demonstrate that unusual market conditions (such as materials shortages or supply chain disruptions) increase the total future cost to produce the option vehicles by 3 percent or more than the escalated costs used to establish the price being paid by SFMTA per the Contract formula, the parties can negotiate price adjustments to cover the projected costs; or the SFMTA can terminate the Contract for convenience. The SFMTA believes this to be a possible, but unlikely, scenario.

Given the uncertainty facing transit over the next several years, SFMTA staff has taken steps to include no-cost cancellation through 2025 in this modification of the LRV4 Contract. Staff believes it is reasonable to provide Siemens with the three reciprocal mitigations discussed above to manage the added risk of an extended cancellation period during a time of unknown economic conditions.

ALTERNATIVES CONSIDERED

The SFMTA considered not exercising the Option for the 30 LRVs by September 30, 2021. Not exercising would cause these options to expire. It would no longer be possible to add additional vehicles after Phase 2 under this Contract. LRV4 production would be capped at 219 vehicles, and the Contract would end when all Breda LRVs are replaced as scheduled in 2025. Future vehicle expansion after 2025 would require a new vehicle procurement and new vehicle design; or a sole source procurement for LRV4s from Siemens at unknown future cost. SFMTA staff believes that exercising the option for 30 additional LRV4s is the preferred alternative, especially given that the SFMTA has negotiated terms for no-cost cancellation through 2025.

The Agency considered exercising the option for less than 30 vehicles. Despite uncertainty in service planning projections, which are being revised over the next two years, SFMTA staff estimates that the addition of 30 vehicles would most reasonably match growing service needs, especially given expected 3-car and 4-car train operations.

The Agency also considered exercising the option for more than 30 vehicles (up to 45 vehicles). At this early stage in post-pandemic service planning, only the most aggressive planning goals call for more than 30 additional vehicles. Further, while we are confident that 30 LRVs could be accommodated within our current facilities, adding more than 30 LRVs would strain the SFMTA's current capacity to store and maintain vehicles and would tie up additional funds in a challenging fiscal time.

STAKEHOLDER ENGAGEMENT

The LRV fleet being produced for Phase 2 is the result of extensive stakeholder engagement with multiple groups, including vehicle operators, rail maintenance, labor representatives, the riding public, the SFMTA Citizens' Advisory Council, the SFMTA Multimodal Accessibility Advisory Committee, the SFMTA Board, and the Board of Supervisors. Many of the refinements being implemented on the LRV4 fleet are the direct result of feedback received from stakeholders through this engagement process. The SFMTA has invested considerable effort and expense to meet stakeholder expectations for the LRV4 fleet, so expanding production maximizes return on our investment in stakeholder engagement.

FUNDING IMPACT

In considering the decision to exercise the option at this time, staff consulted with the FTA about various options and consulted with partnering funding agencies, including the Metropolitan

Transportation Commission and San Francisco County Transportation Authority (SFCTA). The cost-benefit analysis is clear that the best value to the agency is to advance the option. Weighing the costs of an orphan fleet and any overhead costs related to a new contract, and the infrastructure costs for production start-up make exercising the option the most cost-effective option at this time.

Contract Cost

The Contract includes allowances for Option vehicles and escalation as shown in the table below.

	Value	Escalation Allowance	Total
Phase 1 - 24 Vehicles	\$146,217,251		\$146,217,251
Phase 2 – 151 Vehicles	\$502,414,750	\$133,300,188	\$635,714,938
Option 1 – 40 Vehicles	\$161,134,617	\$810,360	\$161,944,977
Option 2 – up to 45 Vehicles	\$149,805,495	\$98,968,916	\$248,774,411
Total	\$959,572,113	\$233,079,464	\$1,192,651,577

The cost items in Modification No. 10 total \$130,409,780. This includes 30 LRVs at \$3,978,186 per vehicle (including all of the modifications to date and escalated up to May 2020). Additional escalation will be calculated after the Release for Production Notice is issued and will come from the escalation allowance included in the Table below. Also included in this Modification No. 10 amount is the not-to-exceed restart fee of \$11,064,200.

	Value	Escalation Amount/Allowance	Total
Base Phase 1 - 24	\$146,217,251		\$146,217,251
Base Phase 2 - 151	\$502,414,750	\$75,377,539	\$577,792,289
Option 1 - 40 Cars (Exercised in Modification 1)	\$161,134,617	\$810,360	\$161,944,977
Phase W 4 Cars (Modification 4)	\$15,875,000		\$15,875,000
Option 2 - 30 Cars	\$130,409,780	\$92,162,994	\$222,572,774
Modifications (2, 3, 5-9)	\$68,249,286		\$68,249,286
Total	\$1,024,300,684	\$168,350,893	\$1,192,651,577

Funding Status

The maximum funding needed for this option is estimated at \$222.6 million (reference Table 2 above) and is outside of the current financially constrained SFMTA 5-Year Capital Improvement Program (CIP) which ends at fiscal year 2025. Initial funding required to support the cashflow for this option will be included as part of the update on the 5-Year CIP in Spring 2022.

The SFMTA has numerous potential revenue sources and paths to meet the planned cost and cashflow for the option, which would begin at or around fiscal year 2027. The baseline funding can potentially come from future allocations of Proposition B Population Baseline funds – \$48.0 million in FY 2023-24, \$66.7 million in FY 2024-25 and \$70.7 million in FY 2025-26, as updated in the March Joint Report released by the Controller's Office on March 31, 2021; however, this is a planned stopgap. Other potential sources include:

- *Proposition K ½ cent Transportation Sales Tax:* The SFCTA is currently in the process of considering the schedule for the reauthorization of the existing ½ sales tax. The prior expenditure plan included \$5 million for LRV expansion. The SFMTA will advocate that this amount or potentially more be included as part of the development of a new expenditure plan. This is a policy decision for the SFCTA Board.
- *Development Impact Fees/Transportation Sustainability Fees:* A key driver for the expansion of the fleet is both job and population growth. Fleet Expansion was identified as a key need in the Transportation Sustainability Fee (TSF) Nexus Study. As development occurs in the city, driving the need to purchase these vehicles, TSF can be set aside through the CIP process to cover the cost of vehicles. Other development projects throughout the city have contributed to vehicles over time. It is likely within the contract window that these dollars will be available to fund a component of the overall funding plan.
- *SFMTA Revenue Bond Program:* The agency has funded LRV fleet expansion through the SFMTA's revenue bond program in the past. Depending on market conditions and staying within the agency's debt service policy of no more than 5 percent of the agency's adopted operating budget, the SFMTA may incur debt for the expansion LRVs. By FY 2025, debt service is projected to be 2.14 percent of the operating budget.
- *Competitive Grants:* There are numerous federal and state grant programs that exist or are currently proposed to be modified through legislative action that could potentially support the funding plan for expansion LRVs. The most promising is the Transit and Intercity Rail Capital Program. The agency has already been successful in winning \$114 million from this program for the prior expansion procurement and we anticipate further success in the coming years based on prior awards and the competitiveness of this fleet procurement.

The regional One Bay Area Grant Program also is a potential source of funding.

With so many funding sources available for this procurement, a full funding plan is anticipated from a package of the sources above, with Proposition B as a cashflow stop gap, pending the allocation of the other sources just noted.

SFMTA BOARD ACTION

On August 3, 2021, The SFMTA Board of Directors is scheduled to act on Contract Modification 10 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., authorizing the Director of Transportation to exercise an option to procure 30 additional light rail vehicles in the amount of \$130,409,780 plus applicable escalation costs, with cancellation provisions through June 2025, with no increase in the total Contract price or in the term of the Contract.

RECOMMENDATION

Staff recommends that the Board of Supervisors authorize the Director of Transportation to execute Contract Modification No. 10 to SFMTA Contract No. 2013-19: Procurement of New Light Rail Vehicles, with Siemens Mobility, Inc., to exercise an option to procure 30 additional new light rail vehicles for the amount of \$130,409,780, with cancellation provisions through June 2025, and with no increase in the total Contract price or in the term of the Contract

Sincerely,



Jeffrey P. Tumlin
Director of Transportation



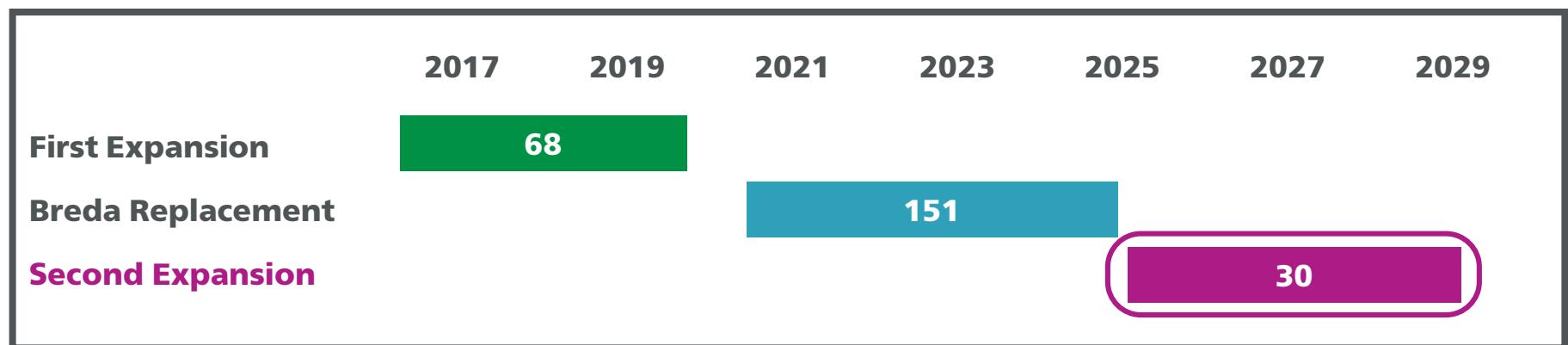
LRV4 Procurement

Project Update and Request to Exercise Option 2

September 8, 2021 Budget & Finance Committee

Summary of Action Today

- Seeking approval of Contract Modification No. 10 to exercise Option 2 for additional 30 LRV4 vehicles
- Exercising this option now:
 - Maintains our uniform fleet
 - Provides delivery ahead of the anticipated need in 2030
 - Contains no-cost cancellation option
- **Does not increase the previously approved contract value or extend the schedule**



Performance To Date

- 68 expansion vehicles have been accepted + in service
- First Phase 2 vehicle was delivered to SFMTA August 27, 2021
- Updated seating has been installed on first retrofitted train and will be in service this fall
- Issues to date, such as doors and couplers, have been resolved
- LRV4 fleet is performing at a high level of reliability

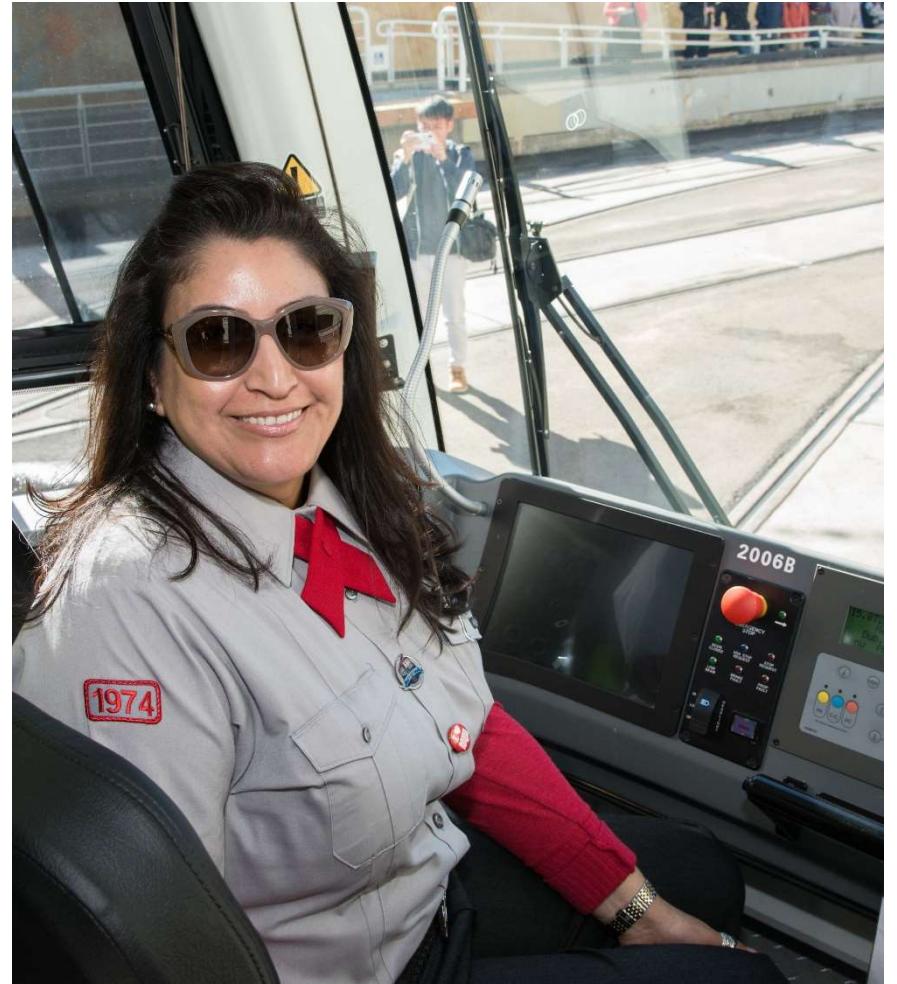


Image: A Muni operator at the LRV4's controls

Reliability

- LRV4 is **delivering** on **reliability targets**
- LRV4 trains are slated to serve San Francisco for 25 years
- Efficient maintenance



Note: LRV4 Contract reliability program paused in April 2020 due to low monthly mileage. The program will restart in the fall. Contractor (Siemens) will need to demonstrate six months at 25,000 MDBF or higher

Finalizing LRV4 Design

- Since their debut, SFMTA has received and utilized feedback on LRV4 design
- Implementing interior design changes across the LRV4 fleet

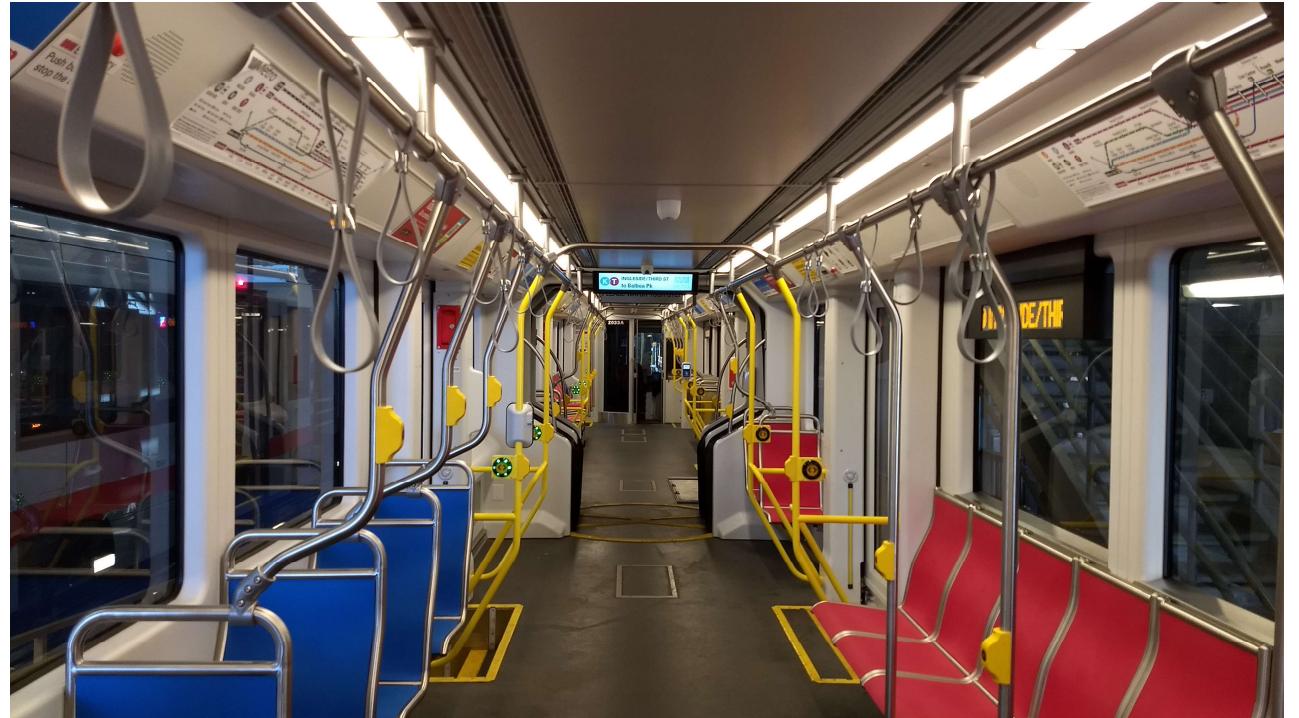


Image: LRV4 interiors, reconfigured based on public feedback

LRV4 Option Opportunity

The Opportunity

- Have option to procure *up to* 45 more LRV4s
- Exercising option has long been agency's plan and goal
- Opportunity expires after September 2021

The Plan

- Approach recognizes current uncertainties around ridership growth
- Staff analysis supports 30 more LRV4s needed to serve anticipated 2030 ridership demand, can be stored and maintained in existing facilities
- Negotiated Option for 30 vehicles, with no-cost cancellation up to June 2025



Low Cost, High Performance

- LRV4s were first bid in the middle of the Great Recession
- Base unit costs well below industry average
- Muni Metros' complexity precludes "off the shelf" trains
- Trains are priced at their original costs **(plus escalation)**
- Purchasing 30 stand-alone LRVs estimated to costs up to twice as much per vehicle



Image: One of the first LRV4s arrive for delivery

Train Procurement	Costs (2014)
Muni's Siemens LRV4	\$3.7 M
Average New LRV (national)	\$4.6 M
Design & Engineering	\$37 M

Smart Capital Investments = Lower Operating + More Service

- LRV4s provide far more reliable service, reducing operating costs
- Future service options with second expansion:
 - 3-car N Judah
 - 4-car Subway Shuttle
- Uniform fleet minimizes operation costs through uniform parts, storage, and maintenance

Time Period	Vehicles
Breda Fleet (Before Expansion)	151
Service & Central Subway Expansion	219
After 2 nd LRV4 Expansion	249



Image: Testing a 3-car train set on the N Judah

Contract Modification No. 10 Details

- Contract Modification No. 10 cost (\$130 M) details:
 - 30 option vehicles, the per vehicle cost has been re-baselined to include Phase 2 escalation and design enhancements to date (\$119,345,580 plus escalation)
 - Max allowance for a production restart fee if Phase 2 production is complete (\$11,064,200 *with proof of costs*)
- The final cost will be determined once the delivery dates are determined and SFMTA issues the Release for Production Notice and final escalation is calculated
- This modification does not increase the total contract price or the term of the contract

Funding Plan

- Option 2 does not utilize current operating funds and no funding spent until vehicles enter production
- The LRV4 project is well-qualified for known and recurring funding sources, as demonstrated by past funding

LRV4 Allocations to Date	To FY 2021
Bay Area Toll Authority	\$59,118,014
CCSF Educational Revenue Augmentation Fund	\$19,247,904
Central Subway	\$16,800,000
FTA Section 5307	\$10,227,539
Market and Octavia Developer Fees	\$1,378,000
Mission Rock Developer Fees	\$12,219,467
Prop K Sales Tax	\$191,885,171
SFMTA Other	\$8,000,000
Transit and Intercity Rail Capital Program	\$113,140,000
Total	\$577,066,745

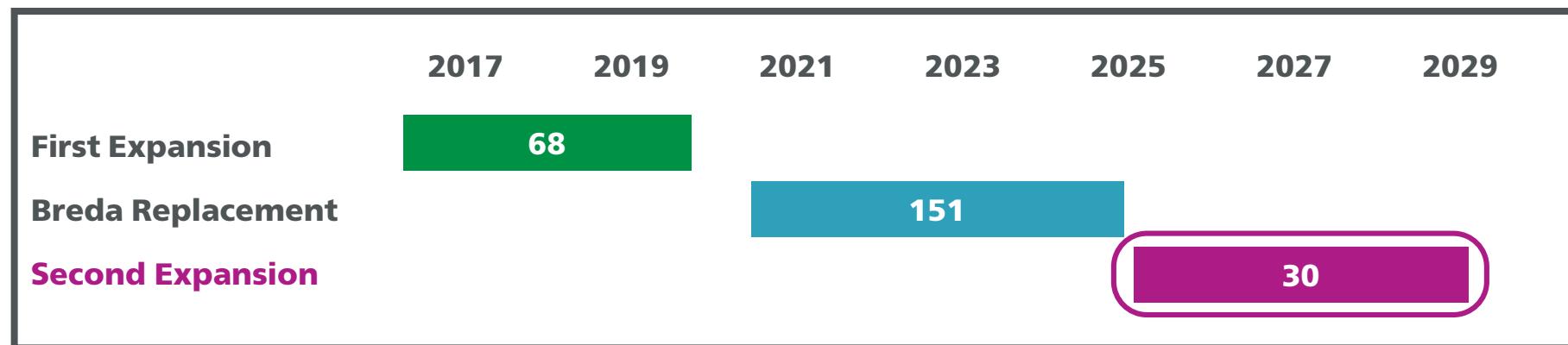
Funding Plan

- **\$577M Previously Allocated Through FY2021**
- **\$1.1B Total Allocated and Programmed Through FY2025**
- **Future Programmed and Targeted Grants & Funding**
 - Developer fees
 - Cap and trade funds
 - Bridget toll funds
 - Proposition K
 - Proposition B set-aside
 - Future revenue measures
- **Backstop of Flexible Funds to Certify Contract**

LRV4 Certification	Amount
FY 2023-24 Prop B Population Baseline Funds	\$36,000,000
FY 2024-25 Prop B Population Baseline Funds	\$50,025,000
FY 2025-26 Prop B Population Baseline Funds	\$44,384,780
Total	\$130,409,780

Summary of Action Today

- Seeking approval of Contract Modification No. 10 to exercise Option 2 for additional 30 LRV4 vehicles
- Exercising this option now:
 - Maintains our uniform fleet
 - Provides delivery ahead of the anticipated need in 2030
 - Contains no-cost cancellation option
- **Does not increase the previously approved contract value or extend the schedule**





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Thank you!



SFMTA

From: [BOS Legislation, \(BOS\)](#)
To: [Imperial, Megan \(BOS\)](#); [BOS Legislation, \(BOS\)](#); [Wong, Linda \(BOS\)](#)
Cc: [Melgar, Myrna \(BOS\)](#); [Low, Jen \(BOS\)](#); [Carrillo, Lila \(BOS\)](#); [Fieber, Jennifer \(BOS\)](#); [Ramos, Joel \(MTA\)](#)
Subject: RE: Add Melgar as cosponsor - File No. 210838
Date: Thursday, September 9, 2021 8:11:04 AM
Attachments: [image001.png](#)

Thank you Megan. Looping in Linda Wong, clerk for Budget & Finance Committee for processing, since File No. 210838 [Contract Modification - Siemens Mobility, Inc. - Option for 30 Light Rail Vehicles - \$130,409,780 Plus Escalation Costs] is currently assigned.,

Lisa Lew
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T 415-554-7718 | F 415-554-5163
lisa.lew@sfgov.org | www.sfbos.org

(VIRTUAL APPOINTMENTS) To schedule a “virtual” meeting with me (on Microsoft Teams), please ask and I can answer your questions in real time.

Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services.



Click [here](#) to complete a Board of Supervisors Customer Service Satisfaction form

The [Legislative Research Center](#) provides 24-hour access to Board of Supervisors legislation, and archived matters since August 1998.

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From: Imperial, Megan (BOS) <megan.imperial@sfgov.org>
Sent: Wednesday, September 8, 2021 8:20 PM
To: BOS Legislation, (BOS) <bos.legislation@sfgov.org>
Cc: Melgar, Myrna (BOS) <myrna.melgar@sfgov.org>; Low, Jen (BOS) <jen.low@sfgov.org>; Carrillo, Lila (BOS) <lila.carrillo@sfgov.org>; Fieber, Jennifer (BOS) <jennifer.fieber@sfgov.org>; Ramos, Joel (MTA) <Joel.Ramos@sfmta.com>
Subject: Add Melgar as cosponsor - File No. 210838
Importance: High

Dear Clerk Staff,

Please add Supervisor Melgar as a Co-Sponsor to the below!

File No. 210838 [Contract Modification - Siemens Mobility, Inc. - Option for 30 Light Rail Vehicles - \$130,409,780 Plus Escalation Costs].

Thanks,
Megan

Megan M. Imperial 竜芽願
Legislative Aide
Office of Supervisor Myrna Melgar, District 7
1 Dr. Carlton B. Goodlett Place, Room 260
San Francisco, CA 94102
Pronouns: She, Her, Hers, Ella



San Francisco Ethics Commission

25 Van Ness Avenue, Suite 220, San Francisco, CA 94102
 Phone: 415.252.3100 . Fax: 415.252.3112
ethics.commission@sfgov.org . www.sfethics.org

Received On:

210838

File #:

Bid/RFP #:

Notification of Contract Approval

SFEC Form 126(f)4

(S.F. Campaign and Governmental Conduct Code § 1.126(f)4)
 A Public Document

Each City elective officer who approves a contract that has a total anticipated or actual value of \$100,000 or more must file this form with the Ethics Commission within five business days of approval by: (a) the City elective officer, (b) any board on which the City elective officer serves, or (c) the board of any state agency on which an appointee of the City elective officer serves. For more information, see: <https://sfethics.org/compliance/city-officers/contract-approval-city-officers>

1. FILING INFORMATION

TYPE OF FILING	DATE OF ORIGINAL FILING <i>(for amendment only)</i>
Original	
AMENDMENT DESCRIPTION – Explain reason for amendment	

2. CITY ELECTIVE OFFICE OR BOARD

OFFICE OR BOARD	NAME OF CITY ELECTIVE OFFICER
Board of Supervisors	Members

3. FILER'S CONTACT

NAME OF FILER'S CONTACT	TELEPHONE NUMBER
Angela Calvillo	415-554-5184
FULL DEPARTMENT NAME	EMAIL
Office of the Clerk of the Board	Board.of.Supervisors@sfgov.org

4. CONTRACTING DEPARTMENT CONTACT

NAME OF DEPARTMENTAL CONTACT	DEPARTMENT CONTACT TELEPHONE NUMBER
Joe Speaks	415-271-1791
FULL DEPARTMENT NAME	DEPARTMENT CONTACT EMAIL
SF Municipal Transportation Agency	joe.speaks@sfmta.com

5. CONTRACTOR	
NAME OF CONTRACTOR	TELEPHONE NUMBER
Siemens Mobility, Inc.	916-694-8365
STREET ADDRESS (including City, State and Zip Code)	EMAIL
7464 French Rd, Sacramento, CA 95828	

6. CONTRACT		
DATE CONTRACT WAS APPROVED BY THE CITY ELECTIVE OFFICER(S)	ORIGINAL BID/RFP NUMBER	FILE NUMBER (If applicable)
		210838
DESCRIPTION OF AMOUNT OF CONTRACT		
\$1,192,651,577		
NATURE OF THE CONTRACT (Please describe)		
SFMTA: Procurement of New Light Rail Vehicles (LRV4)		

7. COMMENTS	
Request to exercise Contract Option 2 for 30 additional Light Rail Vehicles, with no extension in the contract term and no increase in the total approved contract value.	

8. CONTRACT APPROVAL	
This contract was approved by:	
<input type="checkbox"/>	THE CITY ELECTIVE OFFICER(S) IDENTIFIED ON THIS FORM
<input checked="" type="checkbox"/>	A BOARD ON WHICH THE CITY ELECTIVE OFFICER(S) SERVES Board of Supervisors
<input type="checkbox"/>	THE BOARD OF A STATE AGENCY ON WHICH AN APPOINTEE OF THE CITY ELECTIVE OFFICER(S) IDENTIFIED ON THIS FORM SITS

9. AFFILIATES AND SUBCONTRACTORS

List the names of (A) members of the contractor's board of directors; (B) the contractor's principal officers, including chief executive officer, chief financial officer, chief operating officer, or other persons with similar titles; (C) any individual or entity who has an ownership interest of 10 percent or more in the contractor; and (D) any subcontractor listed in the bid or contract.

#	LAST NAME/ENTITY/SUBCONTRACTOR	FIRST NAME	TYPE
1	Buncher	Marc	CEO
2	Smith	Marsha	CFO
3	Friedman	Shawn	Other Principal Officer
4	Cahill	Michael	Other Principal Officer
5	Halleus	Chris	Other Principal Officer
6	INIT		Subcontractor
7	Thales		Subcontractor
8	Kratos		Subcontractor
9	Securitas		Subcontractor
10	DTI Group		Subcontractor
11	Televic		Subcontractor
12	Harris		Subcontractor
13	Ultimate Transportation N.		Shareholder
14	Hasler Rail		Subcontractor
15	Tec Tran Brakes (wabtec)		Shareholder
16	Thermo King Corp.		Subcontractor
17	Xerox		Subcontractor
18	Conduent		Subcontractor
19	Voith		Subcontractor

9. AFFILIATES AND SUBCONTRACTORS

List the names of (A) members of the contractor's board of directors; (B) the contractor's principal officers, including chief executive officer, chief financial officer, chief operating officer, or other persons with similar titles; (C) any individual or entity who has an ownership interest of 10 percent or more in the contractor; and (D) any subcontractor listed in the bid or contract.

#	LAST NAME/ENTITY/SUBCONTRACTOR	FIRST NAME	TYPE
20	TDG Lighting		Subcontractor
21	Schunk		Subcontractor
22	Knorr		Subcontractor
23	Freedman Seating Company		Subcontractor
24	Seats Incorporated		Subcontractor
25	Vapor Stone Rail Systems		Subcontractor
26	Vecom		Subcontractor
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9. AFFILIATES AND SUBCONTRACTORS

List the names of (A) members of the contractor's board of directors; (B) the contractor's principal officers, including chief executive officer, chief financial officer, chief operating officer, or other persons with similar titles; (C) any individual or entity who has an ownership interest of 10 percent or more in the contractor; and (D) any subcontractor listed in the bid or contract.

#	LAST NAME/ENTITY/SUBCONTRACTOR	FIRST NAME	TYPE
39			
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49			
50			
<input type="checkbox"/>	Check this box if you need to include additional names. Please submit a separate form with complete information. Select "Supplemental" for filing type.		

10. VERIFICATION

I have used all reasonable diligence in preparing this statement. I have reviewed this statement and to the best of my knowledge the information I have provided here is true and complete.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

SIGNATURE OF CITY ELECTIVE OFFICER OR BOARD SECRETARY OR CLERK BOS Clerk of the Board	DATE SIGNED
--	-------------