

Automatic Fare Collection System



Scope of Work
TAP System Support Services

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15. SYSTEM SUPPORT SERVICES AND WARRANTY PLAN

15.1 Scope of Work

GENERAL STATEMENT

15.1.1 Services

The Contractor shall provide System support services (“System Support Services”) and Warranty Plan described herein for all System Components excluding the bus fare box hardware and software, which are serviced and maintained by LACMTA or its agents from July 1st, 2019 to December 31st, 2024. LACMTA expects to provide its customers with the best possible service from its Fare Collection System. LACMTA expects that all of the System Components will be fully functional at all times subject to scheduled maintenance. However, it is understood that there may be times when System Components may be out of service while waiting for Service hereunder. It is LACMTA and the Contractor’s intention and the objective of the System Support Services and Warranty Plan program to minimize these times by implementing service level agreements (“SLAs”) aimed at keeping the System Components running optimally.

15.1.2 Warranty Plan

Contractor warrants that each System Component as provided under this System Support Services and Warranty Plan shall meet the SLAs indicated in Section 15.7, for the Base Equipment Term for the Base Equipment and for the Gating Term for the fare gates leased under the Master Lease (“Gating Equipment”), and Gating Equipment maintenance after the Master Lease expires (“Warranty”). If these requirements are not met, Contractor shall take immediate corrective action to bring the performance of all System Components into compliance with the SLA requirements of Section 15.7 and the Software KPI requirements in Section 15.7 without additional cost to LACMTA. The Warranty Plan shall include without limitation, all System Components that constitute a part of the System and all labor costs. The Contractor shall be responsible for all Warranty repair costs, including without limitation, the shipping charges to and from the Contractor’s repair facilities, and the costs associated with re-installation. The Contractor shall meet as necessary with LACMTA to determine the schedule of repairs. The necessary personnel, tools and materials shall be at the Contractor’s sole expense. This Section 15 describes the requirements and operating procedures that the Contractor must follow for all Warranty Work and constitutes the Warranty Plan, superseding Section SP-7 of the Special Provisions and Section 19.10 of the Technical Specification of the Base Contract.

The only warranties made by the Contactor are those expressly provided herein and elsewhere in the Contract. THE WARRANTIES SET FORTH HEREIN AND ELSEWHERE IN THE CONTRACT ARE EXCLUSIVE AND NO OTHER WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, INCLUDING ALL WARRANTIES OF

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MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL WARRANTIES ARISING FROM THE COURSE OF DEALING OR USAGE OF TRADE, SHALL APPLY. THE REMEDIES SET FORTH IN THIS CONTRACT ARE THE SOLE AND EXCLUSIVE REMEDIES OF THE LACMTA FOR ANY CLAIMS, EXPENSES, OR DAMAGE ARISING OUT OF OR RELATED TO PRODUCTS AND SOFTWARE DELIVERED UNDER THIS CONTRACT. IN NO EVENT SHALL THE CONTRACTOR BE LIABLE IN TORT OR IN CONTRACT FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES.

15.2 Management Services

15.2.1 Out of Scope Work

Prior to the performance of any out-of-scope work, the Contractor shall submit to LACMTA, in writing, a Request for Change as provided for under GC-24, Changes.

15.2.2 Fraud and Vandalism

If during the course of the Systems Support Services and Warranty Plan program, any one of the Contractor's staff detects or identifies any vandalism or misuse to the equipment, attempted fraud, or fraudulent actions by the Contractor's staff, LACMTA employees, or any persons, the Contractor shall immediately notify the appropriate LACMTA staff person as directed by LACMTA and call LACMTA's fraud hotline at 1-800-221-1142, as appropriate. If any System Component is involved, the System Component shall be set aside where possible, and wait inspection and/or direction from LACMTA. Contractor shall address compliance with LACMTA's process for reporting vandalism in the Contractor's Operations Plan.

15.2.3 System Support Service Changes

The Contractor shall perform all maintenance and repair at the Contractor's expense until System Components provided under this System Support Services and Warranty Plan successfully pass their respective Installation Acceptance Test criteria.

15.2.4 Operational Plan

The Contractor shall prepare and submit to LACMTA for Acceptance an updated operational service and maintenance plan annually in accordance with this Section 15.2.4 ("Operational Plan"). This Operational Plan shall be submitted a minimum of thirty (30) days after notice to proceed and shall include at a minimum the following:

- Location of the Contractor's facilities and contact information for agency service requests
- The Contractor's staffing approach, including responsibilities of all personnel
- Plan for conducting the maintenance and other services described throughout this

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System Support Services and Warranty Plan including specific reference to the service categories: Management Services, Patron and Business Support Services, Central System Services, Operational Support Services, Asset Management Services, Service Level Agreement and Revised Performance and Warranty Requirements, Cybersecurity and Compliance, and Patching.

- The processes and procedures for responding to LACMTA requests for services hereunder
- The processes and procedures for tracking and documenting activities hereunder
- The processes and procedures for controlling System Component and data access and for responding to LACMTA's requests for data processing activities such as personnel access authorization changes, fare table and display screen message modifications, etc.
- Means of tracking and adjusting service levels hereunder to ensure a high level of service is provided.

15.2.5.1 The Operational Plan will detail all applicable tasks procedures and process flow. Upon approval by LACMTA, the Operational Plan shall be maintained as a controlled document.

15.2.6 Standard of Work

All maintenance work at a minimum must conform to industry standards and in addition shall be in accordance with any Contractor or third-party manufacturers' requirements found in applicable operations and maintenance manuals.

15.2.7 LACMTA Supervised Work

If directed by LACMTA the Contractor shall not perform any service activities, or service activities requiring specific procedures, except in the presence of an authorized LACMTA representative.

15.2.8 Access to Facilities

LACMTA shall have the right to observe any maintenance activity conducted by the Contractor, including work taking place at the Contractor's facility. Staff designated by LACMTA's Project Manager shall have unrestricted access to this facility at all times.

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15.2.9 Services and Warranty Plan

The Services and Warranty Plan described in this document shall address the following purchased and/or installed systems or equipment components as of July 1st, 2019:

Device or System	Equipment Quantity*
RCDCS (Regional)	1
CDCS (LACMTA)	1
TVM	495
SAV	305
GATE	467
ESG	154
AFC communications network	1
SOT	50 FFSOT & 1,155 LFSOT
Garage Computer systems (GCs)	17
Bus Mobile Validator (BMV)	515
Special Event Bus Mobile Validator (SEBMV)	20

Station	TVM	SAV	RVG	ECX	SAG	ESG
7th and Metro	16	20	16	5	3	8
Civic Center	6	0	6	2	1	3
Hollywood/Highland	7	0	6	1	1	2
Hollywood/Vine	5	0	5	1	1	2
Hollywood/Western	3	0	5	1	1	2
N. Hollywood	10	0	11	2	2	4
Pershing Square	6	0	11	2	1	6
Union Station	10	0	19	4	2	7
Universal City	5	0	6	1	1	2
Vermont/Beverly	4	0	4	1	1	2
Vermont/Santa Monica	4	0	6	2	2	4
Vermont/Sunset	4	0	5	2	2	4
Westlake/MacArthur	7	0	9	4	1	4
Wilshire/Normandie	2	0	4	1	1	2
Wilshire/Vermont	4	0	8	2	1	3
Wilshire/Western	3	0	5	2	1	3
Norwalk	6	0	5	2	2	4
Lakewood	4	0	4	4	4	4
Long Beach Blvd	4	0	4	4	4	4
Wilmington / Imperial	7	7	14	9	4	10
Avalon	4	0	6	4	2	4
Harbor Freeway	3	0	4	4	2	6
Vermont	4	0	4	4	2	2
Crenshaw	4	0	4	4	2	4
Hawthorne	5	0	4	3	2	3
Aviation	5	0	4	3	1	3
Mariposa	4	0	5	2	1	3
El Segundo	5	0	4	3	2	3
Douglas	4	0	4	2	1	3

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Station	TVM	SAV	RVG	ECX	SAG	ESG
Marine/Redondo Beach	4	0	4	4	2	4
Soto Station	2	0	4	1	1	1
Mariachi Plaza	2	0	8	2	1	3
Lake Avenue Station	4	0	1	2	1	1
Allen Avenue Station	2	0	1	1	1	1
Sierra Madre Villa Station	4	0	3	1	1	1
Union Station	4	7	0	0	0	0
Chinatown Station	6	7	0	0	0	0
Lincoln Heights/Cypress Park	4	6	0	0	0	0
Heritage Square/Arroyo	4	4	0	0	0	0
Southwest Station	2	2	0	0	0	0
Highland Park	4	5	0	0	0	0
Mission Station	8	7	0	0	0	0
Fillmore Station	2	3	0	0	0	0
Del Mar Station	4	4	0	0	0	0
Memorial Park Station	4	5	0	0	0	0
Little Tokyo Station	4	6	0	0	0	0
Pico/Aliso Station	2	2	0	0	0	0
Indiana Station	4	6	0	0	0	0
Maravilla Station	4	6	0	0	0	0
East LA Civic Center Station	4	6	0	0	0	0
Atlantic Station	4	8	0	0	0	0
Warner Center Transit Hub	2	2	0	0	0	0
De Soto	4	2	0	0	0	0
Pierce College	4	2	0	0	0	0
Tampa	4	2	0	0	0	0
Reseda	4	3	0	0	0	0
Balboa	4	3	0	0	0	0
Woodley	4	2	0	0	0	0
Sepulveda	4	3	0	0	0	0
Van Nuys	4	5	0	0	0	0
Woodman	4	3	0	0	0	0
Valley College	4	2	0	0	0	0
Laurel Canyon	4	3	0	0	0	0
No. Hollywood Transit Center	2	5	0	0	0	0
Willow	3	3	0	0	0	0
Pico	6	12	0	0	0	0
Grand Avenue	5	4	0	0	0	0
San Pedro	2	2	0	0	0	0
Washington	2	2	0	0	0	0
Vernon	3	2	0	0	0	0
Slauson	2	0	2	2	1	2
Florence	3	4	0	0	0	0
Firestone	3	0	3	2	1	2
103rd Street	3	2	0	0	0	0
Compton	4	0	3	1	1	2
Artesia	3	0	3	1	1	1
Del Amo	4	0	3	2	1	2
Wardlow	4	4	0	0	0	0

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Station	TVM	SAV	RVG	ECX	SAG	ESG
Pacific Coast Highway	3	2	0	0	0	0
Anaheim	4	4	0	0	0	0
5th Street	4	4	0	0	0	0
1st Street	4	4	0	0	0	0
Transit Mall	3	4	0	0	0	0
Pacific	4	4	0	0	0	0
23rd Street	4	4	0	0	0	0
Expo / Crenshaw	4	5	0	0	0	0
Farmdale	4	6	0	0	0	0
Jefferson	4	2	0	0	0	0
La Brea	4	0	7	5	4	5
La Cienega	4	4	0	0	0	0
USC/EXPO	4	4	0	0	0	0
Expo / Vermont	8	7	0	0	0	0
Expo / Western	4	4	0	0	0	0
Canoga	7	6	0	0	0	0
Sherman Way	4	2	0	0	0	0
Roscoe	4	3	0	0	0	0
Nordhoff	4	2	0	0	0	0
Chatsworth	2	3	0	0	0	0
4th Floor Lab	4	2	2	1	1	0
Baldwin Hills Customer Service Center	1	0	0	0	0	0
East Portal Customer Service Center	1	0	0	0	0	0
East LA Customer Service Center	1	0	0	0	0	0
Cal State University Northridge	0	2	0	0	0	0
Colorado / 17th	4	4	0	0	0	0
Olympic / 26th	6	12	0	0	0	0
Colorado / 4th	7	0	6	2	2	4
Expo / Bundy	4	0	5	4	4	4
Culver City	5	3	8	4	2	4
National / Palms	2	0	5	1	1	2
Expo / Sepulveda	4	0	5	4	4	4
Expo / Westwood	2	3	0	0	0	0
Arcadia	2	3	0	0	0	0
Alameda	4	4	0	0	0	0
Citrus	2	3	0	0	0	0
Duarte	4	4	0	0	0	0
Irwindale	4	4	0	0	0	0
Monrovia	4	4	0	0	0	0
Harbor Gateway	4	0	0	0	0	0
Rosecrans	2	0	0	0	0	0
Manchester	2	0	0	0	0	0
Slauson	1	0	0	0	0	0
37th Street	1	0	0	0	0	0
Patsaouras Bus Plaza	1	0	0	0	0	0
LAC / USC Medical Center	1	0	0	0	0	0
Cal State LA	1	0	0	0	0	0
El Monte Station	6	0	0	0	0	0
Totals	495	305	265	121	81	154

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The Equipment Quantity does not necessarily reflect the System Components being serviced or warranted at any given time. LACMTA does not pay for Services, maintenance or warranties for System Components until they are installed and accepted by LACMTA in accordance with the technical specifications for each one. Any additional equipment that is additive to the quantities listed above will be subject to the same rates for long term maintenance coverage defined for each device type for each year defined in Table A below. Correspondingly, any equipment that is deductive to the quantities listed above will not affect the long-term maintenance coverage rate defined for each device type for each year for the device type quantities that remain in service.

Table A - Device Maintenance Rates

Pricing is per unit per month by calendar year					
2018 & 2019	2020	2021	2022	2023	2024
TVM	TVM	TVM	TVM	TVM	TVM
Price	Price	Price	Price	Price	Price
\$505.69	\$522.12	\$539.09	\$556.61	\$574.70	\$593.38
GATE	GATE	GATE	GATE	GATE	GATE
Price	Price	Price	Price	Price	Price
\$144.48	\$149.18	\$154.03	\$159.03	\$164.20	\$169.54
SAV	SAV	SAV	SAV	SAV	SAV
Price	Price	Price	Price	Price	Price
\$72.24	\$74.59	\$77.01	\$79.52	\$82.10	\$84.77
ESG	ESG	ESG	ESG	ESG	ESG
Price	Price	Price	Price	Price	Price
\$72.24	\$74.59	\$77.01	\$79.52	\$82.10	\$84.77
BMV	BMV	BMV	BMV	BMV	BMV
Price	Price	Price	Price	Price	Price
\$7.46	\$7.70	\$7.95	\$8.21	\$8.48	\$8.75
DCU 4	DCU 4	DCU 4	DCU 4	DCU 4	DCU 4
Price	Price	Price	Price	Price	Price
\$10.90	\$11.25	\$11.62	\$12.00	\$12.39	\$12.79

15.2.10 Contractor’s Management and Organization

The Contractor’s ongoing management responsibilities are:

15.2.10.1 The Contractor shall designate a Senior Corporate Executive to provide general oversight and guidance to the Contractor’s Customer Service Director. This Senior Corporate Executive shall provide an executive point for LACMTA to escalate resolution of problems that have not been satisfactorily dealt with at the local office level, and for identifying and correcting performance issues before they become problems.

15.2.10.2 The Contractor shall designate a Customer Service Director who

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shall be located on-site at the local office and shall be responsible for the overall operation of the Services Program relative to personnel, performance and quality of Work. The Contractor's Customer Service Director shall act as the main point of daily contact between the Contractor and LACMTA.

15.2.10.3 The Contractor shall designate additional assistant managers or supervisors as required for proper operation of the System Support Services and Warranties. A designated manager or supervisor shall be available at all times during transit operating hours.

15.2.10.4 Software Engineer Services. The Contractor shall designate a full time Software Engineer that is a specialist in the Nextfare software environment to be based at LACMTA's premises. This software engineer will work full time at the LACMTA offices alongside LACMTA engineers supporting the system for so long as Contractor provides this System Support Services and Warranty Plan under the Contract. The support provided by this person, or as augmented by additional people, shall include daily assessment of the System, support upon delivery of new software or an upgrade that requires testing and acceptance prior to field deployment. The Contractor's software engineer is to work with LACMTA staff during testing in LACMTA's TAP Test lab as outlined in section 15.7.10.

15.2.10.5 The Contractor will conduct monthly Services review meetings with LACMTA staff and submit a monthly Service Review Report that will contain the Contractor's performance for the relevant period, including the reporting of all applicable Service Level Agreements (SLAs), as well as the other items referenced in this System Support Services and Warranty Plan to be included in such monthly report.

15.2.10.6 The Contractor shall submit the Service Review Report within five (5) business days after the end of each calendar month. The Contractor and LACMTA shall hold a Service review meeting ("Service Review Meeting") five (5) business days thereafter. The Contractor shall thereafter submit in accordance with the Contract its invoice for the calendar month that is the subject of such Service Review Report, which is payable within 30 days in accordance with the Contract. LACMTA will review such invoices within 15 days and should LACMTA dispute the amount or completed work related to the invoice, the parties will work together to reasonably resolve any such issues within the following 15 days.

15.2.10.7 The Contractor shall maintain a quality assurance (QA) program including visit and inspection of location and systems where Services work is being performed. The QA Program will include documented corrective action to any non-conformity.

15.2.10.8 The Contractor will inform the LACMTA project manager reasonably in advance of specific resource requirements to facilitate and

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coordinate timely access. The Contractor will cooperate with LACMTA to minimize disruptions to LACMTA's normal business operations.

15.2.11 Education and Background

15.2.11.1 All Contractor technical personnel shall be subject to an intensive training program, conducted by the Contractor at its own facility and at its own expense prior to placement at LACMTA. Training shall be conducted in subjects such as component or module repair, Preventive Maintenance, revenue handling equipment (vault, cashbox, cart, and related System Components as appropriate) maintenance, and Data System operations. At the conclusion of the training, each technical person shall be subject to testing to assure competency in the required task(s).

15.2.11.2 Each technical person shall have, as a minimum, the following background: high school diploma, electronic engineering associate's degree or equivalent military school.

15.2.11.3 Each technician must be able to speak, read and write in the English language and have had courses in AC and DC electrical circuits, reading schematic diagrams, electrical/electronic measurements and electronic repairs. The Contractor shall provide written Certification that the above requirements have been met, and upon request provide supporting documentation.

15.2.12 On-Going Training and Testing

15.2.12.1 If it is necessary to replace employees for any reason during the Term, the new employees shall be subject to the same requirement as established by this article. Performance review and testing shall be conducted by the Contractor to determine the technical staff's level of comprehension and competency. Periodic training and testing of the technical staff shall be conducted by the Contractor to maintain a high level of technical competency. LACMTA shall be provided documentation that the above requirements are being met. Contractor staff that supports this System Support Services and Warranty Plan shall attend all required LACMTA Rail Safety Training meetings/seminars as required by LACMTA.

15.2.12.2 Certification/Training: Contractor shall employ an adequate number of technician(s) and other personnel to support all System Support Services and Warranty Plan activities hereunder and Specifications as mentioned in section 15.2.13 "Staffing Levels". All Contractor System Support Services and Warranty Plan personnel shall be Certified by Contractor (and as may be necessary, by third-party manufacturers) to perform all Remedial Maintenance and Preventive Maintenance tasks hereunder. Contractor, at LACMTA's request, shall provide evidence of certification (i.e., original diplomas, original letters of certification from OEM, etc.) and resumes that detail the experience of each employee who

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shall be utilized in performance of the Contract. System Support Services and Warranty Plan personnel who are not qualified to perform the necessary Work requirements shall not be permitted to work.

15.2.13 Staffing Identification and Reporting

15.2.13.1 Employee Identification Badges: All Contractor System Support Services and Warranty Plan personnel (including employees of Subcontractors) who perform Work at LACMTA locations shall have a picture identification badge, provided by LACMTA. Such personnel must wear their identification badge, in a clearly visible manner, at all times when on LACMTA property. At LACMTA's option, the identification badge shall be the same smart card used for access to System Components. If the identification badges are lost or stolen, the Contractor shall notify LACMTA immediately in writing of such an event. Badges shall be secured by the Contractor, or its subcontractor, upon termination of employment of any employee. These badges shall be promptly returned to LACMTA.

15.2.13.2 Contractor shall submit a comprehensive staffing plan, which shall include field technicians scheduling during system peak hours, Monday thru Friday and special event days. LACMTA will be responsible to provide the special event days, and any changes to such days, to Contractor in sufficient time to submit the staffing plan.

15.2.14 Security

15.2.14 The Contractor shall cooperate fully with LACMTA in establishing a secure repair process that provides the optimal protection against losses of revenue consistent with the provisions of this System Support Services and Warranty Plan.

15.2.14.1 LACMTA shall receive all keys for the System Components from the Contractor and in turn issue such keys as may be required to the Contractor's personnel. The Contractor's personnel shall be responsible for the safeguarding of any and all keys issued for the purpose of System Component and System Warranty maintenance. If a maintenance key is lost by one of the Contractor's staff, the Contractor shall immediately notify LACMTA's Project Manager and the Revenue Operations Service Desk ("ROSD"). Failure by the Contractor or its staff to follow these procedures will be considered by the LACMTA as a serious breach of the Contract. In the event that a specific key is missing for more than eight (8) hours, LACMTA shall review the matter. If LACMTA determines that the combination to that lock has been compromised LACMTA may direct the Contractor to replace all keys/locks (or recode tumblers, if possible) in the System of the same combination with corresponding new combinations. LACMTA will also obtain new keys associated with the new combinations. The Contractor will be responsible for all costs associated with changing the lock combination in addition to the cost of new keys.

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15.2.14.2 LACMTA shall establish procedures for safeguarding of revenues, including tickets with encoded value or rides. The Contractor shall be required to comply, in full, with these procedures. If during the process of repairing or maintaining the System Components it is noted by a Contractor's employee that the System Component contains revenue, the employee shall notify the appropriate LACMTA personnel so that arrangements can be made to remove the revenue prior to completing the repair or maintenance, or to provide a witness during the repair process.

15.2.14.3 It is to be expressly understood that the Contractor's personnel shall not be in contact with cashboxes or vault containers unless under the specific supervision of a designated LACMTA employee.

15.2.14.4 Revenue found in System Components is the property of LACMTA. The Contractor shall cooperate with LACMTA's requirements for accounting for revenue so that it is properly returned or credited to LACMTA.

15.2.14.5 The Contractor shall be responsible for providing secured storage areas for parts, spare units and other security sensitive items, satisfactory to LACMTA.

15.2.14.6 Contractor shall obtain background checks for all Contractor personnel involved in System Support Services and Warranty Plan Work with access to revenue, fare media, spare parts, or Data Systems.

15.2.14.7 The Contractor shall cooperate fully with the proper authorities during investigations or inquiries into problems as may be identified by the Contractor or LACMTA. The Contractor is required to submit all personnel and records to examination by LACMTA or personnel designated by LACMTA, and to allow observation of procedures, inspection and search of facilities and vehicles owned by or provided by the Contractor for purposes of this System Support Services and Warranty Plan. The Contractor's personnel shall be subject to polygraph tests at the request of LACMTA, consistent with applicable State and Federal law.

15.3 Patron and Business Support Services

15.3.1 Patron Support Services

Though Patron support services are primarily the responsibility of LACMTA or a LACMTA contractor, there may be occasions when the Contractor shall be called upon to assist in the resolution of specific issues related to Patron back office support.

In the event that a patron inquiry requires resolution or detailed investigation at the

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Software application or equipment level, the Contractor will provide assistance as requested. Should the Contractor fail to respond to a request generated via a formal LACMTA ticket within five business days with a reasonable solution or plan of action, the Contractor will be levied an assessment of \$500.00 per day beginning the day after LACMTA notifies Contractor it intends to assess and ending once the reasonable response is provided. This request will be processed via the ROSD.

15.3.2 Business Support Services

The Contractor shall be responsible to provide the following services:

- Support to LACMTA fare policy planning analysis.
- Fare change management, consisting of the implementation of three (3) updated fare schedules within a three-year period, starting upon execution of the services extension, as part of the Contract baseline. Additional fare change requests by LACMTA beyond the three (3) allotted for the three (3) year period will be covered by GC-24, CHANGES.
- A total of three (3) non-software modifications to update text and/or parameters within a three (3) year period starting upon execution of the services extension as part of the Contract baseline. Any additional requests by LACMTA beyond the three (3) allotted for the three (3) year period will be covered by GC- 24, Changes.
- If the Base Equipment Term is extended by contract modification, or new System device introduction or muni contractor added, Contractor shall provide one fare table change and one software build for changing controlled text/parameters, including ticket layout changes for each extended year which may be utilized at any time during the extended term. For fare table and software build changes for controlled text/parameter and ticket layout changes greater than the number of years in an extended term during the extended term, Contractor shall submit a cost proposal for each change in accordance with GC-24, CHANGES.
- Assistance with report issues.
- Degraded mode support.
- Assistance to resolve business related issues (settlement, recovery, card stock, card loading).
- Ongoing support as required to deal with day-to-day business-related issues such as reporting, report interpretation, business analysis, and program expansion.

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15.3.3 Software Recommended Changes

The Contractor shall make timely software upgrade recommendations related to emerging technologies and System improvement, including RCDCS/CDCS and NCS applications. The Contractor shall be responsible to provide an upgrade plan, however, LACMTA shall make the determination whether to proceed with a recommended change. The Contractor shall work with LACMTA staff to categorize and prioritize the upgrade process, if adopted. Any decision by LACMTA not to proceed with recommended change shall not impact the Contractor's obligation hereunder. RCDCS/CDCS upgrades included in the System Support Services and Warranty Plan are described in Section 15.4.13.

Should LACMTA request changes to the System outside the scope of Work, the Contractor will advise LACMTA about the feasibility of such change and options for implementation of such changes. Any implementation of such change shall be covered by GC-24, CHANGES.

15.4 Central Systems Services

15.4.1 Central System Computers and Operators

Central Systems is defined as the Regional Central Data Collection System (RCDCS), the LACMTA Central Data Collection System (CDCS) and the Participant NCS Systems as defined in Contractor submittal 8200-62213.C.00 dated August 1, 2006, ("Central Systems") for the following current Affiliated Agencies:

- Antelope Valley Transit Authority
- Culver City Bus
- Foothill Transit
- Gardena Transit
- LA DOT
- Pasadena (BMV)
- Santa Monica (BMV)
- South LA (BMV)
- Redondo Beach (BMV)
- East LA (BMV)
- Long Beach Transit (BMV)
- Montebello Transit
- Norwalk Transit
- Santa Clarita Transit
- Torrance Transit
- Glendale (BMV)
- Burbank (BMV)
- LAWA (BMV)
- Palos Verdes (BMV)
- LA County DPW (BMV)

If any additional Affiliated Agencies, other than those listed in this Section above, elect to become TAP-enabled and therefore require the System Support Services as described in this document, the Contractor may be required to extend such System Support Services to the additional Affiliated Agencies. The Contractor shall be compensated for such System Support Services over and above the amount(s) due under the terms of this System Support Services and Warranty Plan. Payment shall be made as required under GC-24, CHANGES.

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15.4.2 Central System Maintenance

The Contractor shall provide various support functions to the Central Systems installed at LACMTA, including, but not limited to:

- Ensure that established security levels are maintained, including Contractor maintained firewalls and Contractor responsibilities per Attachment (A) Patching Modification 152.00 to the Base Contract, which Modification is extended to cover the term of this System Support Services and Warranty Plan.
- Ensure financial reports and management information is maintained and updated as required by LACMTA.
- Maintain on-line database access to CDCS from all workstations in support of the daily operations.

15.4.3 Database Administration

While LACMTA reserves the right to perform database administration, Contractor shall perform primary database administration responsibilities, with the exception of tape management of the database backups and restore procedures for the backups. Contractor shall troubleshoot database issues, maintain the database configuration and monitor database performance.

15.4.4 Capacity Monitoring and Management

The Contractor shall provide LACMTA with performance monitoring and maintenance services related to the Central System. The Contractor will monitor the system and alert appropriate groups (as designated by LACMTA) in case of any abnormal trend.

The Contractor shall also ensure that services are monitored continuously and will provide ad-hoc or automated, schedule reports to LACMTA.

15.4.5 Recommendations for Hardware Upgrade

The Contractor shall periodically recommend hardware upgrades to best take advantage of emerging technologies, facilitate extensions to the system, or to ensure compatibility with other changes to the Central System or other systems. The Contractor shall be responsible to provide an upgrade plan, however, LACMTA shall make the determination whether to proceed with a recommended change, issue a Change Order if proceeding, and will be responsible to purchase any related hardware and/or software as set forth in the Change Order. The Contractor shall work with LACMTA staff to categorize and prioritize the upgrade process, if adopted.

15.4.6 Perform Hardware Upgrades (Information Technology)

The Contractor shall assist LACMTA with best practices, tips, and techniques for executing each upgrade step, critical success factors for upgrade planning and the latest

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upgrade tools and resources. The Contractor shall assess the compatibility of various software/ hardware combinations and with other existing systems.

15.4.7 Scheduled Maintenance

LACMTA shall support the Contractor during the scheduled maintenance of the Nextfare Central System (NCS) by providing the Contractor the opportunity to troubleshoot and fix issues, apply patches, apply new configurations and release new updates in an orderly fashion.

15.4.8 Table Maintenance

The Contractor shall provide the Table Maintenance Services pertaining to the Central System as described below.

15.4.10.1 Fare Table Maintenance

LACMTA is responsible for modification and testing of the Fare Tables and Fare Table settings, provided that should LACMTA require assistance, Contractor shall assist and/or perform the necessary work. Fare Table Maintenance shall address fare instrument creations/updates, transfer logic, use controls, purchase controls and all modules listed in the Nextfare GUI under "Fare Table Settings". The Contractor will require access to LACMTA's test facility to provide the necessary assistance.

15.4.10.2 Device Table Maintenance

LACMTA is responsible for modification and testing of the Device Table, provided that should LACMTA require assistance, Contractor shall assist and/or perform the necessary work. The Contractor will require access to LACMTA's test facility to provide the necessary assistance.

15.4.10.3 Facility Table Maintenance

The Contractor shall maintain the Facility Tables associated with each LACMTA facility.

15.4.11 Device Status

The Contractor shall monitor error and warning events and conditions. This will include the configuration management of the System Devices (or groups of devices), tables, software versions and data files.

15.4.12 Application Maintenance

The Contractor shall provide the following services as part of Application Support pertaining to the Central System:

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15.4.12.1 Monitor Data Latency

The Contractor shall monitor the data latency coming to the Central System and report operational concerns to LACMTA within 24 hours of any data latency incident.

15.4.12.2 Data Accuracy Monitoring

The Contractor shall monitor data correctness and assist in the reprocessing of transactions that are rejected by the Central System.

15.4.12.3 Application Tuning and Monitoring

The Contractor shall establish the System schedule, based on the needs of the LACMTA departments for reporting.

15.4.12.4 End of Day (EOD) Completion Monitoring

The Contractor shall be responsible to schedule and sequence various processes to ensure they do not interfere with business operations. The Contractor shall also monitor the EOD processes to ensure they are completed, and report the results to LACMTA. In case of problems, the Contractor shall notify LACMTA. If the problem is related to Contractor's Work, the Contractor shall initiate corrections.

15.4.12.5 Suspended Data Monitoring

The Contractor shall monitor suspended data transactions to ensure they are not lost and take steps, if necessary, to reprocess these transactions once system connection is reestablished. The Contractor shall publish a report that will identify the number of suspended transactions to both LACMTA and Regional Hummingbird server, and schedule this report for weekly delivery to LACMTA staff. Suspended transactions that are caused by system issues will be processed within two business days of re-establishment of system connections. Suspended transactions that are caused by human error will be processed within two weeks of the municipal operator or LACMTA correcting the issue (typically forgetting to add a device ID to the system).

15.4.12.6 Recommend Application Changes

The Contractor shall review organizational needs/objectives and providerecommendations to LACMTA to modify or extend the current functionality to address these needs. LACMTA is responsible to authorize the requisite changes and funding for such additional functionality.

15.4.13 RCDCS/CDCS Software Management and Change Control

The Contractor shall implement the RCDCS/CDCS NCS application upgrades within 30 calendar days after a) a major upgrade is available, b) it contains applicable

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functionality, c) it has been tested and d) it has been approved by LACMTA as suitable. Additional upgrade requests by LACMTA beyond functionality included in then-available upgrades will be covered by Section 15.3.3 and GC-24, Changes. At the time of an application upgrade, the Contractor shall provide LACMTA with upgraded APIs, a list of changes, as well as documentation on modifications.

15.4.14 Application Troubleshooting

The Contractor shall troubleshoot and escalate any problems to LACMTA identified during the evaluation. If a problem item pertains to fare tables, reporting system or databases, the Contractor will continue to support until corrections are complete.

15.4.15 Health Check – System Audit

The Contractor will examine the system logs routinely each day. The Contractor shall be responsible for noting the differences in operating time and monitor the trends for any degradation. Any stop and restart of a system process shall be investigated to determine if there is any conflict for a system resource or other timing issues that must be eliminated. Upon determination, a report will be generated and submitted to LACMTA within five business days. The report shall include an explanation and resolution process for any unscheduled stop and restart incidence. Contractor will include in the Operational Plan a procedure for who, how, and how often to inform based on severity of the incident.

15.4.15.1 System Dashboards

The Contractor shall provide system dashboards that monitor the health checks of SolarWinds and AFCMS for the covered System Equipment excluding CPOS and MPOS but including the covered garage computers. LACMTA will have direct network access to these dashboards which will display real time events and status of the health of the System, along with indicators showing system degradation and failure warnings. The System visibility will be at the device level which LACMTA will be able to access and monitor on a daily basis. The Contractor shall schedule quarterly review meetings with LACMTA to discuss status of dashboards and evaluate any required improvements. These meetings will be documented by the Contractor and provided in the monthly Service Review Report including details of all discussed improvements made which will be covered under this System Support Services and Warranty Plan.

15.4.16 Communication Network Performance

The Contractor will provide and maintain connectivity between:

- LACMTA CDCS and all connected AFC devices,
- LACMTA CDCS and RCDCS,
- Third party retail network and RCDS,
- CGS and on onboard bus devices via RFLAN, and
- RCDCS and debit/credit network.

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- The Contractor will monitor these connections twenty-four (24) hours a day and will immediately notify LACMTA of any connectivity issues that impact the performance of the network.

15.4.17 Central System Operations

System Operations addresses the operation and management of the Central System. The Contractor shall be responsible for performing all activities required to maintain the Central System Services and Warranty requirements through the duration of this System Support Services and Warranty Plan.

15.4.17.1 CDCS & RCDCS System Network Maintenance

CDCS and RCDCS system network maintenance shall include all equipment associated with the CDCS and RCDCS system network including the communication lines and associated components. Upon learning that a communication line has a problem, the ROSD operator will immediately take the appropriate steps to ensure that the communications are restored within the time requirements as specified in this System Support Services and Warranty Plan.

15.4.17.2 System Monitoring and Tuning

The Central Systems shall be operational 24/7 with no unscheduled downtime. The Contractor shall maintain the system uptime within the SLAs as defined in this System Support Services and Warranty Plan. The Contractor shall specifically be responsible for the following:

- System monitoring,
- Performance tuning and management, and
- Network monitoring and troubleshooting

15.4.17.3 AFC Table and File Download Management

The Contractor shall monitor the download of tables and files. These include fare table updates, delivery of benefits, autoload, hotlists, etc. The Contractor shall perform this monitoring as part of daily system health checks.

15.4.17.4 Job Scheduling

The Contractor will be responsible to oversee the scheduling of various jobs, including end of day processing and autoload/hotlist table delivery to devices. The Contractor shall configure various scheduled jobs and system-wide timing. Contractor is also responsible for monitoring the scheduled jobs as part of overall system monitoring. The Contractor shall send a daily notification of any scheduled job that failed to run.

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15.4.17.5 Backup and Recovery

The basic database administration shall be performed by LACMTA database administrators. Basic database activities performed by LACMTA shall include:

- Backup tapes rotation

The Contractor shall be responsible to perform the following database activities:

- Monitoring table size,
- Monitoring performance of the archiving process,
- Monitoring Oracle log files, and
- Provide a schedule for database backups, migration, and recovery process in the Operational Plan.
- Perform database backups per schedule.
- Complete Data restoration process.
- Complete Data migration.

The Contractor shall include a section in the Operational Plan outlining all backup and recovery process and procedures.

15.4.17.6 Monitor Table and File Download

The Contractor will support LACMTA to monitor the system table sizes (hotlist, autoloader, offender, line/route, stopping and employee) as part of the daily health check to make sure the devices in the system receive no more than the load they are designed to handle. If necessary, the Contractor shall recommend applications of filters at the RCDCS/CDCS level to LACMTA for their review to ensure the capacity is not exceeded. The filters will allow only the specified amount of records to be transmitted to the devices.

15.4.18 Reports System Management

Reports system management pertains to the reports provided as part of the System based upon data housed in the Central System.

The Contractor shall provide reporting based upon the CDCS and RCDCS. Reporting will be provided for the Affiliated Agencies listed in Section 15.4.1. The Contractor shall provide the following support with respect to reports:

15.4.18.1 Troubleshoot Problems Within Reports

The Contractor shall troubleshoot and resolve report problems in the event that report setup is not functioning properly. Contractor shall notify LACMTA of report problems and resolutions.

Report issues resulting from factors outside the scope of the Contractor's System Operations responsibilities (such as network connectivity disruption, including those caused by LACMTA and/or its agents, etc.) shall be covered by GC-24, Changes.

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15.4.18.2 Schedule Reports

The Contractor shall support and/or schedule the reports on behalf of LACMTA.

15.4.19 Software Support

Contractor shall provide, license and maintain all covered system software as outlined in Attachment (A) Patching Modification 152.00. LACMTA shall have the right to sublicense such system software pursuant to the terms and conditions as stated in GC-11. Contractor shall maintain for LACMTA's review a complete listing of all System Software and copies of all current licenses, including third party licenses. .

15.4.19.1 The Contract price includes the cost of all software licenses, and maintenance thereof, supplied by the Contractor, including third-party software, to support the following System software and any other System Software for the Term, as summarized below:

Base Hardware	Communications Hardware	Base and Regional Software
<ul style="list-style-type: none">• ASA Firewalls• Cisco Switches• RSA Appliance• Raritan Console Switch• KVM	<ul style="list-style-type: none">• MX2800 MUX• 4500 Switches• CISCO 2960• AS5350 Router• LACMTA Garage Computers• Bus Mobile Validators	<ul style="list-style-type: none">• Hummingbird BIWEB• Hummingbird BIAdmin• Hummingbird BIQuery• MacAfee• Shavlik Patching app• Nextfare• RedHat Linux• SolarwindsVeritas

15.5 Operational Support Services

15.5.1 Telephone Support

Contractor shall provide telephone support for technical-related problems and questions. Telephone support shall be available during normal business hours (Monday through Friday, 8:00 am to 5:00 pm), and evening and weekends on an as-needed basis.

15.5.2 Engineering Support

This service activity provides for ongoing engineering resources to monitor and improve reliability, manage system life cycle and address obsolescence issues.

The Contractor shall provide the following Engineering Support services:

- Manage device software updates/upgrades (develop, test, certify and deliver device software to LACMTA for LACMTA installation).

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- Manage Central System updates/upgrades (develop, test, certify and delivery Central System software to LACMTA for LACMTA installation).
- Provide support with Nextfare Central System (NCS) application issues.
- Support third party software updates and evaluate impacts on the NCS System.
- Support Asset Management and Revenue services with device application or hardware issues.
- Provide telephone support for technical-related problems and questions. Telephone support shall be available during normal business hours, and evening and weekends on an as-needed basis.

15.5.3 Revenue Operations Service Desk (ROSD)

The Contractor shall provide a Revenue Operations Service Desk that operates seven days a week, 24 hours per day. The ROSD operator shall manage all AFC System alarms and handle all calls.

On a day-to-day basis the ROSD is the central point of contact for all technical and business support services. The Contractor currently utilizes the Metrix Service Management Application as the monitoring and workflow tool to track and manage all incoming calls or service work assignments. All calls are logged and assigned work orders. The orders are then assigned, either to an individual resource, or, in the case of asset maintenance calls, to a dispatcher.

In addition, the ROSD shall perform the following duties:

- Real-time monitoring of all System components, data and alarms that are automatically created by the System.
- Determine the priority level of each alarm or data anomaly and proceed appropriately in accordance with the Operational Plan approved by LACMTA.
- Manage repair calls made to the ROSD by LACMTA staff or by automated means. These calls shall be entered into a database log and dispatched to field support staff for action.
- Handle all calls from the field support staff and maintain a database of actions taken.
- Provide analysis of asset maintenance reports including report summaries as well as ad hoc reports and report summaries on system performance as may be requested by LACMTA.
- Track all asset maintenance activities for each Field Service person including repairs, routine and Remedial Maintenance, vandalism, and problems found and repaired by field service personnel.
- Provide reports covering all service support actions, including the individual performance of asset maintenance activities and responsiveness to calls of each Field Service person.
- Provide monthly asset maintenance and Contractor performance reports.
- Handle and/or dispatch any calls as prescribed by LACMTA that pertain to the

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GCS and wireless system.

- Handle and/or dispatch any calls as prescribed by LACMTA that pertain to LACMTA treasury operations and equipment revenue servicing, with the exception of those related to specific fareboxes, which will be handled by LACMTA radio dispatchers and/or LACMTA farebox maintenance staff – except for a service deficiency or failure attributable to Contractor-built software operating on fareboxes referenced here.
- Maintain contact with both Contractor and LACMTA supervisory personnel as directed by LACMTA.
- Coordinate closely with LACMTA rail and bus operations control centers to provide information and respond to requests from operations control personnel relating to operation of the AFC System.
- Securely handle keys and other security related items as directed by LACMTA in emergency, overtime, and normal situations, in accordance with the Operational Plan.

15.6 Asset Management Services

15.6.1 Preventive and Remedial Management Responsibilities

The Contractor shall be responsible for damage, repair or replacement of System Component parts and consumables due to any acts, omissions, misuse including forcing entry via paddle or gate manipulation, damage, vandalism, or other use of the system that exceeds Contractor's or OEM's documented recommended MCBF, or external events not subject to coverage hereunder (such as fire or water damage and/or accident), or wear and tear that is less than \$1000 per incident. Bezel replacement for any and all reasons, including solar-induced damage, is capped at \$10,000 per year in material costs for the term of the System Services and Warranty Plan.

The Contractor is not responsible for damage, repair or replacement of System Component parts and consumables due to any acts, omissions, misuse including forcing entry via paddle or gate manipulation, damage, vandalism, or other use of the system that exceeds Contractor's or OEM's documented recommended MCBF, or external events not subject to coverage hereunder (such as fire or water damage and/or accident), or wear and tear unless such a) is not or are not a direct consequence of a failure to provide Preventive Maintenance and/or Remedial Maintenance and b) cost at least \$1000 per incident. LACMTA shall compensate the Contractor under GC-24, Changes for repairs or replacements in such instances.

15.6.2 Replacement Parts and Consumables

The Contractor shall be responsible for all costs associated with the securing of necessary consumables, hardware and supplies to perform all levels of maintenance and repair to the System to include all System Components. The consumables used, such as greases, solder, flux remover, PCB sealer, solvents, lubricants, cleaners, etc., shall be approved by the System Components manufacturer for their use. The Contractor shall strive to repair or replacement System Components with parts that are identical to those originally specified

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with the installed System Components. If repair/replacement by an identical part is not possible, the repaired/replaced System Component part shall be comparable in both quality and performance to the part originally installed or delivered. Only approved OEM upgrades shall be allowed. No substitute, after-market or nonconforming materials shall be allowed. All materials are subject to inspection and Acceptance by LACMTA's Project Manager.

15.6.2.1 Spare Parts and Inventory Control

The Contractor shall be responsible for providing, storing, controlling and securing all spare parts and consumables required for asset maintenance of the LACMTA system.

Contractor shall be responsible for the security and control of any spare parts inventory provided by LACMTA as well as advising on obsolescence issues that could impact performance of System Components. It is understood that over time, model numbers and versions may change. Any replacement or substitution of listed spare parts must be fully compatible with the System Component it is intended to replace. All materials, spare parts and consumables associated with this System Support Services and Warranty Plan and as supplied by LACMTA shall be the sole property of LACMTA. The Contractor shall be responsible for the proper maintenance of all furnished System Components for the duration of the Support Services Contract and any options. The Contractor shall maintain an auditable inventory of Spare Parts, System Components, consumables and tools necessary for all maintenance hereunder, which shall be readily available if requested by LACMTA.

The Contractor shall maintain an appropriate inventory of spares to meet SLA levels identified in this System Support Services and Warranty Plan at Contractor's cost. On-site Contractor staff will monitor consumption and reorder at Contractor's cost as required, and those spares will be the property of the Contractor.

At the conclusion of the Contract, all spare parts that are not the property of Contractor as described above will be turned over to LACMTA at no additional cost.

15.6.2.2 Serial Numbers

The Contractor shall permanently imprint all fare collection, computer, repair, diagnostic and any other LRUs supplied with serial numbers. The serial number shall be entered into the computer database for purposes of tracking inventory, repair reporting and tracking, and the System Support Services and Warranty Plan. System Components designated by LACMTA shall have a LACMTA inventory number and label applied.

15.6.3 Field Support

The Contractor shall provide sufficient field support so as to meet the requirements as stated herein. Field Support staff will perform all repairs and Remedial Maintenance. Once the maintenance action is performed, the maintenance person will notify the ROSD of the action taken and the time when the System Component was placed back into full

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service. In addition, the maintenance person will record the details of the

maintenance action, which will include maintenance person's name, badge, date, time, station, System Component number, and action taken. This information will be entered into a database for historical records and analysis.

Field Support Staff shall perform the following:

- All preventive maintenance of Fare Gates, Swing Gates, TVMs, SAVs, LACMTA Fourth Floor Lab SOTs, LACMTA Division Garage Computers and network System Components.
- Communicate with the ROSD Operators in administering service calls.
- Remedial Maintenance including bezel replacement due to solar-induced fading, cleaning, fingertip clearing of jams of all the above System Components as required.
- Periodic diagnostic checks between Gating Equipment, Swing Gates, TVMs, SAVs, and the CDCS & RDCS and the Financial Clearing Service.
- Record-keeping of all maintenance work performed and generation of weekly and monthly report.
- Field Support staff will log on to a TVM or other System Component capable of accepting the log-on at the beginning and end of their shift in addition to once every hour during their shift. If over time is needed the maintenance person shall log on at the beginning and end of the over time-period.
- All malfunctioning parts or subassemblies removed from the equipment must be properly tagged by the Field Support Staff prior to being sent to the Shop for re- pair. The tag shall include the Field Support person's name, time and date re- moved, machine number part was removed from, and a description of the defect.
- Field Support Staff will notify the service desk when a maintenance action is completed, whether by phone or over the System.

15.6.4 Repair Shop Operations

15.6.4.1 The Contractor shall staff and operate a shop that will coordinate all mechanical and electronic repairs of all elements of the system. This includes all subassemblies, components, bill and coin cashboxes and cassettes. All repairs will be performed according to the manufacturers' guidelines.

15.6.4.2 Repair Shop Operations will include:

- An area for equipment repair and testing.
- A secure area for storage of supplies, parts, subassemblies, spare equipment, and unit exchange items.
- An additionally secured and restricted area where repairs are made to the bill handling unit assembly, and bill cassettes.
- An additional restricted area for mechanical repairs to security related equipment.
- Maintaining an Auditable inventory control system and current files/databases for spare units, spare parts, maintenance items/tools, and consumables procured by

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LACMTA under this System Support Services and Warranty Plan.

- Furnishing any spare parts in addition to LACMTA inventory, test System Components, and consumables needed for maintenance.

15.6.4.3 Repair Shop Operations will include a Unit Exchange program where components coming from the field and going to the field will be tracked, repaired, and tested. Once repaired in the Shop, the Unit Exchange items will be placed in a holding area to be reissued to the Field Support Staff. The Contractor will also implement a Quality Control area where all Unit Exchange items are tested after repair, to ensure adherence to the Manufacturers' requirements.

15.6.5 Maintenance

15.6.5.1 Personnel and Organization

15.6.5.1.1 The Contractor shall provide all the necessary personnel to operate the System Support Services and Warranty Plan successfully. Personnel shall meet minimum standards outlined herein.

15.6.5.1.2 All Contractor personnel will follow and conform to all LACMTA operating rules and regulations. Contractor shall screen and factory train all participants. The employees shall be professional and experienced personnel in the management and supervision of the program. All personnel shall wear distinctive uniforms for easy identification. All the Contractor's personnel are subject to polygraph testing.

15.6.6 Contractor's On-Site and Support Staff

15.6.6.1 The Contractor shall provide a full complement of technical, clerical, inspection, repair and supervisory personnel to perform all tasks associated with the Work as indicated herein.

15.6.6.2 In addition to the required complement of on-site personnel, the Contractor shall provide the services of competent, professional and experienced staff of computer programmers, who shall provide all of the required programming support in the development of the specialized reports and data gathering requirements, and to respond to and analyze programs relating to the operations of the fare collection System electronics and the Data System installed.

15.6.7 Reporting

15.6.7.1 In addition to the System requirements in this System Support Services and Warranty Plan, the Contractor shall utilize a computer-based system to track the maintenance, inventory and performance of the fare collection System ("Metrix"). This system shall be capable of tracking both Rail and Bus System Components. The computer systems shall be used to log repairs and analyze the

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status of the Support services Program. The system shall be on Contractor's LAN/WAN, and Contractor shall provide reports "as required" to LACMTA's Management.

15.6.7.2 Reports shall include, without limitation:

- Daily 10:00AM morning system status report or "dashboard" including current events or projects impacting the LACMTA system.
- Preventive maintenance schedules for all System Components and modules.
- System Components maintenance performed.
- Projected Preventive maintenance.
- Date installed, System Component or module.
- Date removed, System Component or module.
- Employee identification to work performed.
- System Component history.
- Module history.
- Retired System Components.
- Retired modules.
- System Components, LRUs, or other materials replaced or repaired under warranty.
- Hours, days or cycles of operation by System Component and major module.
- Labor hours, warranty.
- Labor hours, support services program.
- Warranty repair work, System Components.
- Preventive maintenance work performed, by unit, employee, etc.
- Repair maintenance work performed, by unit, employee, etc.
- Problems by type, affected module, quantity, frequency.
- Data System history files.
- Key assignments.
- Personnel assignments, hours and cost.
- Expenditure of parts, warranty - type, quantity, dollar value.
- Expenditures of parts, Preventive maintenance program - type, quantity dollar value.
- Expenditures of parts, repair maintenance program - type, quantity dollar value.
- Comparison between division locations to highlight common or isolated problems.

15.6.7.3 Metrix shall also have the capability of providing database searches and relational analysis as required by LACMTA.

15.6.7.4 All data generated by Metrix shall be the property of LACMTA and shall be made available by the Contractor within twenty-four (24) hours of any request by LACMTA in either hard copy or machine readable form. Data shall be treated by the Contractor as proprietary and confidential to LACMTA and shall

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not be released to any other organization without express written authorization by LACMTA.

15.6.7.5 Appropriate support System Components shall also be provided for all computers.

15.6.7.6 If directed by LACMTA Contractor field personnel shall be required to generate accountancy tickets for transmittal to LACMTA.

15.6.8 Remedial and Preventive Maintenance Services

15.6.8.1 Remedial Maintenance

15.6.8.1.1 Remedial Maintenance shall consist of the unscheduled maintenance of System Components (and any specific assemblies, components, parts or subsystems thereof) performed to return the failed item to full operational status. Remedial Maintenance shall include repairs and maintenance necessary due to wear and tear and damage as the result of normal usage. Such maintenance services shall be considered part of standard maintenance and LACMTA shall incur no additional charge therefore.

15.6.9 Work Authorization

LACMTA shall supply Contractor with a list of the titles of all individuals authorized to request Preventive Maintenance, special maintenance on equipment in service, repair of equipment, or relocation of equipment. Thereafter, LACMTA shall give written notification of any changes to such list. Contractor shall not be required to respond to any requests from personnel not on said list for the above types of Work. Contractor shall, however, respond to any LACMTA employee who is reporting System Components out of service.

15.6.10 Unscheduled Preventive or Remedial Maintenance

If during Remedial Maintenance, it is apparent that a Preventive Maintenance procedure is required to ensure sustained operation of the System Components, the Contractor must complete the required Preventive Maintenance and notify LACMTA of this condition and action. In addition, if during Preventive Maintenance it is apparent that Remedial Maintenance is required, the Contractor must complete the required Remedial Maintenance and notify LACMTA of this condition and action. If field staff finds defects while performing their normal duties, these defects are to be repaired immediately.

15.6.11 Reporting

For each Remedial Maintenance call the Contractor shall complete a Contractor Maintenance/Repair Report in a form as Accepted by LACMTA. Contractor shall provide LACMTA these reports in an Approved database format. All diagnostic reports, either hard

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copy or electronic files (as preferred by LACMTA), obtained from System Components as part of any Remedial Maintenance activity shall be given to LACMTA representative at the time of service.

15.6.12 Return to Service

Contractor shall be responsible to ensure that all Malfunctioning Assemblies, Components or parts removed from System Components are repaired and function properly when they are returned to service. All Assemblies, Components or parts shall be repaired by a technician Certified by the Contractor and/or the OEM for such repair, and for diagnostics. Replacement parts shall be either new parts or parts equivalent in performance to new parts when used with the System Components. Parts removed from the System Components shall become Contractor's property. The cost of replacement parts (where not covered by warranty) shall be included in the cost of the Maintenance Services, unless specifically otherwise provided herein. It shall be the responsibility of the Contractor to repair all parts and assemblies as expeditiously as possible, so as to adhere to the Contract's Availability and Response Time requirements. All Malfunctioning parts must be properly tagged when removed from the System Components.

15.6.13 Preventive Maintenance

Preventive Maintenance shall consist of regularly scheduled maintenance activities, required to ensure optimal performance of all System Components. Preventive Maintenance tasks, and the intervals at which they are to be performed, shall be submitted for LACMTA review and Acceptance. In no event shall Preventive Maintenance intervals be greater than any Contractor or manufacturer recommendations applicable to the System Components. Preventive Maintenance intervals shall not be changed without the prior Acceptance of LACMTA. Details of the Contractor's Preventive Maintenance practices shall be detailed in the Operational Plan.

15.6.14 Asset Management Services

The objective of the Asset Management service is to minimize system component downtime, asset maintenance costs, spare parts inventory, and consumable costs. An important function is to assure asset life for Gating Equipment, swing gates, TVMs, SAVs and LACMTA Division Garage Computers for the Term of this System Support Services and Warranty Plan. The Contractor shall provide all labor, equipment, materials and consumables to ensure proper asset maintenance and the highest feasible availability for all System Components covered by the Asset Maintenance responsibility. The inventory of LACMTA-owned spares used or consumed in the performance of the Services under this System Support Services and Warranty Plan shall be replenished by the Contractor at the conclusion of the term.

All asset maintenance work must conform to contractual standards and specifications at a minimum and shall comply with any Contractor or third-party manufacturers' requirements

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found in applicable operations and asset maintenance manuals.

At LACMTA's option, and if so directed by LACMTA, the Contractor shall not perform any asset maintenance activities including asset maintenance activities requiring specific procedures, except in the presence of an authorized LACMTA representative.

15.6.15.1 Contractor's Asset Management Responsibilities

- The Contractor must maintain a working business office that is staffed by Supervisory personnel, 5:00 a.m.–5:00 p.m. weekdays (subject to change by LACMTA). During time periods when this office is not staffed or Supervisory personnel are not physically present, there must be an automated message paging service available to pass on service requests to responsible supervisory personnel. During off-hours, Contractor shall assign an On-Call Duty Supervisor who will be available to provide supervision to Contractor field staff.
- The Contractor shall provide all parts (exclusive of LACMTA-owned spares), materials, labor (including adequate staffing levels to handle all asset maintenance demands), testing System Components, tools, vehicles, asset maintenance facilities and all other items required to perform the asset maintenance services to be provided hereunder. The Contractor must maintain a readily available inventory of parts, components and tools necessary for all asset maintenance hereunder.
- The Contractor shall furnish any spare parts in addition to LACMTA inventory, test System Components, and consumables needed for asset maintenance.
- The Contractor shall maintain an auditable inventory control system and current files/databases for spare units, spare parts, asset maintenance items/tools, and consumables procured by LACMTA under this System Support Services and Warranty Plan.
- LACMTA shall have the right to observe any asset maintenance activity conducted by the Contractor, including work taking place at the Contractor's facility. Staff designated by LACMTA's project manager shall have unrestricted access to this facility at all times.
- The Contractor shall staff and operate a shop that will coordinate mechanical and electronic repairs of all elements of the system. This includes subassemblies, components, bill and coin cashboxes and cassettes. All repairs will be performed in accordance with manufacturer's guidelines.
- Field support staff shall travel from station to station using LACMTA rail service as long as their response time can be achieved. If not, the Contractor will provide other means for traveling to each asset maintenance call. Contractor shall utilize a Warranty tracking system, using commercially available software for the acknowledgment of beginning and ending of Warranty dates by product and sub-product.

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- Field support staff shall utilize Contractor provided service vehicles for each asset maintenance call at any and all non-rail equipment locations such as Regional Muni and customer service centers. These vehicles will be marked for security identification and will be reasonably stocked by Contractor with spare parts for proper maintenance of non-rail and rail equipment. LACMTA will allow Contractor's continued use of LACMTA field storage lockers in place as of May 2018.

15.6.15.2 Scope of Services – Asset Maintenance

The equipment types that are subject to Asset Maintenance are as defined in the Table below.

The Contractor shall also be responsible for asset maintenance and service for the garage computer and wireless LAN.

Asset Maintenance shall include the functions shown below.

		LACMTA			Bus Systems	SOT	BMV	DCU 4
	Central Systems	Gating Equipment	TVM	SAV	Wireless LAN and LACMTA Garage Computers			
Level 1 Maintenance (or cleaning)		√	√	√	√			
Level 2 Maintenance	√	√	√	√	√			
Depot		√	√	√	√	√	√	√
Asset Life Cycle Management		√	√	√	√		√	√

15.6.15.3 Level 1 & 2 Maintenance

The Contractor shall be responsible to provide Level 1 and 2 asset maintenance to the equipment. Level 1 and Level 2 asset maintenance is defined as follows:

- Level 1 - Preventive
- Level 2 - Corrective/Remedial.

Dependent on the type of asset maintenance required, Level 1 and/or 2 asset maintenance actions may require removal of parts/equipment from the location for repair at the Contractor's facility.

Field Support staff shall perform the following:

- All Preventive Maintenance of TVMs, Gating Equipment, Swing Gates, SAVs,

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LACMTA Fourth Floor Lab SOTs, and LACMTA Division Garage Computers.

- Communicate with the ROSD operators in administering service calls.
- Remedial asset maintenance, which includes cleaning, fingertip clearing of jams of all the above System Components as required. All such repairs shall be performed by the Contractor in a timely fashion.
- Periodic diagnostic checks between TVMs, Gating Equipment, Swing Gates, SAVs, MPVs, LACMTA Division Garage Computers and the Central System.
- Recordkeeping of all asset maintenance work performed, and generation of weekly and monthly reports.

15.6.15.3.1 Preventive Maintenance (Level 1)

Preventive Maintenance shall be performed on relevant system elements at regular intervals, based on the manufacturer's recommendations, and with sufficient frequency to support the availability targets set forth in this System Support Services and Warranty Plan. In addition, the Contractor shall regularly clean the interiors and exteriors of all units as needed. The Contractor shall specifically provide a Preventive Maintenance schedule for the following system elements:

- Preventive Maintenance tasks, and the intervals at which they are to be performed, shall be submitted for LACMTA review and approval. In no event shall Preventive Maintenance intervals deviate or change from the Contractor's or manufacturer's recommendations applicable to the System Components without the prior approval of LACMTA. Contractor shall be responsible for the determination of Preventive Maintenance interval rates and shall communicate any rate deviation or adjustment to LACMTA prior to performance.

15.6.15.3.2 Preventive Maintenance Schedule

The Contractor shall develop a Preventive Maintenance schedule for all System Components, which shall be included in the Operational Plan.

Performance of Preventive Maintenance shall be coordinated with LACMTA. For example, LACMTA may require that Preventive Maintenance shall only be performed on certain days of the week (including weekends), or restricted from certain days of the month (such as the last three and first two days of the month), or days before or following certain holidays.

In the event that Preventive Maintenance personnel are unable to perform scheduled asset maintenance due to any actions attributable to LACMTA, the Contractor must be afforded a re-schedule opportunity to complete deferred Preventive Maintenance tasks within seventy-two (72) hours of the originally scheduled time.

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15.6.15.3.3 Preventive Maintenance Checklists

Contractor will use mobile devices that track Preventive Maintenance (“Preventive Maintenance” or “PM”) as they are performed and will be recorded in a Metrix PM service report. The Metrix PM service reports will be stored in the Contractor’s database.

Contractor will maintain a Preventive Maintenance checklist for each device, outlining all Preventive Maintenance work to be performed at each device on a monthly basis. This checklist format will be included in the Operational Plan.

Preventive Maintenance tasks that are not completed as scheduled must be specifically identified on a separate checklist, including an explanation for non- completion of the task.

15.6.15.3.4 Corrective/Remedial Maintenance (Level 2)

Corrective/remedial asset maintenance shall consist of the unscheduled asset maintenance of System Components (and any specific assemblies, components, parts or subsystems thereof), upon notice of failure of such System Components to return the failed item to full operational status. Corrective/Remedial Maintenance shall include repairs and asset maintenance necessary due to wear and tear as the result of normal usage. Such asset maintenance services shall be considered part of standard asset maintenance and LACMTA shall incur no additional charge.

15.6.16 Non-Fair Wear & Tear (NFWT)

In the event of damage to the System Components or portions thereof due to abnormal wear and tear defined here as direct and intentional misuse of the system (such as forcing entry via paddle or gate manipulation), or use of the system that exceeds Contractor’s or OEM’s documented recommended MCBF or external events not otherwise covered hereunder, Contractor shall provide notification to LACMTA of a NFWT condition and upon receiving approval from LACMTA to proceed, replace or repair the affected portions of the System Component, treating such action as a Remedial Maintenance action, except that the work shall be covered by GC-24, Changes.

NFWT items will be classified as non-chargeable in terms of equipment availability until such time as NFWT item has been replaced or repairs where applicable.

15.6.17 Work Authorization

LACMTA shall supply the Contractor with a list of all individuals (and their titles) authorized to request Preventive Maintenance, special asset maintenance on equipment in service, repair of equipment, or relocation of equipment. Thereafter, LACMTA shall give written notification of any changes to such list. Contractor shall not be required to respond to any requests from persons not on the LACMTA list for the above types of Work. Contractor shall, however, respond to any LACMTA employee who is reporting System Components out of service.

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15.6.18 New Currency

The baseline Contract scope does not encompass the introduction of new or modified currency. All hardware/software modifications necessary due to the introduction of new or modified currency will be covered by GC-24, CHANGES.

15.6.19 Depot Maintenance

Depot maintenance refers to all asset maintenance and Warranty activities that are performed at the Contractor's facility. These activities may be performed on machines, components, etc. and includes all depot maintenance personnel to provide these services, as well as pick-up, repair, testing, delivery and redeployment.

Limited Function Sales Office Terminals (LFSOTs) and BMVs shall be maintained as Depot repair. LACMTA and/or its agents shall notify Contractor of a faulty LFSOT, or MPV/MPE, or BMV and the Contractor shall provide a return material authorization (RMA) number. The LFSOT, BMV shall then be delivered to the Contractor and Contractor shall provide a fully functional LFSOT, BMV in exchange the same day.

The Contractor shall maintain a sufficient inventory of LFSOTs, and BMVs to accommodate typical Corrective/Remedial Maintenance activities. This inventory does not cover maintenance required as a result of accident, vandalism, criminal activity including cybercrime, and/or natural disasters, or damage caused by LACMTA third party agents' actions.

The Depot operations will include:

- An area for equipment repairs and testing.
- A secure area for storage of supplies, parts, subassemblies, spare equipment, and unit exchange items.
- An additionally secured and restricted area where repairs are made to the bill handling unit assembly, and bill cassettes.
- An additional restricted area for mechanical repairs to security related equipment.
- An auditable inventory control system and current files/databases for spare units, spare parts, asset maintenance items/tools, and consumables procured under this System Support Services and Warranty Plan.

Provision of any additional spare parts over and above LACMTA-supplied spare parts inventory, test system components, and consumables needed for asset maintenance and to meet defined SLA levels. Contractor shall be responsible for all shipping charges for replacement System Components, parts and other material.

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15.6.20 Asset Life Cycle Management

Asset life cycle management is intended to ensure the equipment is supportable during the term of Contractor's provision of this System Support Services and Warranty Plan. The Contractor is responsible to manage the asset life cycle applicable to each component of the equipment so designated in this System Support Services and Warranty Plan. The asset life cycle management includes Asset Refresh, the identification and proposed resolution of any component obsolescence issues, and periodic recommendations for the upgrade/replacement of specific components to ensure required performance targets are maintained.

The objective of asset life cycle management is to ensure that failure rates do not increase due to component fatigue or obsolescence during the life of this System Support Services and Warranty Plan. The Contractor will be responsible for asset life cycle management on all System Components.

15.6.21 Principle of Planned Asset Renewals/Overhauls

"Asset Refresh" is the replacement or overhaul of modules that will be carried out in advance of the module displaying an increased failure rate and is provided as part of the Warranty provided by Contractor hereunder. The modules serviced by Asset Refresh shall be TVMs, Gating Equipment, SAVs and LACMTA Garage Computers. The driving factor behind Asset Refresh and overhaul of AFC and associated equipment is to ensure that failure levels do not increase over time. In addition, consideration is given to items that may become "life expired" through obsolescence. A pre-planned schedule will be implemented to maintain the health of the assets to ensure that performance and service level requirements are met. Contractor shall be responsible for all shipping charges for replacement or overhaul of System Components, parts and other material.

In addition to Corrective/Remedial Maintenance, the Contractor will coordinate with LACMTA to recommend any separate overhaul requirements during the Term of the System Support Services and Warranty Plan. If LACMTA opts to not fund/implement a recommended change, the Contractor and LACMTA will mutually agree on revised performance parameters, which shall be reflected in the appropriate SLA categories shown in Section 15.7.

This System Support Services and Warranty Plan includes Asset Refresh provisions relating to LACMTA RCDCS hardware. Details of such refresh are included in Contractor's Asset Refresh plan.

15.6.22 Preliminary Asset Refresh Schedule

The Contractor will submit on an annual basis, the Asset Refresh and Asset Overhaul Plan for the remaining term of this System Support Services and Warranty Plan. The first of such plans shall be delivered within thirty (30) days of execution of this Amendment.

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15.7 Service Level Agreement and Revised Performance and Warranty Requirements

15.7.1 Purpose

This Section defines the Service Level Agreements (SLAs) for the LACMTA System under the Warranty provided by Contractor. In particular, it addresses the following key areas:

- The levels of performance to be achieved for each equipment and system type, and for each Operational Service.
- The methodology to be used for performance measurement.
- The units of measurement of performance.
- The formulation of Service Levels to be applied to Services and Warranty charges according to Contractor's actual performance against the SLAs.

The SLA Service Level structure should create an incentive to achieve superior performance. Reporting calculations and determinations shall occur monthly. In addition to the data and sources listed in each of sections 15.7.2 through 15.7.6 and 15.7.9, LACMTA may utilize and make available to Contractor a variety of data, systems, databases, and network reporting and monitoring mechanisms, inclusive of the Nextfare system, database and network tools, as well as LACMTA, databases and network tools and data sources, to validate Contractor's availability reports. In the event LACMTA determines a lesser availability than the Contractor's reports, LACMTA shall deliver notice of such determination of lesser availability to Contractor and LACMTA's determined availability percentage shall establish such availability for the purposes of calculation of payment. If Contractor disputes the determination of lesser availability Contractor shall have the burden of proof to justify higher percentage availability, with supporting data delivered to LACMTA within thirty (30) days after LACMTA's determination of lesser availability.

The applicable Service Level, if any, will be assessed against the monthly payment due for Services and Warranty in the following calendar months. If the performance of any component falls below Level 1, the payment shall be calculated as the availability percentage times the payment for the lowest acceptable service level.

e.g., If Service Level 1 requires 98% availability, and results in a payment of 80%, then an availability of 90% would result in a payment of 90% x 80%, or 72% of the total. The dollar amount of each level of payment as utilized herein has been agreed to by LACMTA and Contractor for the period from commencement of the Base Equipment Term for the Base Equipment and from January 15, 2010 for the Gating Equipment, as set forth in the LACMTA/Contractor System Support Services Warranty Plan and Gate Maintenance Monthly Payment Forecast, dated January 13, 2010 incorporated herein.

by reference, and as may be modified from time to time through invoice submissions from Contractor to LACMTA once such modifications are accepted and approved in

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writing by LACMTA.

At the end of each contract year, LACMTA and the Contractor may reassess the SLA figures based on actual field data. However, LACMTA shall not retroactively reassess SLA figures or weightings to any previous month in which Contractor has previously provided Warranty and Services as described herein. LACMTA and the Contractor shall mutually discuss and agree on the schedule of any forthcoming SLA figure or weighting reassessment or change.

Contractor shall provide all labor and material to replace, during the period of this Warranty, without additional expense to LACMTA, all System Components that may be damaged due to defects in, or failure of such System Components or of any other System Component furnished under this System Support Services and Warranty Plan. Contractor shall be solely responsible for all materials and workmanship, including all specialties and accessories, whether manufactured by it or others, used in the construction of the System and for adequate installation and connection of all System Components constituting the System. Under no condition shall Contractor delegate this responsibility to Suppliers or other sources without express pre-approval of LACMTA. Contractor shall, at no additional charge, correct any Deficiency in the System or any System Component, including without limitation, defect repair, programming corrections, and remedial programming, and provide such Work required to maintain the System so that it operates properly and in accordance with the System Specifications and these SLAs. Environmental conditions, as defined in the technical specifications for each System Component, shall be considered normal operating conditions for the System and all System Components in the System.

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SLA 1 Central Systems – Function Availability

Function	Required Availability Over Period	Period Svc Chg Apportionment	Level 1 Payment	Level 2 Payment	Level 3 Payment	Level 4 Payment
Reports Available	99.5%	5%	97.50 - 97.99%	98.00 - 98.99%	99.00 - 99.49%	Equal/ Greater than 99.5%
Customer Service Interface	99.5%	5%	97.50 - 97.99%	98.00 - 98.99%	99.00 - 99.49%	Equal/ Greater than 99.5
Credit/Debit Payment Interface	99.5%	20%	97.50 - 97.99%	98.00 - 98.99%	99.00 - 99.49%	Equal/ Greater than 99.5
Transactions Processed	99.5%	20%	97.50 - 97.99%	98.00 - 98.99%	99.00 - 99.49%	Equal/ Greater than 99.5
System Communication Network	99.5%	30%	97.50 - 97.99%	98.00 - 98.99%	99.00 - 99.49%	Equal/ Greater than 99.5
Data Reconciliation Accuracy	99.73%	20%	See Bullet #5 in Section 15.7.2.1			Equal/ Greater than 99.73%

What Is Measured

- **Reports Available:** Ability for LACMTA or operators to access Central System reports.
- **Customer Service Interface:** Ability for the Patron Call Centre representatives to access the NCS GUI in order to support patron enquiries.
- **Credit/Debit Payment Processing:** Ability for patrons to use credit and debit cards at the TVMs, and the Central System to process credit/debit transactions.
- **Transactions Processed:** All transactions transmitted to the Central System are processed and available for reporting or viewing on-line.
- **Data Reconciliation Accuracy:** All data, financial and otherwise throughout the entire System shall reconcile with an accuracy rate of 99.73%. If accuracy falls below this threshold, and the anomaly persists after 72 hours, the availability metric is unmet.

15.7.2.1 How Is It Measured

- **Reports Available:** Reports availability will be determined by monitoring the status of the Hummingbird and Oracle Database server using monitoring software, as well as any reported and verified outages from users to the ROSD. Downtime will be

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calculated from the reported downtime until functionality is restored. This period downtime will be applied to the formula and criteria detailed in Section 15.7.7.

- **Nextfare GUI:** Nextfare GUI availability will be determined by monitoring the status of the GUI URL using system and network monitoring software, as well as any reported and verified outages from users. Downtime will be calculated from the reported downtime until functionality is restored. This period downtime will be applied to the formula and criteria detailed in Section 15.7.7.
- **Credit/Debit Payment Processing:** Credit/Debit Payment Processing availability will be determined by monitoring the status of the Debit Credit Switch URL using system and network monitoring software, as well as any reported and verified system wide outages to the ROSD. Downtime will be calculated from the reported downtime until functionality is restored. This period downtime will be applied to the formula and criteria detailed in Section 15.7.7.
- **Transactions Processed:** The End-of-Day (EOD) process will be monitored to ensure it has completed successfully by the start of business
- **System Communication Network:** The Communication equipment including Switches and Routers will be monitored using network and communication equipment monitoring software and tools. Downtime from the monitoring systems or downtime due to user reports to the ROSD will be applied to the formula detailed in Section 15.7.7 to calculate the period availability. It is assumed that the Contractor will have 24-hour access to LACMTA's or it's agent's facilities where various communication equipment is situated.
- **Data Reconciliation Accuracy:** Data reconciliation accuracy shall be determined by reconciling any or all data elements across any or all reports and device transaction, for all data financial and otherwise. After completion and acceptance of the Contractor SIT, LACMTA will measure the accuracy on a quarterly basis using reports and/or device data and will work with the Contractor to determine if the accuracy requirement is met for that period.

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15.7.3 SLA 2: Operation Support Services

Service	Target periodic Availability Requirement	Period Svc Chg Apportionment	Level 1 Payment	Level 2 Payment	Level 3 Payment	Level 4 Payment
Support Call Centre (ROSD)	100% / 24 Hour Availability	50%	97.50 - 97.99%	98.00 - 99.79%	99.80 - 100%	100%
Call Answer Rate	25 second average	10%	Greater than 45 seconds average	45 -30 seconds average.	29-26 seconds average	Less than or equal to 25 seconds average
Engineering Support	100% / 8am - 6pm weekdays	40%	Less than 80.00%	Less than 90.00%	90 - 99.99%	100%

15.7.3.1 What is measured

- **Support Call Centre:** Percent availability of ROSD 24x7 during each period.
- **Call Answer Rate:** Average length of time it takes for the Support Call Centre representatives to answer the phone during the reporting period.
- **Call Abandoned Rate:** Percent of calls that disconnect without being answered by a Support Call Centre representative.
- **Engineering Support:** Percent availability of engineering support during normal business operating hours.

15.7.3.2 How is it measured

- The IVR system is configured to capture and report on all relevant call data, including the ROSD availability and Call Answer Rate.
- The Service Management System will capture the immediate assignment of Service Calls passed to Engineering Support for resolution.
- Reports used
 - IVR System Reports
 - Metrix Service Management System reports applying the Period Availability report detailed in section 15.7.7

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**15.7.4 SLA 3: Asset Management Services – LACMTA Rail Device
Availability**

Fixed Device	Equipment Quantity ²	Target periodic Availability Requirement	Period Svc Chg Apportionment	Payment Level					
				Level 1 Payment	Level 2 Payment	Level 3 Payment	Level 4 Payment	Level 5 Payment	Level 6 Payment
TVM	496	99.5%	40%	98.50 - 98.99%	99.00- 99.39	99.40- 99.44	99.45- 99.50	99.51- 99.70	Equal/ Greater than 99.71
SAV	305	99.8%	10%	98.50 - 98.99%	99.00- 99.39	99.40- 99.69	99.70- 99.80	99.81- 99.90	Equal/ Greater than 99.91
Gating Equipment	323 aisles	99.7%	50%	98.50 - 98.99%	99.00- 99.39	99.40- 99.59	99.60- 99.70	99.71- 99.80	Equal/ Greater than 99.81

Notes

¹The availability targets for the above equipment groups will remain unchanged should quantities increase.

² Due to the remote location and service hours of the Metro Customer Service Centers, Contractor will only respond to service calls for the three Customer Service Center TVMs between Monday – Saturday, 9:00AM – 6:00PM. All service calls generated or received after 4:00PM will be responded to on the next customer service business day. Contractor’s respond and repair time will be no more than four (4) hours for these three TVMs. Due to the unique location and service hours of these devices, the three Customer Service TVMs are not included in this document’s Availability agreement or SLA-3 TVM Equipment Quantity count, but shall be maintained by the aforementioned agreement. However, Contractor shall still track and include its monthly performance for the three Customer Service Center TVMs in the Monthly Service Report.

15.7.4.1 What is measured

- **For all devices:** Percentage of time the devices are available during hours of operation.

15.7.4.2 How is it measured

- Metrix has an inherent function to calculate and report on cumulative downtime. This period downtime will be applied to the formula and criteria detailed in section 15.7.7.
- Reports used
 - Metrix availability by device type

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15.7.5 SLA 4: Asset Management Services – Maximum Repair Times

Minimum Requirement per event	LACMTA Rail Equipment	Requirement	Assessment charge per event	Assessment charge for each additional 4-hour period
Max shall not exceed four hours	TVM, SAV, Gate	98%	\$1,000	\$1,500
Max shall not exceed 90 minutes	TVM, SAV, Gate If 50% or more at any station becomes OOS	98%	\$1,000	\$1,500
Max shall not exceed 90 minutes	TVM, SAV, Turnstile During peak service hours (6-9am, 3- 6pm).	98%	\$1,000	\$1,500
Max shall not exceed 90 minutes	ADA Gate	98%	\$1,000	\$1,500

WHAT IS MEASURED

All relevant failures of LACMTA Rail Equipment as determined in the monthly Service Review Meetings in the second column of SLA 4 shall be repaired and the equipment returned to service within the not to exceed period stated in the first column (Minimum Requirement per event) of SLA 4.

- **How is it measured**

Metrix has an inherent function to calculate and report on individual response time and repair time.

- Reports used
- Metrix response and repair time per incident

15.7.6 SLA 5: FFSOT Availability/LFSOT, or BMV Exchange

Device or System	Equipment Quantity	Repair Returns	Period Svc Chg Apportionment	Payment Levels					
				Level 1 Payment	Level 2 Payment	Level 3 Payment	Level 4 Payment	Level 5 Payment	Level 6 Payment
FFSOT	50	N/A	20%	98.50 - 98.99%	99.00 - 99.39%	99.40 - 99.59%	99.60 - 99.69%	99.70 - 99.79%	Equal/ Greater than 99.80%
LFSOT or BMV	1220	98%	80%	_____	93.00 – 93.99%	94.00 – 95.99%	96.00 – 98.00%	98.01 – 99.00%	Equal/ Greater than 99.01%

15.7.6.1 What is measured

- Onsite repair of an FFSOT by Contractor: Upon notification to the ROSD

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of a failed FFSOT unit located in Southern California, a Contractor technician shall be dispatched for an onsite repair and the unit shall be returned to service the same day. Availability of the FFSOTs wherever located is measured in accordance with the first line of this SLA 5 chart.

- One-for-one exchange by the drop-off of an LFSOT or BMV by LACMTA or its agent for repair: Upon notification for an RMA exchange to the ROSD, a full functional LFSOT or BMV unit shall be exchanged the same day.

The availability calculation for depot maintenance items (e.g. LFSOT, BMV) shall be the percentage of spare devices exchanged the same day for faulty devices at the ROSD.

15.7.6.2 How is it measured

For FFSOTs:

- Metrix has an inherent function to calculate and report on cumulative downtime. This period downtime will be applied to the formula and criteria detailed in Section 15.7.7.

Reports used:

- Metrix availability by device type

For LFSOT or BMVs:

- Metrix has the inherent function to raise RMAs and log the date and time of when the individual RMA was raised and when the replacement unit was dispatched.

Reports used:

- Metrix RMA fulfillment report

15.7.7 Availability Calculation

Availability will be calculated for each Period for each device or system type using the following formula:

$$\text{Period Availability}^4 = \frac{\text{Period Operational Hours}^1 - \text{Period OOS Hours}^{2, 3}}{\text{Period Operational Hours}^1}$$

Notes:

1. Period Operational Hours = mean equipment quantity (monthly period) x Daily Operating Hours (24 hours x period days)
2. Period Out of Service (OOS) hours shall exclude hours for predefined scheduled

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- equipment and system maintenance, LACMTA funded or requested upgrades/enhancements provided in the Period Operational Hours by agreement, non-chargeable, and any delays resulting from access not being provided.
3. Period OOS Hours for TVMs, Gating Equipment and SAVs shall include the aggregate time elapsed from the time of the reported failure until the Contractor has fixed or remedied such failure. Failures and Period Availability shall be subject to LACMTA concurrence and shall be reviewed every month in the Service Review Meeting.

 4. The precision of the calculation of Period Availability shall be limited to 3 decimal places (the value of the 4th decimal place shall be used to increment or decrement the value of 3rd decimal place as follows:
 - a. If the Period Availability to 4 decimal places is less than the Required Availability, then the 3rd decimal place shall be incremented.
 - b. If the Period Availability to 4 decimal places is greater than the Required Availability, then the 3rd decimal place shall be decremented).

The Contractor’s performance in terms of the applicable Service Level payment adjustment shall be assessed monthly.

15.7.8 Repair Time, System Component

"Repair Time" is defined as the elapsed time from the time a maintenance-required condition is reported (either automatically or manually) and established to the time the System Component is restored to full service level and the maintenance person calls the Revenue Operations Service Desk to report that the problem is fully repaired and the System Component is back in full use.

Problems associated with communications lines not included in the Contractor’s scope or provided by a subcontractor will not be included in the calculation of Response Time once the problem has been reported to the provider of the communications lines.

SLA 6: Software Key Performance Indicator (KPI)

Table 1

Priority	CARDS AFFECTED TOTAL IMPACT ASSESSMENT		Grace Period (Calendar days before abatement is assessed)	DAILY ABATEMENT
	From	To		
1	1	9,999	180 Days	\$150.00
2	10,000	999,999	60 Days	\$150.00
3	1,000,000	1,999,999	45 Days	\$300.00
4	2,000,000	+	0 Days	\$600.00

The Software KPI applies to all System Components and software detailed in the Contract with the exception of Modification 145 to the Contract for NextLink Services & Mobile Solutions,

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which provides stand-alone KPIs and service credits. This section outlines the process for all other existing and new software releases from Contractor. Part of this process will include onsite engineering support from Contractor for each new software release. The assigned onsite personnel must be familiar with the LACMTA TAP environment, specializing in working through LACMTA TAP function testing and LACMTA TAP business logic. The Contractor engineering support will work with LACMTA to correct software, run tests, and remain onsite until LACMTA deems the new software release acceptable for field testing and final system wide deployment based on conformity to LACMTA business rules outlined in original software release request.

The Software KPI shall be eligible for assessment upon deviations from, or non-conformity of, the software requirements as defined in the Contract, including changes thereto in accordance with GC-24, and as otherwise specified in this Section 15.7.

15.7.10.1 Software Deliverable Process

In order to streamline the software release process and have minimal impact to patrons, the following software deliverable process will be followed for every new software release the Contractor provides LACMTA:

- LACMTA requests new software build based on a reported software bug or other deviation from, or non-conformity of, the software requirements as defined in the Contract, including changes thereto in accordance with GC-24, or an executed Change Notice
- Contractor software engineering receives new request tracked through a generated metrix ticket number and informs LACMTA of request through metrix report ticket number process generation which includes test plan and test plan execution process for each software build.
- When Contractor is prepared to release new software build LACMTA is contacted via the ROSD “Metrix” report process.
- A “software deliverable date” is agreed upon and new certified software release is delivered to LACMTA which includes same day onsite software engineering support specializing in LACMTA function testing and LACMTA business rules.
- Contractor engineering support works with LACMTA engineering support onsite as necessary throughout function and business testing until LACMTA deems the new software build bug free, and ready for system wide deployment based on conformity to LACMTA business rules outlined in original software release request.

15.7.11 What Is Measured

The Software Key Performance Indicator is comprised of three elements of assessment: Qualitative Impact, Quantitative Impact and Time-To-Fix. The Total Impact is derived by multiplying the Qualitative Impact by the Quantitative Impact. The Total Impact Assessment will determine the priority, allowable grace period, and daily abatement value as defined in Table 1. The Total Impact Assessment and abatement value will be determined after the

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software issue has been Corrected and is based upon the total number of calendar days Contractor required to fix the problem after the applicable grace period. "Corrected" is defined as Contractor notice and delivery of software that specifically resolves an issue documented by an established Software Incident Report (SIR) to a shared eRoom (or equivalent) for subsequent LACMTA download and test.

15.7.12 How Is It Measured

Qualitative Impact (QLI) is broken down into four areas: patron loss, patron unearned gains, data corruption or loss, and the required effort of both TAP and non-TAP LACMTA departments to identify, mitigate and/or analyze the software problem. Each of these qualitative areas is further broken down into a series of yes/no questions that are weighted depending upon the level of impact. An Excel spreadsheet calculates the overall qualitative score.

1. Patron Loss – this category is weighted at fifty percent (50%) and attempts to capture the qualitative impact of loss on LACMTA and/or its patrons. Loss is defined by the following types:
 - a. Citation potential (30%)
 - b. Loss of dollar amount or pass (10%)
 - c. Prevent boarding (10%)
 - d. New card required (10%)
 - e. Inconvenience (5%)
 - f. Limit payment types (5%)
 - g. Limit number of devices accepting (5%)
 - h. Limit use time by hours (10%)
 - i. Limit use time by days (15%)
2. Patron unearned gains – this category is weighted at twenty five percent (25%) and attempts to capture the impact of LACMTA lost dollar values:
 - a. Give away dollar amount or pass (40%)
 - b. Extra use time by hours (20%)
 - c. Extra use time by days (40%)
3. Data – this category is weighted at fifteen percent (15%) and attempts to capture the impact caused by potential data corruption or the result of corrupted data.
 - a. Data corruption temporary (5%)
 - b. Data corruption permanent (25%)
 - c. Data loss temporary (10%)
 - d. Data loss permanent (40%)
 - e. Reports effected (20%)
4. General – this category is weighted at ten percent (10%) and attempts to capture the impact of the required involvement of TAP and/or non-TAP LACMTA departments to identify mitigate and/or analyze a software problem.

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- a. TAP involvement beyond identification of problem (65%)
- b. Other department involvement (25%)
- c. High management level of involvement (10%)

Quantitative impact (QNI) measures the effect based upon the number of cards affected or incidents that occurred during the time period from when the KPI clock begins and ends.

15.7.12.1 Impact Assessment Calculation

LACMTA TAP formula impact spreadsheet automatically calculates the impact based on a series of defined incident types as such:

Qualitative Impact (QLI, patron impact) x Quantitative Impact (QNI, tap card impact)
Total impact (TI) = (QLI x QNI)

15.7.13 Software Incident Reporting Process

1. LACMTA formally submits via email, a completed Software Incident Report (SIR) to the ROSD, which for this purpose, shall be assigned to the Contractor Project Manager, the Procurement Manager and the Maintenance and Operations Manager at the Contractor's Norwalk facility.
2. A one-day evaluation and data sharing period commences for the purpose of diagnosing the software issue.
3. Once the software issue is identified by the SIR, it is subject to the impact assessment criteria defined in section 15.7.11 and 15.7.12. At this moment the KPI clock shall commence and Contractor begins work to resolve the issue.
4. The KPI clock ends when Contractor delivers an updated version of software that resolves the issue.
5. Qualitative and Quantitative impact will be reconciled after a software fix has been delivered to LACMTA.
6. The Qualitative Impact score will be mutually agreed to between delegates from both LACMTA and Contractor based upon analysis of all reasonably available data.
7. Only the number of cards or documented incidents that occurred during the period between when the KPI clock begins and ends will be used to determine the Quantitative Impact score.

15.8 Patching, Cybersecurity and Compliance

Contractor responsibilities are as identified in Reference (A) Patching Modification 152.00 and Reference (B) PCI Modifications 108.00, 108.01, 108.02 and 146.00.

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15.9 Disentanglement

Contractor agrees that in the event of termination of all or any part of this System Support Services and Warranty Plan for any reason during the Term, or in the event LACMTA elects to discontinue use of Contractor Services at the end of the Term, including but not limited to if LACMTA decides to establish an in-house maintenance program or awards the maintenance function to a successor contractor, Contractor shall fully cooperate with LACMTA in the transition of LACMTA to a new provider of goods and services, toward the end that there be no interruption of day-to-day Services operations. Contractor will assist LACMTA in developing a potential Transition Plan at 24 months prior to the end of the Term.

The Transition Plan will be mutually agreed upon by the parties and include the following "wind down" operations on the part of the Contractor:

- One week of Preventive Maintenance procedure train-the-trainer training for System Components.
- Turning applicable records over to a LACMTA Manager.
- Providing a "closeout" audit of all System Components, materials, supplies, storage cabinets, doors, security systems, structures and other locks and/or devices and items, as applicable.
- Providing a recommended listing of future Work to be done which is required to keep the System in full operations.

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15.10 Revised Performance Requirements (Service Level Agreements)

The following Sections from the Technical Specification of Base Contract shall not be applicable or enforceable with regard to the Contractor's delivery, performance and requirements pertaining to Services, as described within the entirety of this document:

- 2.10.2a,
- 2.10.2b
- 2.10.2c
- 2.10.2d
- 2.10.2e
- 2.10.2f
- 2.10.2g
- 2.10.2h
- 2.10.2i
- 2.10.2j
- 2.10.4a
- 2.10.4b
- 2.10.4c
- 2.10.4d
- 2.10.4e
- 2.10.5a
- 2.10.8.2a
- 2.10.8.2b
- 2.10.8.2c
- 2.10.9a
- 2.11.2a
- 2.11.3a
- 2.11.3b
- 2.11.3c
- 2.11.3d
- 2.11.3e
- 2.11.3f
- 19.8
- 19.11a-k

Additionally, Sections 8.0 - Maintenance and 9.0 – Warranty of Change Order 25 (The Regional Central Data Collect System), and SP-5 and SP-7 of the Base Contract, are now superseded in their entirety by the terms and conditions of this Section 15.

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