

Schedule 4.1 – Service Delivery

TfL RESTRICTED

Restricted to: TfL Group, Contractor Group and Consultants with NDA

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1 Overview

1.1 Scope and Purpose

1.1.1 This Schedule 4.1 (Service Delivery) sets out the scope and requirements in respect of the management, performance monitoring and reporting for the delivery of the Services. Schedule 4.1 (Service Delivery) to Schedule 4.10 (Sales & Consumables) inclusive set out the additional specific requirements and Service Levels associated with specific aspects of the Services.

1.1.2 The "**Services**" comprise:

- (a) provision of all Service Management and other activities set out in this Schedule;
- (b) maintaining, modifying, operating, monitoring and reporting of the System to deliver its full functionality as set out in Schedules 5.1 (Front Office Overview) to 5.5 (Prestige Cards and Enablement) inclusive, and Schedules 6.1 (Back Office Overview) to 6.6 (Operational Support System) inclusive;
- (c) monitoring, reporting on and ensuring the continued integrity of the IRC System and the operation of its interfaces as set out in Schedules 7.1 (Systems Integration Overview) to 7.3 (System Interfaces) inclusive;
- (d) managing and delivering Changes (as set out in Schedule 10.1 (Change Management)) including through Variations;
- (e) providing business and management information as set out in Schedules 11.4 (Revenue and Accounting Services) and 11.5 (Information and Reporting Services);
- (f) identifying and providing the agreed equipment, facilities and services required to perform this Contract;
- (g) providing, maintaining and operating the electrical infrastructure up to the relevant point of demarcation as set out in Appendix 4 to Schedule 8.2 (Asset Management & Maintenance),

paragraph 1.1.2(a) to 1.1.2(g) together, the "**Primary Services**"; and

- (h) any additional Services set out in Schedules 4.2 (Surface Transport Services) to 4.10 (Sales & Consumables) inclusive (the "**Additional Services**").

1.1.3 The Services are designed to enable TTL to retail Travel Products to and collect revenue from Customers, to control Customer access to the Transport Network, to support the Interfaces with the Interfacing Systems and to process and analyse the Data generated to support TTL's business operations.

1.1.4 The objectives of this Schedule, which shall be deemed TTL Objectives for purposes of Clause 3 (TTL Objectives) are to ensure that:

- (a) TTL is Assured that the Contractor is delivering the Services in accordance with the Contract; and
- (b) System Incidents, Incidents, System Faults and Faults are promptly identified and resolved with little or no impact on the delivery of Services to Customers, Related Contractors and Interfacing Parties.

- 1.1.5 Where this Schedule sets out the requirements for the Contractor to deliver the Services, these Services shall be provided by the Contractor to TTL with effect from the Service Commencement Date.

1.2 Service Management

- 1.2.1 The Contractor's responsibilities for the management of the IRC System and the Services ("**Service Management**") shall include but are not limited to:
- (a) providing the Level 1 Help Desk in accordance with paragraph 3;
 - (b) proactively monitoring the IRC System to prevent, identify and resolve Faults with little or no impact to Customers and Operator Personnel as set out in paragraph 4;
 - (c) providing near real-time display of all System Incidents and Incidents across the Services and IRC System on performance Dashboards in accordance with paragraph 5;
 - (d) monitoring and the reporting of System performance and conformance to the Service Levels as set out in paragraphs 4 and 5;
 - (e) System Incident and System Fault management as set out in paragraph 6;
 - (f) providing detailed reports and attending regular meetings on the performance of the Services against agreed performance targets and implementing corrective action and service improvement plans where necessary as set out in paragraphs 7 and 9; and
 - (g) providing Early Life Support in accordance with Schedule 10.2 (Programme and Project Lifecycle) as may be required by TTL from time to time to Assure TTL.
- 1.2.2 "**TTL Service Operations**" are the team within TTL, headed by the TTL Service Operations Manager, who monitor and manage the Contractor's day to day delivery of the Services.

2 General Requirements

2.1 Overview

- 2.1.1 This paragraph sets out the concepts associated with and requirements for the general delivery and management of the Services.
- 2.1.2 The Contractor is responsible for ensuring that the IRC System operates in accordance with the requirements set out in Schedules 5.1 (Front Office Overview) to 5.5 (Prestige Cards & Enablement), 6.1 (Back Office Overview) to 6.6 (Operational Support System) and 7.1 (Systems Integration Overview) to 7.3 (System Interfaces) inclusive or otherwise in accordance with this Contract.
- 2.1.3 All Incidents and System Incidents affecting the Services which have been designated as Major Incidents in Appendix A of Schedule 8.3 (Major Incident Management) shall be managed in accordance with that Schedule.

2.2 Performance Measurement

- 2.2.1 The performance of many Devices, Modules and parts of the Services is measured on the basis of their availability during the relevant Service Day. The proportion of the Service Day during which the Device, Module, Component or part of the Services delivers its Key Functionality represents its "**Availability**". Subject to paragraph 2.6.4, the calculation of Availability shall exclude any Planned Maintenance Window.
- 2.2.2 The Contractor shall remedy all System Faults that occur on any Device, Module or part of the Service.
- 2.2.3 Where a System Fault on a Device, Module or part of the Service prevents the relevant Device, Module or part of the Service from delivering its Key Functionality, this shall be deemed to be a System Fault which affects the Availability of the relevant Device, Module or part of the Service (a "**Service Affecting Fault**"). Appendix 3 to this Schedule sets out the Key Functionality for each Device, Module or part of the Service.
- 2.2.4 For the avoidance of doubt, the following will also mean a Service is not considered Available:
 - (a) Preventative Maintenance of the Device and/or Component (as the context requires) where not undertaken during a Planned Maintenance Window;
 - (b) the overhaul, retrofit or upgrade of the Device, Module and/or Component (as the context requires);
 - (c) the inspection or testing of that Service and/or the Device, Module and/or Component (as the context requires);
 - (d) remedial work to that Service and/or the Device, Module and/or Component (as the context requires); or
 - (e) a request by the Contractor that the Service and/or the Device, Module and/or Component (as the context requires) are put out of operation.
- 2.2.5 Where any time period is specified in Schedules 4.1 (Service Delivery) 4.10 (Sales & Consumables) inclusive, the period shall be deemed to have commenced from when the Contractor first became aware of the event, Fault or System Fault or

would have become aware of that event, Fault or System Fault but for a failure of the Contractor to comply with its obligations under this Contract.

- 2.2.6 Where a Service Level is specified in Schedules 4.1 (Service Delivery) to 4.10 (Sales & Consumables) inclusive, the Contractor's failure to meet such Service Level will result in the application of Service Credits as set out in the relevant part of that Schedule. Where specifically provided for in Schedules 4.1 (Service Delivery) to 4.10 (Sales & Consumables) inclusive, better performance than some Service Levels may, where explicitly stated to do so, result in Service Bonuses being payable.
- 2.2.7 Where the Contractor can demonstrate to TTL's satisfaction that a single System Fault has directly resulted in the Contractor's failure to meet multiple Service Levels as a result of which multiple sets of Service Credits have been applied, the Parties agree that only the highest value single set of Service Credits shall be applied in that instance.
- 2.2.8 Where a performance level is expressed as a "target" and/or "for reporting purposes" these are measures which the Contractor shall endeavour to achieve and is required to report actual performance against; however, Service Credits and Services Bonuses will not be applicable.
- 2.2.9 In some cases, levels of performance substantially worse than the Service Level may be specified as being "Poor" or "Unacceptable," each of which will trigger additional consequences which may include additional Service Credits and/or Corrective Action Plans, Minor Warnings or Major Warnings as set out in Schedule 12.4 (Contract Management).

2.3 Service Monitoring

- 2.3.1 The Contractor shall identify, develop and implement tools, alerts, thresholds and reports and Assure TTL that it is able to proactively monitor the Services to identify and respond to System Incidents and Incidents, insofar as is possible, prior to such System Incidents and/or Incidents adversely affecting Customers and without requiring reporting from, or intervention by, Operator Personnel or Customers. The Contractor shall be responsible for maintaining and updating such tools, alerts, thresholds and reports for the duration of the Term.
- 2.3.2 The Contractor shall Assure TTL through demonstrating the configuration of the Operational Support System (OSS) and any other tools and/or operational procedures implemented by the Contractor and establishing the parameters (being the alerts, thresholds and any other parameters) relating to a baseline of normal operations within the Service Levels (the "**Operational Baseline**").
- 2.3.3 The Contractor shall review the Operational Baseline:
 - (a) each Period, as part of the submission of documentation in accordance with Schedule 8.2 (Asset Management & Maintenance);
 - (b) after any Major Incident;
 - (c) after any escalation in accordance with the Escalation Process; and
 - (d) as part of any Technical Change.
- 2.3.4 As part of the Change Management process set out in Schedule 10.1 (Change Management) the Contractor shall:

- (a) establish the tools and processes and thresholds for monitoring any new or modified Services;
- (b) adjust the monitoring parameters and assess the impact on the Operational Baseline during the Early Life Support phase; and
- (c) submit the approach to TTL as part of any Request to Operate as set out in Schedule 10.2 (Programme and Project Lifecycle).

2.3.5 The Contractor shall record all Operational Baseline threshold exceptions and develop a capability to identify a pattern of repeat exceptions which shall be managed within the Contractor's problem management processes.

2.3.6 The Contractor shall provide a facility to enable authorised Operator Personnel access to the Contractor's Trouble Ticketing System for the purpose of viewing Data and raising trouble tickets, and the Contractor shall ensure that TTL shall be provided with access to all Data held on that system.

2.4 Technical Support Services

2.4.1 The Contractor shall provide a team of Contractor Personnel for System Fault resolution and maintenance of the System and the tools and processes to dispatch and control such Contractor Personnel, parts and materials to maintain the System and the Services in accordance with operational and technical standards to enable the delivery of the Services, preventative and reactive maintenance, and installation operations ("**Field Service Operation**").

2.4.2 The Contractor shall provide a technical workshop to:

- (a) monitor Device condition, reliability, capacity, life cycle;
- (b) repair Devices/Component parts; and
- (c) provide a logistics operation to store and manage the movement of materials throughout their life cycle including but not limited to Module and Component repairs/configuration, stock management, Spares distribution and procurement of replacement Spares and/or Component parts.

2.4.3 The Contractor shall provide a multi-level technical support capability as follows:

- (a) **Level 1 Help Desk** – as set out in paragraph 3 to use tools and troubleshooting methodologies to diagnose and resolve issues where possible without the necessity of engaging the Level 2 Support or Level 3 Support;
- (b) **Level 2 Support** – appropriately trained, experienced and knowledgeable Contractor Personnel with the capability to monitor and proactively maintain the System and the Services so as to reasonably prevent unplanned Service outages from occurring, including but not limited to System configuration, backups, threshold and alert management, System Incident resolution, security patching, implementation of new Services, application, operating system and database support, and development of new utilities to increase the Level 1 Help Desk operation; and
- (c) **Level 3 Support** – appropriately trained, experienced and knowledgeable Contractor Personnel (save in relation to the TTL Modules where it shall be provided by TTL Personnel) with the expertise and capability to research and develop solutions to new or unknown System Faults and develop tools and

processes to prevent, or to enable the System, Level 1 Help Desk and/or Level 2 Support to resolve such System Faults in the event of reoccurrence, including providing solutions for life-expired Assets and developing new Assets and Services to meet new TTL requirements.

- 2.4.4 TTL shall provide Level 3 Support in relation to TTL Modules. The Parties acknowledge and agree that failure by TTL to provide such support shall not relieve the Contractor of its obligations pursuant to Schedules 7.1 (Systems Integration Overview) to 7.3 (System Interfaces) inclusive.

2.5 Working on Site

- 2.5.1 The Contractor shall undertake all relevant work in accordance with the requirements and standards as set out in Schedule 9.3 (Standards).
- 2.5.2 The Contractor shall make good all areas and surfaces (including but not limited to all equipment, walls, floors, ceilings and worktops) damaged or soiled as a result of any works and/or installation of equipment undertaken by Contractor Personnel on premises which are not Contractor Sites.
- 2.5.3 The Contractor shall not act (or omit to act) in a manner which the Contractor knows (or ought reasonably to know) may bring TTL into disrepute.
- 2.5.4 The Contractor shall cooperate with any reasonable request from TTL to inspect the works and/or installation of any equipment at any Site or TIC.
- 2.5.5 Where the Contractor has attended a Site in response to a System Fault and has fully complied with the relevant requirements set out in Schedule 8.4 (Access Management) but has been denied access, then any period set out Schedules 4.1 (Service Delivery) to 4.10 (Sales & Consumables) inclusive for the Contractor to remedy such a System Fault shall be extended by an amount of time equal to that taken to provide the Contractor with access to the relevant Site as set out in Schedule 8.4 (Access Management).

2.6 Planned Maintenance Windows

- 2.6.1 The Contractor shall not undertake Preventative Maintenance works during the relevant Service Day wherever practicable. Where Back Office Modules are replicated between Data Centres, the Contractor may undertake Preventative Maintenance works during the relevant Service Day on the replicated Module.
- 2.6.2 The Parties may agree Planned Maintenance Windows for Back Office Modules as set out below.
- 2.6.3 The Back Office Modules for which Planned Maintenance Windows are permitted and the days and times recommended by TTL to minimise the impact on the Customer are set out in Appendix 6 to this Schedule.
- 2.6.4 No Planned Maintenance Windows shall exceed four (4) Service Hours. Where maintenance work on any Back Office Module continues beyond its Planned Maintenance Window the effect of such continued maintenance on the functionality of the relevant Back Office Module shall be taken into account in the calculation of the Availability of the relevant Back Office Module.
- 2.6.5 The Contractor shall prepare and maintain a schedule of planned maintenance for each Back Office Module planned for (at a minimum) the following thirteen (13) Periods (the “**Planned Maintenance Schedule**”). Wherever reasonably practicable, the Planned Maintenance Schedule shall be consistent with the TTL

recommendations set out in Appendix 6 and shall be designed to minimise the impact of the planned maintenance on the Services.

- 2.6.6 The Contractor shall submit the Planned Maintenance Schedule to TTL on or before the Service Commencement Date and each anniversary thereafter. TTL shall review the Planned Maintenance Schedule within ten (10) Business Days and acting reasonably confirm to the Contractor the Planned Maintenance Windows for the following thirteen (13) Periods. TTL shall provide a summary of its reasons for each instance where a Planned Maintenance Window has not been agreed for any of the maintenance set out in the Planned Maintenance Schedule. Where the Contractor disagrees with the Planned Maintenance Windows confirmed by TTL this shall be discussed between the Parties acting reasonably but where agreement is not reached within five (5) Business Days it may be escalated to the Contract Managers for discussion at the next Contract Managers Meeting.
- 2.6.7 Where the Contractor is unable or no longer needs to conduct maintenance works during an agreed Planned Maintenance Window it shall notify TTL as soon as reasonably practicable and in any event no less than fifteen (15) Business Days prior to the agreed Planned Maintenance Window. Such notice shall include: (a) a detailed explanation of why the Planned Maintenance Window is no longer required; (b) when the Contractor plans to carry out the maintenance works; and (c) any potential impact of not carrying out the maintenance works to the System. The Contractor acknowledges that TTL may not agree to any alternative Planned Maintenance Window where less than fifteen (15) Business Days' advance notice is provided.
- 2.6.8 All planned maintenance shall be considered a Change and shall comply with the provisions of Schedule 10.1 (Change Management).

2.7 Additional WAN Support

- 2.7.1 The location of WAN provider equipment and the interaction between the WAN and the System requires the Contractor to provide support to the WAN provider in addition to that normally required for a Related Contractor.
- 2.7.2 The Contractor shall:
- (a) other than where it has been established that a local power issue has caused a Fault to the WAN:
 - (i) ensure that the Level 1 Help Desk accepts requests direct from the WAN provider for Contractor Personnel support; and
 - (ii) provide Contractor Personnel to visit the affected Site and review and report back on the likely causes of the Fault; and
 - (b) in respect of any Site where the WAN provider equipment has been installed within a Passenger Validator:
 - (i) retain and provide any security keys or tools required to access the Passenger Validator to the WAN provider when reasonably requested; and/or
 - (ii) provide Contractor Personnel to visit the affected Site to enable the WAN provider to access its equipment and to assist in the rectification of the Fault, where appropriate.

3 Level 1 Help Desk

3.1 Overview

- 3.1.1 The Contractor shall provide a Level 1 Help Desk in accordance with the requirements set out below.
- 3.1.2 The Level 1 Help Desk shall be the single point of contact for Operator Personnel, Related Contractors and Interfacing Parties for all System Incidents, Incidents, System Faults or Faults.
- 3.1.3 Where any System Incident, Incident, System Fault or Fault occurs, the Level 1 Help Desk shall identify, log in the Trouble Ticketing System and subsequently diagnose the System Incident, Incident, System Fault or Fault and assign the ticket generated by the Trouble Ticketing System to the appropriate Resolver Group for resolution. If the appropriate Resolver Group is not the Contractor, the Level 1 Help Desk shall retain responsibility for the rectification of the System Incident, Incident, System Fault or Fault in accordance with Clause 15 (Level 1 Help Desk) and must demonstrate such to TTL Service Operations.
- 3.1.4 The Level 1 Help Desk is responsible for working with the Contractor's Level 2 Support and Level 3 Support, TTL, Related Contractors and Interfacing Parties to develop processes and utilities to increase the effectiveness of the Level 1 Help Desk such that more System Incidents, Incidents, System Faults and Faults are able to be triaged and resolved without escalation to Level 2 Support, Level 3 Support, TTL, Related Contractors and Interfacing Parties.
- 3.1.5 The Contractor shall configure and utilise the OSS for the purpose of monitoring the IRC System in conjunction with other monitoring capabilities provided by the Contractor to provide information, identify threshold exceptions and send alerts on Faults to the Level 1 Help Desk.

3.2 Requirements

- 3.2.1 The Contractor shall provide the Level 1 Help Desk which shall be able to receive and respond to queries primarily via telephone, but may otherwise where more appropriate resolve and respond to queries by:
 - (a) email;
 - (b) tickets raised on the Trouble Ticketing System by authorised Operator Personnel; and
 - (c) automatically generated alerts from the IRC System and the OSS.
- 3.2.2 The Level 1 Help Desk shall operate throughout the Support Service Day.
- 3.2.3 The "**Support Service Day**" shall be twenty-four (24) hours per day, seven (7) days per week including all Bank Holidays and Christmas Day.
- 3.2.4 The Contractor shall ensure that every communication into the Level 1 Help Desk and threshold exception, System Incident, Incident, System Fault or Fault identified by the Level 1 Help Desk is recorded in the Trouble Ticketing System which shall interface with TTL's Trouble Ticketing System.
- 3.2.5 The Contractor shall develop and maintain a competency based training programme for the Level 1 Help Desk Contractor Personnel. This programme shall as a minimum contain (but shall not be limited to):

- (a) Customer service training;
- (b) call management activities including:
 - (i) logging calls;
 - (ii) assigning calls to Related Contractors and Interfacing Parties (where appropriate);
 - (iii) monitoring call progress including escalation processes; and
 - (iv) closing calls;
- (c) first line technical support including:
 - (i) troubleshooting;
 - (ii) remote Device resets; and
 - (iii) distribution of settings and updates;
- (d) communications including:
 - (i) emergency outage notifications;
 - (ii) planned Service notifications; and
 - (iii) regular Customer communications (as appropriate); and
- (e) major incident management in accordance with Schedule 8.3 (Major Incident Management).

3.2.6 The Level 1 Help Desk shall:

- (a) be staffed with appropriately qualified technical Contractor Personnel who have attended and passed all elements of the competency training programme (as set out in paragraph 3.2.5, above) for use by Operator Personnel to answer queries or resolve System Incidents, Incidents, System Faults and/or Faults remotely (where the ability to do so exists) for all technical aspects of the System and/or the IRC System promptly and in a competent manner;
- (b) be responsible for proactively monitoring the IRC System, which shall include Fault diagnosis, Device management, escalating calls to the appropriate Resolver Group and ensuring updates on call progress and closure are reported to TTL where necessary;
- (c) remain responsible for System Incident and Incident resolution and subsequent closure of the associated trouble ticket regardless of the Resolver Group;
- (d) have a close working relationship with the TTL Service Operations team, and where possible, have joint operational processes;
- (e) proactively monitor the Services, identify exceptions, manage these to conclusion and in conjunction with TTL develop the processes for appropriate escalations to Resolver Groups, Contractor management and TTL management;

- (f) develop and provide to TTL appropriate reports required by TTL as part of the Service Performance Report to monitor performance trends of the Services and take part in regular reviews of the performance of the Services as set out in paragraph 9; and
- (g) control and monitor the movement of Devices, Modules and Components (where appropriate) throughout the IRC System in accordance with Schedule 8.2 (Asset Management & Maintenance).

3.2.7 The control and monitoring of Devices, Modules and Components pursuant to paragraph 3.2.6(g) shall be accomplished by configuration of the Configuration Management Database (CMDB) as set out in Schedule 6.6 (Operational Support System) where Devices, Modules and Components are self-discoverable or for Devices, Modules and Components which are not self-discoverable, through the Asset Register, which shall be maintained by the Contractor in accordance with Schedule 8.2 (Asset Management & Maintenance).

3.2.8 All Changes to the Services, such as configuration, installation or removal of Devices, Modules and Components shall be reported on by the Level 1 Help Desk in the Service Performance Report. The Contractor shall ensure that all Changes have appropriate supporting documentation and have been managed in accordance with Schedule 10.1 (Change Management).

3.3 Performance

3.3.1 The Contractor shall operate the Level 1 Help Desk in accordance with the requirements set out in paragraph 3.2 against the Service Levels as set out in paragraphs 3.3.2 to 3.3.4 below, which shall be reported upon in the Service Performance Report each Period.

3.3.2 The Contractor shall ensure that ninety per cent (90%) of calls each Period to the Level 1 Help Desk are answered in person within fifteen (15) seconds. Failure to meet this performance measure will incur Service Credits as set out in paragraph 12.

3.3.3 The Contractor shall target that ninety-nine point nine per cent (99.9%) of threshold exceptions, System Faults or Faults identified by or communicated to the Level 1 Help Desk are logged in the Trouble Ticketing System within fifteen (15) minutes of receipt.

3.3.4 The Contractor shall report to TTL against the hours of operation as set out in paragraph 3.2.3 of the Level 1 Help Desk for each Period in the Service Performance Report.

4 Monitoring the Services

4.1 Overview

- 4.1.1 This section sets out the requirements of the Contractor for the delivery and management of monitoring capabilities.
- 4.1.2 Monitoring of the Services is critical for maintaining high levels of performance and proactive prevention of System Faults and Faults. The Contractor shall be responsible for monitoring the Services and the IRC System. The Contractor shall use the OSS in conjunction with the other monitoring capabilities to deliver the requirements set out below for the monitoring of the Services and the IRC System.

4.2 Requirements

- 4.2.1 The Contractor shall be responsible for the operation and configuration of the OSS. The Contractor shall review the configuration of the OSS, reconfigure it and Assure TTL in response to all emerging issues and risks and to identify opportunities to improve the monitoring of the Services. All agreed configuration Changes shall be implemented in accordance with Schedule 10.1 (Change Management).
- 4.2.2 The Contractor shall:
- (a) ensure that the Services are continuously monitored during the Support Service Day;
 - (b) proactively monitor all Devices and Modules to ensure that all issues are identified and resolved quickly and efficiently;
 - (c) develop and configure remote monitoring and intervention capabilities for the Services and all associated Devices and Modules;
 - (d) ensure that thresholds (including all repeat failure thresholds) are defined and agreed with TTL;
 - (e) develop systems and processes that generate alerts with the appropriate priority and escalation which will then be logged automatically by the Contractor's Trouble Ticketing System;
 - (f) capture and record all alerts and threshold exceptions;
 - (g) log all alerts and threshold exceptions which are a System Incident or System Fault in the Contractor's Trouble Ticketing System within fifteen (15) minutes of the monitoring capabilities identifying the System Incident;
 - (h) maintain a detailed record of all actions taken in relation to each alert or threshold exception taken in the Contractor's Trouble Ticketing System in accordance with paragraph 4.2.2(f);
 - (i) monitor threshold exceptions as set out in paragraph 4.2.2(d) and where a trend exists shall implement a problem management process to resolve the threshold exceptions;
 - (j) ensure that all Services are monitored at the point of any handover to a Related Contractor or Interfacing Party so that responsibility for all Incidents, Faults and/or System Faults can be identified and any Incident, Fault or System Fault assigned to the correct Related Contractor or Interfacing Party;

- (k) ensure that details of all alerts in the IRC System set pursuant to the Operational Baseline and the procedure for updating and resolving those alerts are clearly documented in the Contractor's Level 1 Help Desk's written processes; and
- (l) provide near real-time Dashboards as set out in paragraph 5.

4.2.3 The Contractor shall develop and maintain System Incident, Incident, System Fault and Fault trend reports which shall set out on a per Device, Module and Component basis, all System Incidents, Incidents, System Faults and Faults, location, Device type, System Incident or Incident type, Part and repair criteria as set out in Schedule 8.2 (Asset Management & Maintenance).

4.3 Performance

4.3.1 The Contractor shall capture and record one hundred per cent (100%) of all alerts and threshold exceptions. Every alert and/or threshold exception which is a System Incident shall be logged within fifteen (15) minutes of the monitoring capabilities identifying the alert or threshold.

5 Dashboards

5.1 Overview

- 5.1.1 This section sets out the requirements of the Contractor for the delivery and management of the Services using performance dashboards.
- 5.1.2 TTL requires a dynamic means of monitoring the IRC System by way of a near real-time visual reporting tool which provides an indication of how the Services are being delivered by the Contractor as against the Service Levels (the "**Dashboards**"). The Contractor shall provide and maintain the Dashboards in accordance with the requirements set out in Appendix 5 (Dashboard Requirements).
- 5.1.3 Each Party shall provide the necessary equipment and access configuration to display the Dashboards at their own premises. TTL shall notify the Contractor once it has all the necessary equipment installed on the relevant TTL Sites and the Contractor shall, within ten (10) Business Days provide fully operable Dashboards to TTL.
- 5.1.4 To the extent that there is a fault which affects TTL's ability to access the Dashboards and which is unrelated to TTL's equipment, the Contractor shall report to TTL on any faults affecting the ability of TTL to connect to or publish the Dashboards.

5.2 Performance

- 5.2.1 The Dashboards shall be ninety-nine point nine per cent (99.9%) available to TTL throughout the Support Service Day.

6 System Incident and System Fault Management

6.1 Overview

- 6.1.1 This section sets out the requirements of the Contractor for the management of System Incidents and System Faults.

6.2 System Incidents

- 6.2.1 The Contractor shall take all such steps as necessary to prevent a System Incident developing into a System Fault.

6.3 System Faults

- 6.3.1 The Contractor shall manage all System Faults in accordance with its obligations under paragraph 3.

6.4 Planned events or closures

- 6.4.1 Where reasonably practicable, TTL shall give the Contractor a minimum of ten (10) Business Days' prior written notice when they are advised of a planned event or closure that may adversely impact the Services. TTL shall work with the Contractor to agree a set of mitigation options and processes in advance of the planned event or closure so that System Incidents and System Faults are managed effectively and do not adversely affect the performance of the Services and the Contractor's obligations in respect of the delivery of the Services. Where the Contractor can provide written evidence to demonstrate that such mitigation options and processes would materially increase its costs this shall be addressed through Variation.

7 Service Performance Report

7.1.1 The Contractor shall deliver a final report which details the Contractor's performance of the Services (the "**Service Performance Report**") each Period within ten (10) Business Days following the end of that Period. The structure of the report shall include:

- (a) safety, quality and environmental matters;
- (b) the reports as set out in paragraph 13;
- (c) the Contractor's performance of:
 - (i) the ST Services as set out in paragraph 1.1.2 of Schedule 4.2 (Surface Transport Services);
 - (ii) the LU Services as set out in paragraph 1.1.2 of Schedule 4.3 (LU Services);
 - (iii) the Rail Services as set out in paragraph 1.1.2 of Schedule 4.4 (Rail Services);
 - (iv) the Support Services as set out in paragraph 1.1.2 of Schedule 4.5 (Support Services);
 - (v) the FTP Back Office Services as set out in paragraph 1.1.2 of Schedule 4.6 (FTP Back Office Services);
 - (vi) the Prestige Back Office Services as set out in paragraph 1.1.2 of Schedule 4.8 (Prestige Back Office Services);
 - (vii) the Retail Network Services as set out in paragraph 1.1.2 of Schedule 4.9 (Retail Management Services);
 - (viii) the Sales and Consumables Management Services as set out in paragraph 1.1.2 of Schedule 4.10 (Sales & Consumables); and
 - (ix) the ITSO Services as set out in paragraph 1.1.2 of Schedule 4.7 (ITSO Services),including any reports as set out in the relevant 'Reports' paragraph of each of the above Schedules;
- (d) denied access incidents;
- (e) Service improvements being undertaken by the Contractor;
- (f) resourcing (including Contractor Personnel/Sub-Contractor changes) and training;
- (g) changes to standards, schedules and procedures;
- (h) all activities related to Incidents and Faults caused by Interfacing Parties and Related Contractors;
- (i) Corrective Action Notices, Corrective Action Plans, Minor Warnings and Major Warnings related to the Services as may be requested by TTL for each Period; and
- (j) a risk status report of Contract Risks,

and if the Contractor fails to deliver the Service Performance Report in accordance with these requirements and by the date specified, the Contractor shall prepare and issue a Corrective Action Plan in accordance with Schedule 12.4 (Contract Management).

- 7.1.2 Prior to delivery of the Service Performance Report each Period in accordance with paragraph 7.4.1 below, the Contractor shall deliver to TTL a draft Service Performance Report and the supporting raw data which demonstrates how the Contractor has calculated its compliance versus each and every Service Level no later than five (5) Business Days following the end of the relevant Period. If the Contractor fails to deliver a draft Service Performance Report by the date specified, the Contractor shall prepare and issue a Corrective Action Plan in accordance with Schedule 12.4 (Contract Management).
- 7.1.3 TTL may, at the Service Review Meeting, advise the Contractor of any items contained in the Service Performance Report that require correction. The Contractor shall ensure that agreed corrections are communicated to TTL in the form of a letter in accordance with the Submission Procedure set out in Schedule 11.1 (Document Management). Where the Parties are unable to agree on such corrections they shall be referred to the Escalation Process.

7.2 The Cumulative Failure Log

- 7.2.1 The Contractor shall prepare, maintain and submit to TTL a daily log of all Device and Module failures (the "**Cumulative Failure Log**").
- 7.2.2 TTL and the Contractor shall meet to agree the contents and format of the Cumulative Failure Log and Final Cumulative Failure Log on or after the Service Commencement Date save that such Cumulative Failure Log shall include, as a minimum, the information specified in Appendix 1 (Cumulative Failure Log).
- 7.2.3 The Contractor shall deliver the Cumulative Failure Log to TTL by 07:00 daily for the preceding Service Day.
- 7.2.4 Within twenty-four (24) hours of the end of each Period the Contractor shall prepare and submit to TTL a report detailing all of the Device and Module failures in the Period for each aspect of the Services (the "**Final Cumulative Failure Log**"). This Final Cumulative Failure Log will be deemed the Assurance report for the Service Performance Report each Period.

7.3 Prestige Back Office Reporting

- 7.3.1 The Contractor shall maintain a separate reporting environment to enable the TTL Authorised Users to request regular reports and ad hoc reports required to support Incident or Fault resolution and general service enquiries.
- 7.3.2 In the event of a Major Incident, where the Contractor reasonably considers that the production of an individual report or enquiry requested by TTL pursuant to paragraph 7.3.1 is having a detrimental impact on its provision of the Services, the Contractor shall have the right to temporarily suspend its provision of that report or enquiry.
- 7.3.3 The Contractor shall be responsible for providing End of Day Reports in accordance with the requirements as set out in Schedule 4.8 (Prestige Back Office Services).
- 7.3.4 The Contractor shall deliver the End of Day Report to TTL by 08:00 daily for the preceding Prestige Back Office Service Day.

- 7.3.5 The Contractor shall provide a report on the availability of Prestige Data in the Prestige Back Office by 08:00 for the preceding Prestige Back Office Service Day, as set out in Schedule 4.8 (Prestige Back Office Services).

7.4 Performance

- 7.4.1 The Contractor shall prepare and submit to TTL a Service Performance Report for review in accordance with the Submission Procedure set out in Schedule 11.1 (Document Management). The Contractor acknowledges that the timely submission of the Service Performance Report following the end of each Period and properly addressing any comments made by TTL is essential to the processing of the Application for Payment and Invoice for the Period by TTL. Any delay in the submission of the Service Performance Report shall extend the period set out in Schedule 12.1 (Charges and the Financial Model) for review of any associated Application for Payment and associated Invoice by an equivalent period of time.
- 7.4.2 The Contractor shall deliver a Final Cumulative Failure Log to TTL within twenty-four (24) hours after the end of each Period in accordance with paragraph 7.2.4 above. If the Contractor fails to deliver the Final Cumulative Failure Log within this timescale this shall result in escalation in accordance with the Escalation Process.

8 Other Service Reports

- 8.1.1 The Contractor shall provide to TTL the reports as set out in Appendix 2 (Service Reports) in accordance with the requirements set out in that Appendix.
- 8.1.2 If the Contractor fails to deliver any one of the reports in accordance with Appendix 2 (Service Reports) more than:
- (a) five (5) times in any Period for a daily report;
 - (b) three (3) times in any two (2) consecutive Periods for a weekly report; or
 - (c) three (3) times in any thirteen (13) consecutive Periods for a Period report,
- the Contractor shall prepare and issue a Corrective Action Plan in accordance with Schedule 12.4 (Contract Management).

9 Service Meetings

9.1 Overview

- 9.1.1 This section sets out the requirements of the Contractor for attending meetings with TTL on the Services. A close working relationship between members of TTL and the Contractor's service operations teams is desired to ensure the best quality and standards of performance in the provision of the Services. Regular service meetings are needed to manage the Services and to enable TTL to gain Assurance of the operation and maintenance of different aspects of the Services.

9.2 The Service Review Meeting

- 9.2.1 The Contractor shall attend a Service Review Meeting with TTL. The purpose of the Service Review Meeting is to review the performance of the Contractor over the previous Period.
- 9.2.2 The agenda for the Service Review Meeting will initially cover:
- (a) the previous minutes;
 - (b) a review of the Contractor's Service Performance Report;
 - (c) other matters as jointly agreed; and
 - (d) Device, Module and Asset operation, Contract performance and Contract compliance where appropriate.
- 9.2.3 TTL shall prepare the meeting agenda and the TTL Service Operations Manager shall chair the meeting. At the end of each meeting there shall be an agreed set of actions which TTL shall circulate with the formal minutes of the Service Review Meeting which shall be circulated within three (3) Business Days of each meeting.

| ATTENDEES | |
|--|--|
| TTL | Contractor |
| TTL Service Operations Manager any other representative of TTL relevant to the matters to be discussed at the meeting | Contractor's Service Operations Manager any other representative of the Contractor relevant to the matters to be discussed at the meeting |

| FREQUENCY AND LOCATION |
|--|
| Five (5) Business Days after the end of each Period (or at such other time following the end of each Period as TTL may specify) in London at a location determined by TTL. |

| INPUTS AND OUTPUTS |
|--------------------|
|--------------------|

| | |
|------------------|---|
| Required Inputs | Draft Service Performance Report Final Cumulative Failure Log Period Asset Report Asset Register Asset Register Exceptions Report |
| Required Outputs | Final Service Performance Report Meeting action log Minutes |

- 9.2.4 If the Contractor requires other specific issues to be discussed at the Service Review Meeting it shall give three (3) Business Days' notice to TTL and shall provide details and information to enable TTL to prepare for that meeting.

9.3 Other Service Meetings

- 9.3.1 The Contractor shall attend service meetings detailed in section 1 of Appendix 4 (Service Meetings).
- 9.3.2 The Contractor shall attend scheduled and ad-hoc operational meetings as reasonably requested by TTL as set out in section 2 of Appendix 4 (Service Meetings).

10 Operational Readiness Proving

10.1 Overview

- 10.1.1 This section sets out the requirements of the Contractor for proving that Changes are ready for operational service ("**Operational Readiness Proving**") and for managing those Changes immediately after their release into operational service. A Change can vary from a small Device installation to a large complex Software release, or in the case of fares, a Fares Revision. The Contractor shall adhere to the Change management process as set out in Schedule 10.1 (Change Management). In addition to this, TTL and the Contractor will work together to define a release management process which shall include TTL's requirements for testing and Assurance.
- 10.1.2 The Contractor shall develop processes with TTL Service Operations to manage the release of Changes into the live operational environment in accordance with Schedule 10.1 (Change Management).

10.2 Early Life Support

- 10.2.1 The process of support provided for a new or changed Service for a period of time defined by TTL after it is released and/or deployed is known as "**Early Life Support**" and the requirements are set out in Schedule 10.2 (Programme and Project Lifecycle).

10.3 Requirements

- 10.3.1 The Contractor shall ensure that the relevant service operations Contractor Personnel and TTL Service Operations are fully involved in all Projects and in particular in defining and planning all activities associated with Project testing and Project commissioning as set out in Schedule 10.2 (Programme and Project Lifecycle).
- 10.3.2 The Contractor shall ensure that all Technical Changes are managed in accordance with Schedule 10.1 (Change Management) and that the service operations Contractor Personnel and TTL Service Operations have been consulted regarding any potential impact of the Technical Change on the Services.
- 10.3.3 The Contractor shall ensure that TTL Service Operations are invited upon reasonable notice to witness all testing in accordance with Schedule 10.2 (Programme and Project Lifecycle) and shall make available test equipment within a reasonable timescale which TTL may reasonably require to conduct their own testing for Assurance.
- 10.3.4 The Contractor shall discuss and agree with TTL the provision of a defect management process so that any failures identified during Operational Readiness Proving are logged and analysed by the Contractor and mitigation actions agreed by TTL before any related Changes are made to the Services.

11 ELAN

11.1 Overview

11.1.1 This section sets out the requirements of the Contractor for the management of the Ethernet Local Area Network (ELAN) which forms part of the Services set out in Schedule 4.3 (LU Services) and Schedule 4.4 (Rail Services).

11.1.2 The ELAN consists of the following:

- (a) Station Computer;
- (b) local area network switches and routers; and
- (c) data cabling.

11.1.3 An ELAN fault occurs when:

- (a) information sent by Devices has not been received by the Wide Area Network (WAN) router;
- (b) the latency of the ELAN exceeds sixty (60) milliseconds; or
- (c) the ethernet frame discards exceed one (1) in ten thousand (10,000) on any network switch port interface,

each an "**ELAN Fault**".

11.2 Requirements

11.2.1 The Contractor shall:

- (a) ensure that the ELAN is continuously monitored throughout the Support Service Day;
- (b) ensure that all ELAN Faults are logged in the Contractor's Trouble Ticketing System within fifteen (15) minutes of the ELAN Fault occurring;
- (c) record all ELAN Faults by Site in the Cumulative Failure Log as set out in paragraph 7.2; and
- (d) provide ELAN Service performance information to TTL in the Service Performance Report.

11.2.2 All reported ELAN Faults per LU Site or Rail Site shall be recorded by the OSS.

11.2.3 Any incidence of a security breach relating to the ELAN shall be classified as a Major Incident and the processes set out in Schedule 8.3 (Major Incident Management) and Schedule 9.4 (Security Management) shall be followed.

11.3 Performance

11.3.1 The Contractor shall ensure that one hundred per cent (100%) of ELAN Faults are logged in the Contractor's Trouble Ticketing System within fifteen (15) minutes of the ELAN Fault occurring.

11.3.2 The Contractor shall repair each ELAN Fault within eight (8) Service Hours from the ELAN Fault first being reported or automatically detected by the OSS, whichever comes first. Any ELAN Faults not fixed within eight (8) Service Hours

shall incur Service Credits, as set out in paragraph 12, until the ELAN Fault is fixed and the ELAN is in full service.

- 11.3.3 Where an ELAN Fault is not repaired and in full service within eight (8) Service Hours it shall be escalated to TTL's Service Operations Manager and the Contractor's Service Operations Manager by telephone/email.
- 11.3.4 Where an ELAN Fault is not repaired and in full service within twelve (12) Service Hours the Contractor's Service Operations Manager shall initiate a conference call with the TTL Service Operations Manager and detail how the ELAN Fault shall be rectified. The Contractor's Service Operations Manager shall provide an update to the TTL Service Operations Manager by telephone/email every Service Hour until the ELAN Service is fully resumed and in full service.
- 11.3.5 Where an ELAN Fault is not repaired and in full service within sixteen (16) Service Hours it shall be classified as a Major Incident and the process set out in Schedule 8.3 (Major Incident Management) shall be followed.
- 11.3.6 Where an ELAN Fault is not repaired and in full service within sixteen (16) Service Hours, the Contractor shall initiate the alternative data extraction process to transfer Transaction Data from the Card Readers to the Rail Data Gathering Centre, as set out in paragraph 3.1 of Schedule 6.5 (Data Landing Systems).
- 11.3.7 The Contractor shall ensure that no LU Site or Rail Site has:
- (a) four (4) or more ELAN Faults in any single Period; or
 - (b) six (6) or more ELAN Faults in any six (6) consecutive Periods.
- 11.3.8 In the event that the Contractor fails to comply with paragraph 11.3.7(a) or (b), the Contractor shall prepare and issue a Corrective Action Plan in accordance with Schedule 12.4 (Contract Management) and shall include those Corrective Action Plans in the appropriate Service Performance Report relating to the relevant Period for discussion at the relevant Service Review Meeting.

12 Service Credits

12.1 Calculation of Service Credits

[REDACTED]

| [REDACTED] | [REDACTED] | [REDACTED] |
|------------|--|--|
| [REDACTED] | [REDACTED] [REDACTED] [REDACTED] | [REDACTED] [REDACTED] |
| [REDACTED] | [REDACTED] [REDACTED] | [REDACTED] [REDACTED] [REDACTED] [REDACTED] |

13 Reporting

13.1 The Service Performance Report

13.1.1 In respect of the Services, as a minimum, the Contractor shall report to TTL on the following in each Service Performance Report delivered in accordance with paragraph 7.

13.1.2 Each report set out in the table below shall be provided in respect of the Period prior to the date of provision of the Service Performance Report, unless otherwise specified by TTL.

| Para. | Report |
|-----------|--|
| 3.3.1 | Contracted outputs of the Level 1 Help Desk |
| 3.3.4 | The hours of operation as set out in paragraph 3.2.3 of the Level 1 Help Desk for each Period |
| 3.2.8 | All Changes to the Services, such as configuration, installation or removal of Devices, Modules and Components |
| 4.3.1 | The Contractor shall capture and record one hundred per cent (100%) of all alerts and threshold exceptions within fifteen (15) minutes of the monitoring capabilities identifying the alert or threshold |
| 5.2.1 | Availability of the Dashboards |
| 11.2.1(d) | ELAN Service performance information |
| 11.3.7 | For an LU Site or Rail Site where four (4) or more ELAN Faults have occurred in a single Period or six (6) or more ELAN Faults have occurred in any six (6) consecutive Periods triggering a Corrective Action Plan, the Contractor shall report on the requirements to produce such Corrective Action Plan(s) |
| 12.1.1 | The specific performance and/or events giving rise to the application of Service Credits and the number of Service Credits to be applied in the period |
| 14.2.1(f) | Information on the level of available capacity (including space) at each data centre in sufficient detail to enable TTL to review and increase such capacity as appropriate to meet future requirements. |

13.2 Additional Operational Reports

13.2.1 In connection with any single, or series of, System Incidents or System Faults, TTL may reasonably request the Contractor to prepare and submit to TTL a set of ad hoc reports that provide specific System and/or Service information relating to such System Incidents and/or System Faults.

14 Hosting Services

14.1 Overview

14.1.1 This section sets out the requirements of the Contractor for the management of the Hosting Services for all Services with the exception of Hosting Services for the TTL Modules.

14.1.2 The Hosting Services consist of the following:

- (a) Two geographically separate tier 3 or equivalent standard data centre spaces for running all Back Office Modules except for the TTL Modules. Each Hosting Services data centre must be capable of running all Back Office Modules with the exception the TTL Modules in isolation of the other data centre. All data centre related management services such as facilities management and physical security are included in the Hosting Services;
- (b) Internet services allowing connection to and from the internet;
- (c) Intra-data centre networking services required for the running of the Back Office Modules with the exception of Hosting Services for the TTL Modules. These services include IP network and fibre channel services as required;
- (d) Cross-connect service of three dual and diverse lines between the primary data centre and TfL's hosting location known as DC1 which at the time of contract is in data hall 1 at Digital Reality in Woking; and
- (e) Cross-connect services to support TfL network services for the TfL provided Prestige MPLS network and the TfL provided X25 network connections.

14.1.3 A Hosting Services System Fault occurs when:

- (a) A data centre becomes unavailable;
- (b) The connection from both data centres to the internet becomes unavailable;
- (c) One of the network services forming part of the Intra-data centre networking services becomes unavailable; or
- (d) A cross-connect service becomes unavailable.

14.2 Requirements

14.2.1 The Contractor shall:

- (a) Ensure that the Hosting Services are continuously monitored throughout the Support Service Day;
- (b) Ensure that all Hosting Services System Faults are logged in the Contractor's Trouble Ticketing System within fifteen (15) minutes of the Hosting Services System Fault occurring;
- (c) Ensure all Hosting Services System Faults are recorded in the Cumulative Failure Log as set out in paragraph 7.2 of this schedule;
- (d) Provide Hosting Services performance information to TTL in the Service Performance Report;

- (e) maintain additional capacity for the expansion of the Services at each data centre (including in respect of power and cooling) of up to 20% of the capacity used by the current Services, with any such future expansion being implemented through a Variation; and
- (f) include in the Service Performance Report information on the level of available capacity (including space) at each data centre in sufficient detail to enable TTL to review and increase such capacity as appropriate to meet future requirements.

14.2.2 Any incidence of a security breach relating to the Hosting Services shall be classified as a Major Incident and the processes set out in Schedule 8.3 (Major Incident Management) and Schedule 9.4 (Security Management) shall be followed.

14.3 Performance

14.3.1 The Contractor shall ensure that one hundred per cent (100%) of Hosting Services System Faults are logged in the Contractor's Trouble Ticketing System within fifteen (15) minutes of the Hosting Services System Fault occurring.

Appendix 1 – Cumulative Failure Log

The Cumulative Failure Log shall include as a minimum all information relating to:

- (a) System Faults;
- (b) Faults;
- (c) ELAN Faults;
- (d) Corrective Maintenance;
- (e) Preventative Maintenance;
- (f) Technical Changes; and
- (g) Repeat Failures.

Appendix 2 – Service Reports

This appendix provides details of regular Service Reports the Contractor must provide.

| Report Name | Report Requirements | Frequency | Format | Delivery Method | Delivery Time | Recipients |
|--------------------------|---|-------------|-------------------|-----------------|---|------------------------|
| Daily Status Report | <p>A current status of the performance of the Services with details on the progress of any outstanding:</p> <ul style="list-style-type: none"> Major Incidents Primary Events Station Zones with no validation SCs offline, and a breakdown of: <ul style="list-style-type: none"> Number of open System Faults, Faults and ELAN Faults by Service Prestige Hotlist, ITSO Hotlist and Status List and Ad Hoc Loads failed deliveries by Station Zone Planned installations and Preventative Maintenance Changes affecting the Services | Twice daily | Email Template | Email | No later than 05:00 and 15:30 each Service Day | TTL Service Operations |
| Worst Performing Devices | A list of the top ten (10) worst performing Devices for each Device Group in the current Period setting out the availability of the Device and total System Faults logged | Daily | Excel Spreadsheet | Email | No later than 06:00 each Service Day | TTL Service Operations |
| Primary Events | A list of all Primary Events incurred in the preceding seven (7) Service Days of the current Period with details of the Site, Retail or Validation Zone and the total time to fix the System Fault or Fault | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |
| Weekly Primary Incident | A list of all Primary Incidents logged in the preceding seven (7) Service Days of the current Period with details of the Site, Retail or Validation Zone and the total time to fix the System Fault or Fault | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |

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| Report Name | Report Requirements | Frequency | Format | Delivery Method | Delivery Time | Recipients |
|---|--|-------------|-------------------|-----------------|---|------------------------|
| Weekly Secondary Incidents | A list of all Secondary Incidents greater than sixteen (16) hours logged in the preceding seven (7) Service Days of the current Period with details of the Site, Retail or Validation Zone and the total time to fix the System Fault or Fault | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |
| Safety Critical Incidents | A list of all Safety Critical Incidents logged in the preceding seven (7) Service Days of the current Period with details of the Site and the total time to fix the System Fault or Fault | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |
| SC faults | A list of all SC faults logged in the preceding seven (7) Service Days of the current Period with details of the Site and the total time to fix the System Fault or Fault | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |
| Manual Gate (including ABP Manual Gates and MIP Gates) faults | A list of all Manual Gates (including ABP Manual Gates and MIP Gates) faults logged in the preceding seven (7) Service Days of the current Period with details of the Site and the total time to fix the System Fault or Fault | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |
| Retail Agents changes | A total of the number of Retail Agents with details of any new Retail Agents appointed, terminated or change of ownership to Retail Agents in the preceding seven (7) Service Days of the current Period | Weekly | Excel Spreadsheet | Email | No later than 06:00 on the Monday of every week | TTL Service Operations |
| Period Primary Incident | A list of all Primary Incidents logged in each Period with details of the Site, Retail or Validation Zone and the total time to fix the System Fault | Each Period | Excel Spreadsheet | Email | No later than three (3) days after the end of each Period | TTL Service Operations |
| Period Secondary Incident | A list of all Secondary Incidents greater than sixteen (16) hours logged in each Period with details of the Site, Retail or Validation Zone and the total time to fix the System Fault | Each Period | Excel Spreadsheet | Email | No later than three (3) days after the end of each Period | TTL Service Operations |
| xPERT Data Upload | A list broken by Service Day for each Service Day in the Period of the total number of Retail Agents polled, the total number of Retail Agents who successfully transferred transactions and the successful number as a percentage of the total polled | Each Period | Excel Spreadsheet | Email | No later than three (3) days after the end of each Period | TTL Service Operations |

Revenue Collection Services
Schedule 4.1 – Service Delivery

| Report Name | Report Requirements | Frequency | Format | Delivery Method | Delivery Time | Recipients |
|--|--|----------------------|--|----------------------|--|------------------------|
| Retail Agent shortfall | A list of Retail Agents and Bulk Customers who have failed to pay in full their invoices in each Period with details of the total amount of debt owed by each Retail Agent and Corporate Customer | Period | Excel Spreadsheet | Email | No later than three (3) days after the end of each Period | TTL Service Operations |
| Retail Services Administration Charges | Details and supporting evidence of administration charges which TTL will be liable to meet under the Contract | Each Period | Excel Spreadsheet | Email | No later than three (3) days after the end of each Period | TTL Service Operations |
| Consumables | A list of all Prestige Cards and other Consumables as set out in Schedule 4.10 (Sales & Consumables) with details of: <ul style="list-style-type: none"> total amount of stock of each Consumables (excluding Prestige Cards) total amount of unenabled and enabled stock of all Prestige Cards above broken down by each Card Supplier estimated time stocks will be depleted | Each Period | Excel Spreadsheet | TTL document control | No later than three (3) days after the end of each Period | TTL Service Operations |
| Prestige Card Enablement Schedule | A monthly look ahead schedule of Prestige Card Enablement activity on each Enablement Module | Each Period | Excel Spreadsheet | TTL document control | No later than three (3) days after the end of each Period | TTL Service Operations |
| Prestige Card Demand Forecast | A forecast of Prestige Card demand for the next thirteen (13) rolling Periods for each Prestige Card Type and Product including a breakdown of Card Supplier delivery dates in order to meet that demand and the enabling schedule as set out in the Prestige Card Enablement Schedule report | Each Period | Excel Spreadsheet | TTL document control | No later than three (3) days after the end of each Period | TTL Service Operations |
| Trigger Levels | A current list of Station Zones, Primary Event Trigger Levels and Nominated Stations as set out in Schedule 4.3 (LU Services), Retail and Validation Zones and Nominated Stations as set out in Schedule 4.4 (Rail Services) | Every six (6) months | Updated Appendix tables as set out in the relevant Schedules | TTL document control | No later than five (5) Business Days from the Service Review Meetings that will be held in August and February each year | TTL Service Operations |

Appendix 3 – Service Fault Classification Tables

Where a tick appears in a box any System Fault affecting that Key Functionality on the relevant Device will be a Service Affecting Fault. Where a box is greyed out, this indicates that the relevant Device does not have the corresponding Key Functionality.

Devices used in the Front Office Modules

| | LU, Rail & Retail Devices used in the Front Office Modules | | | | | | | | | | | | | |
|-----------------------------------|--|-----|-----|-----|-----|----|---------------|-----|-------------|------|-----------|-------------|-----------------|-------|
| Key Functionality | MFM | AFM | QBM | TOM | SAF | SC | ELAN Switches | SCU | SAF Printer | Gate | Validator | Card Reader | Retail Terminal | xPERT |
| Accepting magnetic tickets | | | | | | | | | | ✓ | | | | |
| Reading or validating cards | ✓ | ✓ | ✓ | ✓ | | | | | | | | ✓ | ✓ | ✓ |
| Accepting/dispensing bank notes | ✓ | | | | | | | | | | | | | |
| Accepting any Device stated coins | ✓ | ✓ | | | | | | | | | | | | |
| Giving change | ✓ | | | | | | | | | | | | | |
| Accepting authorised bank cards | ✓ | ✓ | ✓ | ✓ | | | | | | | | | ✓ | ✓ |
| Dispensing Prestige cards | ✓ | ✓ | | | | | | | | | | | | |
| Dispensing magnetic tickets | ✓ | ✓ | | ✓ | | | | | | | | | | |
| Functional displays working | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Touch screen available | ✓ | ✓ | ✓ | | | | | ✓ | | | | | ✓ | |
| Able to sign on or off the device | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | | ✓ | ✓ |

Revenue Collection Services
Schedule 4.1 – Service Delivery

| | LU, Rail & Retail Devices used in the Front Office Modules | | | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|----|---------------|-----|-------------|------|-----------|-------------|-----------------|-------|
| Key Functionality | MFM | AFM | QBM | TOM | SAF | SC | ELAN Switches | SCU | SAF Printer | Gate | Validator | Card Reader | Retail Terminal | xPERT |
| Device connected to the network | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Able to scan barcodes | | | | ✓ | ✓ | | | | | | | | | |
| Able to provide purchase receipts | ✓ | ✓ | ✓ | ✓ | | | | | | | | | ✓ | ✓ |
| Able to use keyboard | | | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | | ✓ | ✓ |
| Operator Personnel able to provide Customer support functions | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | | | ✓ | |
| Able to apply local and remote settings | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | |
| Gate paddle fully operational | | | | | | | | | | ✓ | | | | |
| Device applying appropriate advertised fare | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Product delivered to Customer after being sent to the device | | | | | | | | | | ✓ | ✓ | ✓ | | |
| Device time synchronised with Prestige Back Office Modules | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Device time synchronised with Network Time Protocol | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Device polling | | | | | | | | | | | | | ✓ | ✓ |

Bus Devices used in the Front Office Modules:

All the functionality set out in Schedules 5.2 (Validation and Access Control), 5.3 (Retail) and 5.4 (Control Systems and Networks) in respect of Devices delivering the ST Services shall be considered Key Functionality.

Back Office Modules

| Key Functionality | Central System | Rail DGC | Bus DGC | xPERT/ Pearl DGC | Actuate | Key Management System | BCP | TMP | TODB | PAF | ISA Servers | AS2 |
|--|----------------|----------|---------|------------------|---------|-----------------------|-----|-----|------|-----|-------------|-----|
| Connection to System | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| All external connections to other Systems | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| All GUI access | ✓ | ✓ | ✓ | | | | | | | | | |
| Table MACing for the Core Data Landing | ✓ | | | | | | | | | | | |
| Transfer of batch files from all system elements | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | | | |
| Execution of scheduled jobs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Transaction Processing | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | |
| Actuate and Business Objects reports | ✓ | | | | | | | | | | | |
| All database access | ✓ | ✓ | ✓ | ✓ | | | | | | | | ✓ |
| Web API | ✓ | | | | | | | | | | | |
| File Transfer | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | | | ✓ |
| Table loading and delivery | ✓ | ✓ | ✓ | ✓ | | | | ✓ | | | | |

Revenue Collection Services
Schedule 4.1 – Service Delivery

| Key Functionality | Central System | Rail DGC | Bus DGC | xPERT/ Pearl DGC | Actuate | Key Management System | BCP | TMP | TODB | PAF | ISA Servers | AS2 |
|--------------------------------|----------------|----------|---------|------------------|---------|-----------------------|-----|-----|------|-----|-------------|-----|
| Polling | | | | | | | | ✓ | | | | |
| Authentication | | | | | | ✓ | ✓ | ✓ | | | | |
| Ability to apply gate settings | | ✓ | | | | | | | | | | |
| Monitoring capabilities | | ✓ | ✓ | ✓ | | | | | | | | |
| Authorisation Services | | | | | | | ✓ | | | | | |

FTP Back Office Modules

| Key Functionality | PARE | FAE | EMV DP2 | CPA | CSL Server | CASC |
|--------------------------------|------|-----|---------|-----|------------|------|
| All Applications and Services | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| All inter-systems connectivity | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Execution of scheduled jobs | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Transaction Processing | ✓ | ✓ | ✓ | ✓ | | ✓ |

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Revenue Collection Services
Schedule 4.1 – Service Delivery

| Key Functionality | PARE | FAE | EMV DP2 | CPA | CSL Server | CASC |
|------------------------------|------|-----|---------|-----|---------------|------|
| All database access | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Web connectivity | | | | | | ✓ |
| All File Transfer Processes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Table loading and delivery | | ✓ | ✓ | ✓ | | |
| All Authentication processes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Appendix 4 – Service Meetings

The table below is intended to provide an outline of the type of activities/meetings that are likely to occur and how specific areas of TTL will interface with the Contractor.

Section 1 - Required Meetings

| Meeting Name | Meeting Requirements | Frequency | Format | Time and duration of Meeting |
|-----------------------------|---|---|-----------------|---|
| Daily Status Review Meeting | To discuss the Daily Status Report as set out in this Schedule | Twice daily for all Support Service Days except Christmas Day | Conference Call | 08:00 and 16:00 for half an hour |
| Weekly Services Meeting | To discuss performance of each of the Services as set out in Schedules 4.1, 4.2, 4.3, 4.4, 4.6, 4.7, 4.8, 4.9 | Weekly | Face to Face | To be agreed each week for one (1) hour |
| Service Review Meeting | As set out in this Schedule | Five (5) Business Days from the end of the relevant Period | Face to Face | To be agreed |
| Asset Management Meeting | To discuss the Period Asset Report as set out in Schedule 8.2 (Asset Management & Maintenance) | No later than ten (10) Business Days after the end of each Period | Face to Face | 10:00 for two (2) hours |
| Consumables Meeting | To discuss the Consumables Report, performance as set out in Schedule 4.10 (Sales & Consumables) and any Card Supplier issues | No later than ten (10) Business Days after the end of each Period | Face to Face | To be agreed |

Section 2 - Ad Hoc Meetings

| Meeting Name | Meeting Requirements | Frequency | Format | Time and duration of Meeting |
|--------------------------------|---|--|--------------|------------------------------|
| Major Incident Report Meeting | To discuss the draft Major Incident Report | As set out in Schedule 8.3 (Major Incident Management) | Face to Face | To be agreed |
| Special Event Planning Meeting | To discuss Device, Module and Component Performance and Maintenance and Service Personnel needs for a large event in London | No later than ten (10) Business Days before the event | Face to Face | To be agreed |
| Ad Hoc Service Meetings | To discuss areas of persistent or significant non-compliance as TTL reasonable requires | Within five (5) Business days of each meeting request | As required | As required |

Full details on the TTL and Contractor organisations are set out in Schedule 8.1 (Organisation & Governance).

Appendix 5 – Dashboards Requirements

The Dashboards shall be a minimum of seven (7) separate visual displays to be shown on screens provided by TTL with each visual display dedicated to the Services as set out in this Appendix.

The Dashboards shall, as a minimum, be:

- automatically re-freshed with real-time Data every fifteen (15) minutes;
- only accessible by the Contractor and authorised Operator Personnel; and
- changed as set out in Schedule 10.1 (Change Management).

The Dashboards shall be set out in a hierarchy of four (4) elements. These elements are:

1. A front visual display which shall set out a high level overview of the real-time Period performance of the Service Levels and target performance measures as set out in Schedules 4.2, 4.3, 4.4, 4.5, 4.7 and 4.8. The front screens shall be set out in a format that has each requirement in a display panel and shall include as a minimum, but not limited to, headings as follows:
 - a. ELAN
 - i. ELAN Faults outstanding
 - ii. ELAN Faults outstanding after eight (8) hours
 - iii. ELAN Faults outstanding after twelve (12) hours
 - iv. ELAN Faults outstanding after sixteen (16) hours
 - v. SC Faults outstanding
 - vi. transaction latency
 - b. Surface Transport Services
 - i. buses in operation on the road
 - ii. buses in operation on the road online and offline
 - iii. Bus Validator Availability
 - iv. all open jobs for Bus Validator System Faults
 - v. Bus Validators in 'Autonomous' mode
 - vi. Bus Validator System Faults on buses in operation
 - vii. Bus Validators in operation with no Heartbeat
 - viii. jobs logged as System Faults on ETMs
 - ix. Bus Validator System Faults on buses not in operation
 - x. long standing Bus Validator System Faults over twenty-four (24) and forty-eight (48) hours
 - xi. all open System Faults for Bus Validators
 - xii. Garages with System Faults against Spares
 - xiii. time of System Faults at Garages
 - xiv. latency
 - xv. Prestige validations
 - xvi. CPC validations
 - c. LU Services Dashboard
 - i. Availability of the LU Service
 - ii. Availability of each Station Zone
 - iii. Availability of the Device Group
 - iv. Availability of the Overground Group
 - v. Availability of the EAL Group
 - vi. Availability of the TIC Group
 - vii. Primary Events for Retail Zones
 - viii. Primary Events for Validation Zones
 - ix. safety critical System Faults

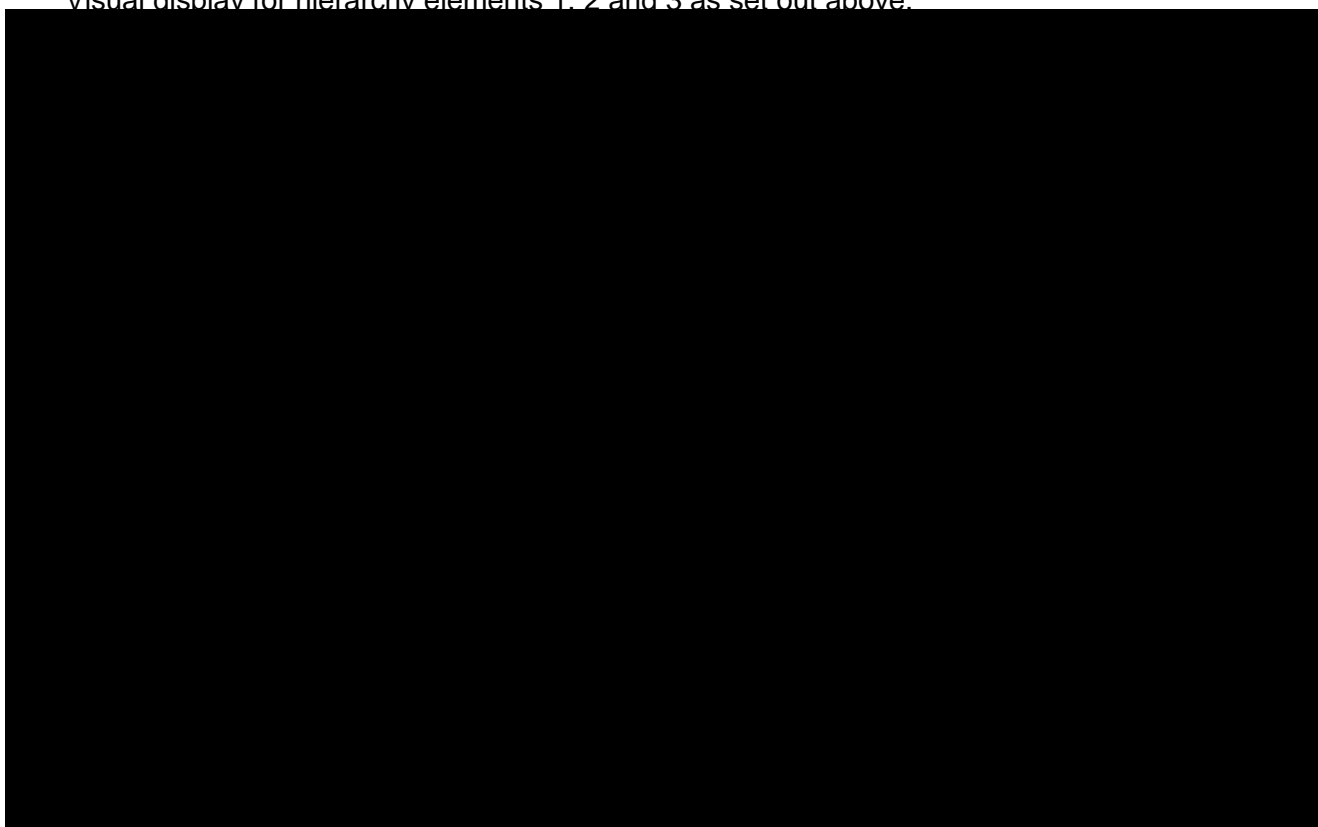
- d. Rail Services Dashboard
 - i. Availability of the Rail Service
 - ii. Primary Incidents for each Operator Group
 - iii. Secondary Incidents for each Operator Group
 - iv. safety critical System Faults
 - e. Prestige Back Office
 - i. Availability of the Central System Application
 - ii. Availability of the Central System Database
 - iii. Availability of the Bank Card Processor
 - iv. Hotlist delivery
 - v. Ad Hoc Load delivery
 - vi. delivery of End of Day Reports
 - vii. delivery of Critical Output Files
 - viii. delivery of Accounting and Reconciliation Outputs
 - ix. Transactions on the LU, Rail and ST Services per day
 - f. ITSO Services
 - i. Availability of the TTL ITSO HOPS
2. Each display panel shall display information related to the Service Levels and target performance measures as follows:
- a. where the Service Level or target performance measure relates to Availability, the current Period to date percentage shall be shown. The Dashboards shall be reset at the start of each Period
 - b. where the Service Level or target performance measure relates to Faults, the number of Faults outstanding shall be shown
 - c. where the Service Level or target performance measure relates to a function, the total number shall be shown
 - d. where the Service Level or target performance measure relates to Events and Incidents, the total number of Events and Incidents in progress shall be shown
 - e. where the Service Level or target performance measure relates to time, the actual time in hours and minutes achieved to deliver the requirement shall be shown
 - f. where the Service Level or target performance measure relates to transactions, it shall show a day per day set of Data in the reporting Period
3. Each display panel shall indicate the status of the Service Level or target performance measure in the form of a colour code: green, amber and red. A display panel may be greyed out if it is only intended to provide a drop down facility for information purposes only. The green, amber and red shall indicate:
- a. **Green** – the Service Level or target performance measure has been met, is being met or there is no incident in progress
 - b. **Amber** – the Service Level or target performance measure has triggered an Incident and the Incident is being managed within the Service Level or target performance measure
 - c. **Red** – the Service Level or target performance measure has not been met or is currently not being met for the Incident reported
4. Each display panel shall also provide a drop down facility so that data related to the performance indicated by the colour code described in paragraph 3 of this Appendix. The Data shall be displayed in an excel tabular format and shall include as a minimum but not be limited to:
- a. ELAN Faults.

- i. ELAN Fault call log number
 - ii. Station Zone affected
 - iii. time System Fault occurred
 - iv. time System Fault outstanding
 - v. System Fault reason code
 - vi. current System Fault action status
 - vii. graphical representation of latency being achieved
 - viii. graphical representation of transactions received per day in the current Period
- b. Surface Transport Services
 - i. bus registration and fleet number
 - ii. Garage code
 - iii. date and time System Fault reported
 - iv. ETM ID
 - v. tray ID
 - vi. Bus Validator ID
 - vii. active bus
 - viii. heartbeat date and time
 - ix. transaction received
 - x. Fault description
 - xi. graphical representation of latency being achieved
 - xii. graphical representation transactions received per day in the current Period
- c. LU Services:
 - 1. where System Faults occur:
 - i. System Fault call log number
 - ii. Station Zone affected
 - iii. time System Fault occurred
 - iv. time System Fault outstanding
 - v. System Fault reason code
 - vi. current System Fault action status
 - vii. Device type System Fault has been logged against
 - viii. trigger level of the Station Zone affected
 - ix. Retail Zone or Validation Zone fault has been logged against
 - 2. where Availability for Station Zone and Group is required:
 - i. Availability against Service Level
- d. Rail Services
 - i. System Fault call log number
 - ii. Validation Zone affected
 - iii. Time System Fault occurred
 - iv. Time System Fault outstanding
 - v. System Fault reason code
 - vi. current System Fault action status
 - vii. Device type System Fault has been logged against
 - viii. trigger level of the Validation Zone affected
 - ix. Validation Zone System Fault has been logged against
- e. Prestige Back Office
 - i. System Fault call log number
 - ii. Back Office Module affected
 - iii. critical output affected
 - iv. time System Fault occurred
 - v. System Fault reason code
 - vi. current System Fault action status
 - vii. graphical representation of latency being achieved

- viii. graphical representation of transactions received per day in the current Period
- f. ITSO Services
 - i. System Fault call log number
 - ii. ITSO Service affected
 - iii. time System Fault occurred
 - iv. time System Fault outstanding
 - v. System Fault reason code
 - vi. current System Fault action status

An example of a Dashboard related to Surface Transport Services to set out how the hierarchy is formulated as described above is as follows:

Visual display for hierarchy elements 1, 2 and 3 as set out above.



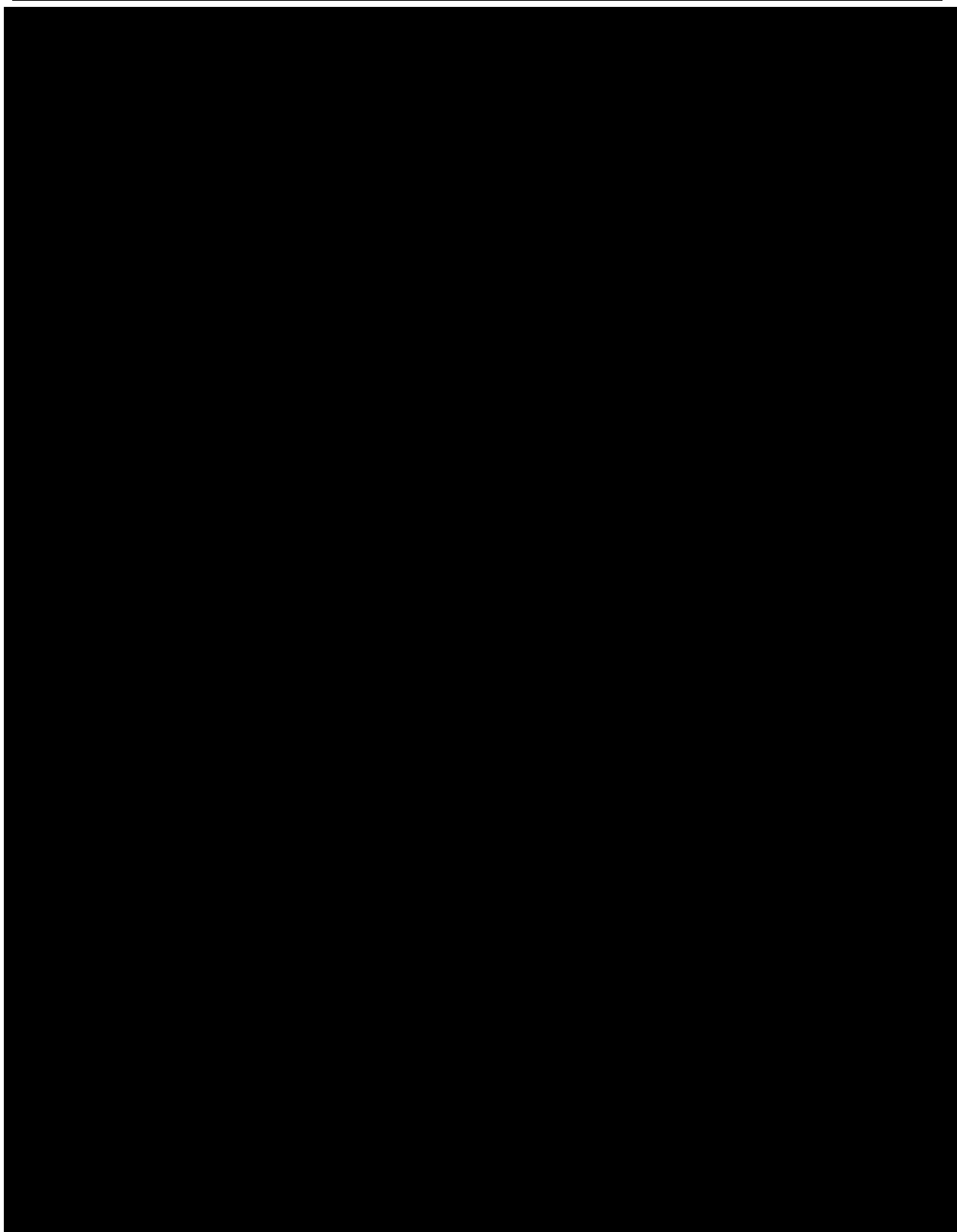
Drop-down facility

above and shall be set out as follows:

1. Front visual display shall be a display panel for each of the 30 key performing Stations these being:
 - a. Baker Street
 - b. Bank
 - c. Bond Street
 - d. Brixton
 - e. Canary Wharf
 - f. Elephant and Castle
 - g. Euston
 - h. Green Park
 - i. Heathrow123
 - j. Hammersmith (District)
 - k. Kings Cross
 - l. Leicester Square
 - m. Liverpool Street
 - n. London Bridge
 - o. Marble Arch
 - p. North Greenwich
 - q. Oxford Circus
 - r. Paddington
 - s. Piccadilly Circus
 - t. Seven Sisters
 - u. Stratford
 - v. Victoria
 - w. Waterloo
 - x. Wembley Park

- y. Westminster
 - z. Finsbury Park
 - aa. St James park
 - bb. Embankment
 - cc. Wimbledon
 - dd. Edgware Road
-
- 2. Each display panel shall display the total number of Retail and Validation Devices at each of the Sites and the total number of System Faults that have been logged on Retail and Validation Devices at each of the Sites
 - 3. Each display panel shall indicate the status of the Station in the form of a colour code: green, amber and red. The green, amber and red shall indicate:
 - a. **Green** –one (1) System Fault logged at the Station
 - b. **Amber** – more than two (2) System Faults logged at the Station
 - c. **Red** – the Station has a Primary Event, Primary Incident logged
 - 4. Each display panel shall also provide a drop-down facility so that details of each of the System Faults can be seen, the details to include as a minimum (but not limited to):
 - a. System Fault call log number
 - b. Retail or Validation Zone affected
 - c. time System Fault occurred
 - d. time System Fault outstanding
 - e. Device with the System Fault
 - f. System Fault reason code
 - g. current System Fault action status

An example of the Events Dashboard is shown below:



Appendix 6 – Planned Maintenance Windows

[illegible]