

THIS PRINT COVERS CALENDAR ITEM NO.: 13

**SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY**

DIVISION: Transit

BRIEF DESCRIPTION:

Authorizing 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, 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.

SUMMARY:

- 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) for an amount not to exceed \$1,192,651,577, and a term not to exceed 15 years.
- Through Contract Modifications Nos. 1 through 5, the SFMTA authorized an expansion fleet of 68 vehicles (24 from the base contract, 40 from an option in the Contract of up to 85 vehicles, and four “Phase W” vehicles to provide enhanced service during basketball games and other events at the new Chase Center), and approved updates to the vehicle design, including the installation of additional track brakes, optional spare parts and equipment.
- 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 including parent company guarantees, and funding of acceleration activities essential to the early fleet replacement plan.
- Contract Modification No. 9 includes vehicle equipment design enhancements and resolution of an issue regarding escalation costs on the 151 vehicles that will replace the Breda LRVs.
- In Modification No. 10, the SFMTA is exercising the Contract option for 30 additional LRVs in anticipation of future fleet needs.

ENCLOSURES:

1. Resolution
2. Modification No. 10 to Siemens Contract
3. Central Subway Final SEIS/SEIR - <https://www.sfmta.com/reports/central-subway-final-seisseir>
4. Event Center FSEIR - <https://sfgov.org/sfplanningarchive/environmental-impact-reports-negative-declarations>

APPROVALS:

	DATE
DIRECTOR 	<u>July 28, 2021</u>
SECRETARY 	<u>July 27, 2021</u>

ASSIGNED SFMTAB CALENDAR DATE: August 3, 2021

PURPOSE

The purpose of this item is to obtain authorization for 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, 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.

STRATEGIC PLAN GOALS AND TRANSIT FIRST POLICY PRINCIPLES

This request supports the following SFMTA Strategic Plan Goals:

Goal 2: Make transit and other sustainable modes of transportation the most attractive and preferred means of travel

Objective No. 2.1: Improve transit service

Objective No. 2.2: Enhance and expand use of the city's sustainable modes of transportation.

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

Objective No. 3.5: Achieve financial stability for the agency

Goal 4: Create a workplace that delivers outstanding service

Objective No. 4.2: Improve the safety, security, and functionality of SFMTA work environments.

This item will support the following Transit First Policy Principles:

1. Improves the safe and efficient movement of people and goods.
2. Improves public transit as an attractive alternative to travel by private automobile.
8. Allocates transit investments to meet the demand for public transit generated by new public and private commercial and residential developments.
9. Promotes the use of regional mass transit and the continued development of an integrated, reliable, regional public transportation system.

DESCRIPTION

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 LRV4 Contract includes the replacement of the 151 Breda LRVs, which are scheduled for retirement beginning in 2021. 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 Contract includes the delivery of vehicles in two phases: Phase 1, for 68 expansion vehicles (24 from the base Contract, 40 from Option 1 and 4 “Phase W” [Warriors] vehicles), and Phase 2, for 151 replacement vehicles. Phase 1 deliveries are complete and in revenue service, and Phase 2 deliveries are due to commence in fall 2021, with completion of Phase 2 currently scheduled for 2025, which would mark successful completion of the early fleet replacement plan.

There have been eight modifications to the Contract:¹

- Through Contract Modifications Nos. 1 through 4, the SFMTA established the expansion fleet size of 68 vehicles (24 from the base contract, 40 from an option in the Contract of up to 85 vehicles, and four Phase W vehicles to provide enhanced service during basketball games and other events at the new Chase Center), and approved updates to the LRV4 design, addition of optional spare parts and equipment, and miscellaneous other changes to the Contract.
- 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 the frequency of flat spots on wheels caused by activation of the push button emergency brake (PBEB).
- On December 6, 2019, the parties entered into Contract Modification No. 6 for the design of feedback-driven changes to the interior configuration and seating, along with other engineering refinements that improve fleet performance, including installation of track brakes on all remaining Phase 1 vehicles. Also included in Contract Modification 6 were provisions for weight incentives and other administrative issues, as well as initial funding of Phase 2 long-lead activities essential to the early fleet replacement plan.
- 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.
- 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, to delete fareboxes for 141 of the 151 Vehicles, which will be equipped with fareboxes recovered from retired Breda vehicles, and to expedite work to avoid Phase 2 production delays.

Contract Modification No. 9 updates vehicle equipment, including center door sensing capabilities, enhancements of cameras, changes to the operator controls in response to operator feedback, and scope changes in preparation for next generation Clipper. Modification No. 9 also resolves an issue on the methodology for calculating the escalation on 151 Phase 2 vehicles, and results in no increase in the overall project budget or Contract term.

¹ Modification No. 9 is concurrently on the MTA Board agenda with the approval of Modification No. 10.

Forty-five vehicles remain in the Contract option after completion of Phase 2; this Modification includes a request to exercise Option 2 for 30 additional LRVs (out of the 45).

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:

1. Requirement to Exercise Options by end of 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)).²

The SFMTA projects that we will need 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), the SFMTA seeks approval to exercise Option 2 for 30 vehicles.

Benefits of Long-Term Fleet Expansion with LRV4 Vehicles

² The Federal Transit Administration (FTA) interprets the seven-year option period as covering the recipient’s “material requirements” for rolling stock and replacement needs from the first day when the contract becomes effective to its material requirements at the end of the seventh year. The SFMTA has advised the FTA on the potential for future cancellation of the option.

Despite the near-term uncertainties 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:

- Maintains 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
- Maximizes 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
- Avoids 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
- Controls vehicle price increases and limits 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 while also reducing 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 SFMTA’s service plans anticipate the need for additional expansion vehicles to address the service needs outlined in Connect SF and Muni Modernization plans, such as the introduction of 3-car N Judah cars, longer subway trains, better service from Park Merced to downtown and increased frequency citywide. 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 also 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% per month compounded – or 1.81% per year compounded. Note that the escalation for Phase 2 calculated between 2014 and 2020 was 2.44% per year compounded. For budgetary planning purposes, the SFMTA uses 6% escalation for 2021 and 2022 and 5% for years 2023 - 2027, well above the minimum being established here. As such, the 0.15% minimum is a very low threshold and is acceptable to the SFMTA.

3. Accommodation for Future Unusual Market Conditions

If, within 12 months after the SFMTA authorizes production to begin on the Option 2 vehicles, Siemens can demonstrate that unusual market conditions (such as materials shortages or supply chain disruptions) causes there to be more than a 3% difference between the Contract formula escalation amount, and the projected and demonstrated cost increase between Phase 2 and Option 2 production, the parties can negotiate (within three months) 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 a 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.

STAKEHOLDER ENGAGEMENT

The LRV4 vehicle now in Phase 2 production 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.

ALTERNATIVES CONSIDERED

The Agency 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 Bredas 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 planned capacity to store and maintain vehicles and would tie up additional funds in a challenging fiscal time.

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 (MTC) 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 cost 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 Table 1 below:

Table 1

Number of LRVs	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 Table 2 below. Also included in this Modification No. 10 amount is the not-to-exceed restart fee of \$11,064,200.

Table 2

	Value	Escalation Amount Applied or Available	Total
Phase 1 – 24 Cars	\$146,217,251		\$146,217,251
Phase 2 - 151 Cars	\$502,414,750	\$75,377,539	\$577,792,289
Option 1 - 40 Cars (Exercised in Mod 1)	\$161,134,617	\$810,360	\$161,944,977
Phase W 4 Cars (Modification 4)	\$15,875,000	\$0	\$15,875,000
Option 2 - 30 Cars	\$130,409,780	\$92,162,994 (Available)	\$222,572,774
Modifications (2, 3, 5-9)	\$68,249,286	\$0	\$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% 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% 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 (OBAG) 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 noted above.

ENVIRONMENTAL REVIEW

The procurement of new light rail vehicles is subject to the California Environmental Quality Act (CEQA).

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 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.

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.

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.

The contract modifications 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.

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 is incorporated herein by reference.

OTHER APPROVALS RECEIVED OR STILL REQUIRED

This Modification will require approval from the Board of Supervisors, which conditioned approval of the Contract on the SFMTA returning to the Board if it chose to exercise Option 2.

The City Attorney and Contract Compliance have reviewed this item.

RECOMMENDATION

Staff recommends that the SFMTA Board of Directors 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, 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.

SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
BOARD OF DIRECTORS

RESOLUTION No. _____

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 that 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

**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 Directors

Board of Supervisors

Resolution No. _____
Dated: _____
Attest:

Clerk

Approved as to Form:
Dennis J. Herrera
City Attorney

By: _____
Robin M. Reitzes
Deputy City Attorney

CONTRACTOR

Siemens Mobility, Inc.

Michael Cahill
President

Christopher Halleus
Vice President, FBA

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

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) ^{2 5}			
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
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
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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; 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

	<u>Milestone</u>	<u>Percent of Bid Item</u>
<u>A</u>	<u>Placement of contracts with the following major subcontractors (Option 2 Vehicles 1 - 30)</u> <ul style="list-style-type: none"> • <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>
<u>B</u>	<u>Delivery of complete set of subsystems to site of installation on a per Vehicle basis</u>	<u>25% per Vehicle</u>
<u>C</u>	<u>Vehicle structure complete and ready for shipment to final assembly site</u>	<u>20% per Vehicle</u>
<u>D</u>	<u>SFMTA Acceptance for shipment of Vehicle from final assembly site to SFMTA property</u>	<u>22% per Vehicle</u>
<u>E</u>	<u>Conditional Acceptance of Vehicle by SFMTA</u>	<u>20% per Vehicle</u>
<u>F</u>	<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 (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%

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 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
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.