

Revenue Collection Services

Schedule 4.6 – FTP Back Office Services

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1 Introduction

1.1 Scope and Purpose

- 1.1.1 This Schedule 4.6 (FTP Back Office Services) sets out the scope, performance regime, monitoring and reporting requirements for the FTP Back Office Services.
- 1.1.2 The "**FTP Back Office Services**" are:
- (a) the Primary Services provided in relation to the FTP Back Office Modules, Core Data Landing and OSS and their associated Devices;
 - (b) the maintenance and monitoring services set out in paragraph 1.4 of this Schedule; and
 - (c) the following services in relation to the use of Contactless Payment Cards:
 - (i) fraud management;
 - (ii) ensuring the completeness of Data from the Devices used in the Front Office Modules;
 - (iii) ensuring that journey information is available to Customers; and
 - (iv) revenue collection.
- 1.1.3 The Contractor shall provide the FTP Back Office Services in accordance with this Schedule, Schedule 4.1 (Service Delivery) and the terms of the Contract.

1.2 FTP Back Office

- 1.2.1 FTP Back Office Services comprise the following Modules, details of which are set out in Schedule 6.2 (FTP Back Office System), Schedule 6.5 (Data Landing Systems) and Schedule 6.6 (Operational Support System):
- (a) **Core Data Landing** – this Module Group acts as an interface to transfer Data between authenticated Front Office Modules and the Back Office Modules and includes the following Modules:
 - (i) Rail Data Gathering Centre (Rail DGC);
 - (ii) Revenue Inspection Device (RID) Server;
 - (iii) Bus Data Gathering Centre (Bus DGC) and Bus Data Concentrators;
 - (iv) Transaction Management Processor (TMP);
 - (v) Pearl Data Gathering Centre; and
 - (vi) xPERT/Pearl Data Gathering Centre;
 - (b) **Payment Card Services (PCS)** – this Module Group provides an interface between the Merchant Acquirer and the Payment and Risk Engine. PCS manages transaction decryption and Tokenisation of PANs, maintains a record of all CPCs used in the System, distributes Status List updates and provides credit/debit online authorisation and settlement services. PCS contains the following Modules:

- (i) EMV Data Processor 2 (EMV DP2); and
 - (ii) Cubic Payment Application (CPA);
 - (c) **Payment and Risk Engine (PaRE)** – this Module processes tokenised transaction files from the Payment Card Services for risk assessment and payment. PaRE determines whether a CPC is valid for travel on the Transport Network and manages the settlement process;
 - (d) **Fares and Aggregation Engine (FAE)** – this Module provides the capability to process Tap Transaction Data and turn these into constructed journeys with an associated fare. FAE applies Business Rules (such as daily and weekly capping) to the constructed fare and also determines the apportionment of revenue between TTL and Third Parties including, but not limited to, the Train Operating Companies; and
 - (e) **Operational Support System (OSS)** – provides real-time Data to Operational Support Staff to enable them to monitor and manage Modules. OSS, along with other monitoring systems, are used by TTL and the Contractor to monitor Modules for correct operation and to initiate appropriate action when Faults and System Faults emerge. OSS contains the following Modules:
 - (i) Element Manager Systems;
 - (ii) Manager of Managers (MoM);
 - (iii) Configuration Management Database (CMDB); and
 - (iv) Presentation Layer.
- 1.2.2 There are interfaces between the FTP Back Office Modules, Core Data Landing, OSS and other Interfacing Systems including but not limited to the FTP Data Management, Customer Account/Self Care (CASC) and Merchant Acquirer system as set out in Schedule 7.3 (System Interfaces).

1.3 Data Processing

- 1.3.1 Whilst the Availability of the FTP Back Office Modules, Core Data Landing and OSS is measured on an individual basis, it is also necessary to measure the performance of the Modules together in order to ensure the proper operation of FTP Back Office Services.
- 1.3.2 Performance measures have been set out below which include measuring what proportion of Data has been presented to certain Modules within defined timeframes to measure the completeness of that Data and the ability of the relevant Modules to complete their processing of such Data within the specified timeframes.
- 1.3.3 The Contractor is also required to measure the transmission and receipt of Data between the FTP Back Office Modules, Core Data Landing, OSS and specified Interfacing Systems in order to identify potential issues in relation to those Interfaces.

1.4 Maintenance and Monitoring Services

- 1.4.1 The Contractor shall proactively monitor all FTP Back Office Modules, Core Data Landing and OSS remotely using the OSS and other monitoring systems.

- 1.4.2 The Contractor shall agree Planned Maintenance Windows for the FTP Back Office Modules, Core Data Landing and OSS with TTL in accordance with Schedule 4.1 (Service Delivery).
- 1.4.3 The Contractor shall maintain such disaster recovery capabilities as are present at the Service Commencement Date and in the event of a Major Incident shall implement such capabilities to minimise the impact to the Services as set out in Schedule 8.3 (Major Incident Management).
- 1.4.4 The Contractor shall provide Dashboards as set out in Schedule 4.1 (Service Delivery) to monitor and report on the performance of the FTP Back Office Services and the associated Modules.
- 1.4.5 The Contractor shall ensure that every CPC transaction is made available to the FTP Back Office Modules to enable Customers to view their journey information in near real-time, for the Merchant Acquirer to perform Card authorisations, to complete accurate end of the day billing of fares and settlement.
- 1.4.6 The Contractor shall monitor whether any fares charged by the System are not fares in existence at the Service Commencement Date or fares which TTL has provided to the Contractor as set out in Schedule 10.3 (Fares Revision). Where such a fare is charged, the Contractor shall notify TTL immediately providing full details including, as a minimum, the number of Customers affected, fare(s) and location(s).

2 Performance

2.1 Generally

- 2.1.1 The Primary Services are set out in Schedule 4.1 (Service Delivery). Details of the financial impact of the Service Credit and Service Bonus regime (if applicable) are set out in Schedule 12.1 (Charges and the Financial Model).
- 2.1.2 Availability of each Module shall be measured during the FTP Back Office Service Day.
- 2.1.3 The "**FTP Back Office Service Day**" shall be twenty-four (24) hours per day, seven (7) days per week including Bank Holidays and Christmas Day.
- 2.1.4 The processing of transactions shall be measured during the FTP Processing Service Day.
- 2.1.5 The "**FTP Processing Service Day**" shall be 05:00 to 01:00 the following day, seven (7) days per week including Bank Holidays and Christmas Day.
- 2.1.6 In this Schedule where time periods are expressed in Service Hours this shall be measured within the relevant service day (being either the FTP Back Office Service Day or the FTP Processing Service Day) related to that performance measure.
- 2.1.7 The Contractor shall maintain the FTP Back Office Modules, Core Data Landing and OSS and respond proactively to Faults and System Faults which affect the FTP Back Office Services and reliably meet and/or exceed the Service Levels set out in this Schedule.
- 2.1.8 In the event that the Operating Targets set out in Appendix 1 to this Schedule are reached, the Contractor shall escalate the issue to the relevant TTL representative set out in Appendix 1.
- 2.1.9 A series of objectives, operational measures and targets are set out in Appendix 2 (the "**Operating Levels**") which provide Assurance in relation to the operation of the FTP Back Office Modules, Core Data Landing and OSS. The Contractor shall measure and report to TTL on the Operating Levels each Period within the Service Performance Report in accordance with paragraph 4 of this Schedule.

2.2 Core Data Landing

- 2.2.1 The Contractor shall measure and report to TTL on the Availability of all the Modules within the Core Data Landing Modules each Period in accordance with paragraph 4 of this Schedule.
- 2.2.2 The targets and Service Levels for the Availability of the Core Data Landing Modules each Period shall be as follows and Service Credits shall be applied as set out in paragraph 3 for a failure to meet the Service Levels stated:

Module	Availability Service Level	Service Credits apply
(a) Rail DGC	Ninety-nine point seven per cent (99.7%)	Yes
(b) Bus DGC	Ninety-nine point seven per cent (99.7%)	Yes

Module	Availability target	Service Credits apply
(a) RID Server	Ninety-nine point eight per cent (99.8%)	No
(b) TMP	Ninety-nine point eight per cent (99.8%)	No
(c) Pearl DGC	Ninety-nine point eight per cent (99.8%)	No
(d) xPERT/Pearl DGC	Ninety-nine point eight per cent (99.8%)	No

2.2.3 Where the Availability of either the Rail DGC or the Bus DGC falls below ninety nine per cent (99%) in any Period, further Service Credits shall be applied as set out in paragraph 3.

2.2.4 Where the Availability of either the Rail DGC or the Bus DGC falls below the relevant Unacceptable DGC Performance Threshold set out in paragraph 2.2.5, TTL may issue a Major Warning to the Contractor as set out in Schedule 12.4 (Contract Management).

2.2.5 The "**Unacceptable DGC Performance Thresholds**" are:

- (a) Rail DGC: ninety-five per cent (95%); and
- (b) Bus DGC: ninety-five per cent (95%).

2.3 Payment Card Services

2.3.1 The Contractor shall measure and report to TTL on the Availability of all the Modules within the Payment Card Services each Period in accordance with paragraph 4 of this Schedule.

2.3.2 The target for the Availability of the Payment Card Services Module Group and the individual Modules each Period for reporting purposes shall be as follows:

Module	Availability target	Service Credits apply
(a) CPA	Ninety-nine point eight per cent (99.8%)	No
(b) EMV DP2	Ninety-nine point eight per cent (99.8%)	No
(c) PCS Module Group	Ninety-nine point eight per cent (99.8%)	No

2.3.3 The Contractor shall monitor the number of CPCs which have been sent to, but have not been authorised by, the Merchant Acquirer and report these and any trends to TTL each Period in accordance with paragraph 4 of this Schedule.

2.3.4 The Contractor shall monitor and report to TTL on the total time in seconds taken for each request for an authorisation sent to and responded to by the Merchant Acquirer in accordance with paragraph 4 of this Schedule.

2.3.5 Where PaRE requests a CPC to be added to the Status List the Contractor shall monitor and report to TTL in accordance with paragraph 4 of this Schedule on all

transactions generated from the use of that CPC to verify that the CPC has been denied access to the Transport Network.

- 2.3.6 The Contractor shall monitor and provide a report to TTL each FTP Processing Service Day on the total number of transactions processed and requests issued to the Merchant Acquirer for payment against the total number of transactions received by the FTP Back Office Modules that day.
- 2.3.7 The Contractor shall measure and report to TTL in accordance with paragraph 4 of this Schedule on the time period between each request by PaRE under paragraph 2.3.5 and the delivery of the associated Status List to each Card Reader.
- 2.3.8 Following a request from PaRE in accordance with Business Rules to add a Card to the Status List, the Contractor shall, within sixty (60) minutes of the request, deliver an updated Status List reflecting the request to every Card Reader. Any failure to meet this time frame shall be escalated as set out in Table 3 of Appendix 1 and shall result in the Contractor becoming liable for any use of any Card on the Status List on the System as set out in Clause 62 (Liability Provisions and Indemnities) and Schedule 16 (Loss of Revenue from List Management).
- 2.3.9 The Contractor shall ensure that every Card Reader has the current up to date Status List. Where a Card Reader is operating with an out of date Status List the Contractor shall notify TTL immediately or within such longer period as the Parties may agree at the Service Review Meeting.

2.4 Payment and Risk Engine

- 2.4.1 The Contractor shall measure and report to TTL on the Availability of the PaRE Module each Period in accordance with paragraph 4 of this Schedule.
- 2.4.2 The target for the Availability of the PaRE Module each Period for reporting purposes shall be ninety-nine point nine nine per cent (99.99%).
- 2.4.3 The Contractor shall measure the time taken in seconds between each request from the PaRE Module for an authorisation of a CPC by the Merchant Acquirer and the receipt by the PaRE of an authorisation or denial.
- 2.4.4 The Contractor shall measure the time taken in seconds of each transaction and the quantity of transactions from the Card being presented to the Card Reader into the PaRE Module on an hourly and daily basis for the ST Services, the LU Services and the Rail Services as set out in Schedules 4.2 (Surface Transport Services), 4.3 (LU Services) and 4.4 (Rail Services), respectively.
- 2.4.5 The Contractor shall ensure that more than ninety-nine per cent (99%) of all transactions for the FTP Back Office Modules shall be available in the PaRE within one (1) Service Hour from the associated Card being presented to the Card Reader and shall report to TTL on the same in accordance with paragraph 4. No Service Credits shall be applied if this performance is met every Service Hour.
- 2.4.6 If ninety-nine per cent (99%) or less of all transactions for the FTP Back Office Modules are available in the PaRE Module within one (1) Service Hour from the associated Card being presented to the Card Reader the Contractor shall have four (4) Service Hours to recover and transfer all such transactions to the PaRE Module and return the performance to more than ninety-nine per cent (99%). Service Credits shall be applied for a failure to recover as set out in paragraph 3 according

to whether the actual percentage of transactions available in the FTP Back Office Modules is:

- (a) between ninety-eight per cent (98%) and ninety-nine per cent (99%);
- (b) between ninety-five per cent (95%) and ninety-eight per cent (98%); or
- (c) less than ninety-five per cent (95%).

The Contractor shall also escalate to TTL any performance failure as set out in Table 1 of Appendix 1 to this Schedule.

2.4.7 The Contractor shall ensure that the percentage of all transactions for the FTP Back Office Modules available in the PaRE Module are those set out below, where the period runs from when the Card was presented at the Card Reader to the end of the corresponding period set out below:

- (a) ninety-nine point five per cent (99.5%) by the end of the FTP Processing Service Day of presentation;
- (b) ninety-nine point nine per cent (99.9%) by the end of the FTP Processing Service Day following presentation;
- (c) ninety-nine point nine nine per cent (99.99%) by the end of the second FTP Processing Service Day following presentation; and
- (d) one hundred per cent (100%) within seven (7) Business Days of presentation.

2.4.8 In the event that the Contractor does not achieve the percentages set out in paragraph 2.4.7, the Contractor shall escalate this to the relevant TTL representative as set out in Table 2 of Appendix 1 and Service Credits shall be applied as set out in paragraph 3.

2.4.9 The Contractor shall issue to TTL a daily report on performance against the targets set out in paragraphs 2.4.5 and 2.4.7.

2.5 Fares and Aggregation Engine

2.5.1 The Contractor shall measure and report to TTL on the Availability of the FAE Module each Period in accordance with paragraph 4 of this Schedule.

2.5.2 The target for the Availability of the FAE Module each Period for reporting purposes shall be ninety-nine point nine nine per cent (99.99%).

2.5.3 The Contractor shall monitor and report to TTL every FTP Processing Service Day in accordance with paragraph 4 on the completion of the daily settlement process within the FAE. If the settlement process fails to complete by the start of the following FTP Processing Service Day, the Contractor shall advise TTL immediately.

2.5.4 The Contractor shall ensure that a minimum of ninety per cent (90%) of all relevant transactions are sent for settlement by 04:30 on the day after the end of the Traffic Day in which the journey occurred.

2.5.5 The Contractor shall transfer the Traffic Day Apportionment File to RSP by 08:00 each Traffic Day. Service Credits shall be applied as set out in paragraph 3 if the

Traffic Day Apportionment File is not received by RSP within four (4) Service Hours of this deadline.

2.6 Operational Support System

- 2.6.1 The Contractor shall measure and report to TTL on the Availability of all the Modules within the OSS Module Group each Period in accordance with paragraph 4 of this Schedule.
- 2.6.2 The targets and Service Levels for the Availability of the Modules within the OSS Module Group each Period shall be as follows and Service Credits shall be applied as set out in paragraph 3 for failure to achieve the Service Levels stated:

Module	Availability Service Level	Service Credits apply
(a) Manager of Managers	Ninety-nine point nine nine per cent (99.99%)	Yes
(b) CMDDB	Ninety-nine point nine nine per cent (99.99%)	Yes
Module	Availability target	Service Credits apply
(c) Element Manager Systems	Ninety-nine per cent (99%)	No

2.7 FTP Data Management Interface

- 2.7.1 TTL shall be responsible for the receipt, manipulation and delivery of Base Data to support the generation of fares, revenue collection and apportionment for all travel using CPC.
- 2.7.2 TTL shall be responsible for monitoring the FTP Data Management modules and fault rectification.
- 2.7.3 The Contractor shall ensure that any Data provided to the Contractor by TTL using FTP Data Management does not adversely affect the performance of the System or the IRC System. TTL shall, as a Dependency, ensure the accuracy of the Data so supplied.

2.8 CASC Interface

- 2.8.1 The Contractor shall continuously monitor and report to TTL in accordance with paragraph 4 of this Schedule on the number of transactions involving CASC and the time between each transaction being made at the Card Reader and the equivalent Data being made available to the CASC. This Data is for the purpose of Customers being able to view their journey information, confirmed charges and resolve any issues before charging.
- 2.8.2 The Contractor shall ensure, and report to TTL in accordance with paragraph 4 of this Schedule, that ninety-eight per cent (98%) of updates to Customer or CPC details and outstanding balance payments shall be processed and an update and/or confirmation (as appropriate) returned within five (5) seconds of the receipt of a request from the CASC.

- 2.8.3 The Contractor shall ensure, and report to TTL in accordance with paragraph 4 of this Schedule, that ninety-eight per cent (98%) of Customer requests for journey information and/or statements shall be processed and the details returned within five (5) seconds of a request from the CASC.

3 Service Credits

3.1 Calculation of Service Credits

3.1.1 Service Credits shall be applied in accordance with the following:

Para.	Event / Criteria	Service Credits
2.2.2(a)	A failure to achieve the Service Level for the Availability of the Rail DGC in any Period	Twenty-five (25) Service Credits for each zero point one per cent (0.1%) below the Service Level
2.2.3	A failure to achieve Availability of ninety-nine per cent (99%) for the Rail DGC in any Period	A further two hundred and fifty (250) Service Credits
2.2.2(b)	A failure to achieve the Service Level for the Availability of the Bus DGC in any Period	Twenty-five (25) Service Credits for each zero point one per cent (0.1%) below the Service Level
2.2.3	A failure to achieve Availability of ninety-nine per cent (99%) for the Bus DGC in any Period	A further two hundred and fifty (250) Service Credits
2.4.6	<p>A failure to ensure more than ninety-nine per cent (99%) of all transactions for the FTP Back Office Modules are available in the PaRE within one (1) Service Hour from the associated Card being presented to the Card Reader where the actual percentage of transactions available is:</p> <p>between ninety-eight per cent (98%) and ninety-nine per cent (99%)</p> <p>between ninety-five per cent (95%) and ninety-eight per cent (98%)</p> <p>less than ninety-five per cent (95%)</p>	<p>Four (4) Service Credits for each four (4) Service Hour period</p> <p>Eight (8) Service Credits for each four (4) Service Hour period</p> <p>Two (2) Service Credits per Service Hour or part thereof</p>
2.4.8	<p>A failure to achieve the specified percentage of transactions for the FTP Back Office Modules reach the PaRE within the specified period from when the associated Card was presented to the Card Reader to the end of the period set out below:</p> <p>less than ninety-nine point five per cent (99.5%) on the day of presentation;</p>	One (1) Service Credit per zero point zero one per cent (0.01%)

Para.	Event / Criteria	Service Credits
	less than ninety-nine point nine per cent (99.9%) on the FTP Processing Service Day following presentation;	One (1) Service Credit per zero point zero one per cent (0.01%)
	less than ninety-nine point nine nine per cent (99.99%) two (2) FTP Processing Service Days following presentation; and	One (1) Service Credit per zero point zero one per cent (0.01%)
	less than ninety-nine point nine nine per cent (99.99%) on each subsequent FTP Processing Service Day	One (1) Service Credit per zero point zero one per cent (0.01%) per FTP Processing Service Day
2.5.5	Failure to deliver the Traffic Day Apportionment file to RSP by 12:00 each Traffic Day	Fifty (50) Service Credits per day
2.6.2	A failure to achieve the Service Level for the Availability of the Manager of Managers and/or CMDDB	One thousand five hundred (1,500) Service Credits for failure to meet the Service Level for the Availability of each Module in three (3) of four (4) rolling Periods

3.1.2 The Contractor shall report on Service Credits as set out in paragraph 4.

4 Reporting

4.1 The Service Performance Report

4.1.1 In respect of the FTP Back Office Services, as a minimum, the Contractor shall report to TTL on the following in each Service Performance Report delivered as set out in Schedule 4.1 (Service Delivery):

Para.	Report
2.1.9	Performance against the Operating Levels
2.2.1	Availability of the Core Data Landing Modules
2.3.1	Availability of the Payment Card Services Modules
2.3.3	The number of CPCs which are sent but not authorised by the Merchant Acquirer, and any trends
2.3.4	The total time in seconds taken for each request for an authorisation sent and responded to by the Merchant Acquirer
2.3.5	All transactions generated from the use of CPCs which TTL have requested be added to the Status List and which have been denied access to the Transport Network
2.3.7	The time period between the request by the PaRE and delivery of the Status List to each Card Reader
2.4.1	Availability of the PaRE
2.5.1	Availability of the FAE
2.6.1	Availability of the OSS components
3	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

4.1.2 Each report set out in the table in paragraph 4.1.1 above shall be provided in respect of the Period prior to the date of provision of the Service Performance Report, unless otherwise specified by TTL.

4.1.3 In addition, the Contractor shall report to TTL on the following, in the following frequencies:

Para.	Report	Frequency
2.3.7	On the time period between the creation of each Status List and its delivery to each Card Reader	Daily by 08:00 of the following day
2.4.5	Performance against the following target: more than ninety-nine per cent (99%) of all transactions for the FTP Back Office Modules shall be available in the PaRE within one (1) hour from the associated Card being presented to the	Hourly

	Card Reader	
2.4.7(a)	Performance against the following target: ninety-nine point five per cent (99.5%) of all transactions for the FTP Back Office Modules are available in the PaRE Module by the end the FTP Processing Service Day of presentation	Daily by 08:00 of the following FTP Processing Service Day
2.4.7(b)	Performance against the following target: ninety-nine point nine per cent (99.9%) of all transactions for the FTP Back Office Modules are available in the PaRE Module by the end of the FTP Processing Service Day following presentation	Daily by 08:00 of the following FTP Processing Service Day
2.4.7(c)	Performance against the following target: Ninety-nine point nine nine per cent (99.99%) of all transactions for the FTP Back Office Modules are available in the PaRE Module by the end of second FTP Processing Service Day following presentation	Daily by 08:00 of the following FTP Processing Service Day
2.4.7(d)	Performance against the following target: one hundred per cent (100%) of all transactions for the FTP Back Office Modules are available in the PaRE Module within seven (7) FTP Processing Service Days of presentation	Daily by 08:00 of the following FTP Processing Service Day
2.5.3	The completion of the daily settlement process within the FAE	Daily by 08:00 of the following FTP Processing Service Day
2.8.1	The number of transactions and the time between the transaction being made at the Card Reader and the equivalent Data being made available to the CASC	Daily by 08:00 of the following FTP Processing Service Day
2.8.2	Performance against the following target: ninety-eight per cent (98%) of updates to Customer or CPC details and outstanding balance payments shall be processed and an update and/or confirmation as appropriate returned within five (5) seconds of the receipt of a request from the CASC	Daily by 08:00 of the following FTP Processing Service Day
2.8.3	Performance against the following target: ninety-eight per cent (98%) of Customer requests for journey information and/or statements shall be processed and the details returned within five (5) seconds of a request from the CASC	Daily by 08:00 of the following FTP Processing Service Day

Appendix 1 – Service Escalation

Table 1: Transactions in PaRE

Operating Target	TTL Escalation
Ninety-nine per cent (99%) or more per hour	None
Less than ninety-nine per cent (99%) per hour	TTL Service Delivery Manager
Less than ninety-eight per cent (98%) per hour	TTL Service Operations Manager
Less than ninety-five per cent (95%) per hour	TCM

Table 2: End of Day Data Processing in PaRE

Operating Target	TTL Escalation
Less than ninety-nine point five per cent (99.5%) of all transactions for the FTP Back Office Modules by end of FTP Processing Service Day 1	TTL Service Delivery Manager
Less than ninety-nine point nine per cent (99.9%) of all transactions for the FTP Back Office Modules by end of FTP Processing Service Day 2	TTL Service Operations Manager
Less than ninety-nine point nine nine per cent (99.99%) of all transactions for the FTP Back Office Modules by end of FTP Processing Service Day 3	TCM

Table 3: Delivery of Status List to Card Readers

Operating Target	Immediate	After four (4) hours	After eight (8) hours	After twenty-four (24) hours
One hundred per cent (100%) delivered within sixty (60) minutes	None	None	None	None
Less than one hundred per cent (100%) delivered within sixty (60) minutes	None	TTL Service Delivery Manager	TTL Service Operations Manager	TCM

Appendix 2 – Operating Levels

Objective	Measure	Target Threshold
Online Service – Journey information & charges To enable Customers to see journey history and confirmed charges through online service and resolve issues	Availability of completed journeys Data in Back Office Modules and confirmed charges available online next Traffic Day	100% of completed journey data processed and available to Customers by 04:30 of next Traffic Day after journey was completed
An ability to measure the Availability of the latest Data available to support Customer self service	Availability of travel information for a Customer with indicative charges	98% within one (1) hour of journey completion 99.9% within twenty-four (24) hours of journey completion
TTL web API should be monitored as this is the main interface with Customers	Availability 99.9% 24 x 7 unless TTL publish planned outage seven (7) days in advance	99.9% - 24 x7
TTL web API should be monitored as this is the main interface with Customers	Consecutive users of the TTL web API	3,650
TTL's contract with the Merchant Acquirer requires the Merchant Acquirer to credit TfL's Bank Account within one (1) day (17:00 hours assumed) as long as TTL submits a payment file by 05:00 hours	Measure number of payment applications and value sent to Merchant Acquirer for settlement each day and compare against the credits paid by the Merchant Acquirer to TTL	Any variance investigated Monitor Merchant Acquirer has paid TTL daily
Monitor latency Latency rises above 65 ms (round trip) when average over the 28 day period	Round trip latency	>65ms (round trip) over 28 day period
Monitor ELAN to identify degradation of Data transmission before Passenger service or System affecting	Packet loss to be less than 1%	> 1%
OSS refresh rates with all elements of the OSS configurable	OSS initial refresh rates shall be every 60 seconds, but all elements of the OSS shall be configurable	95% monitors refreshed in > 60s
Consecutive users can log onto the OSS with no degradation of OSS performance	Number of concurrent users TTL Service Operations LBSL service teams TOC control rooms TfL IM WAN providers FTP Help Desk (CSC)	500

Objective	Measure	Target Threshold
System status/alarms and errors to be stored for reporting purposes	OSS shall be able to access and report upon all Fault, System Fault and status information for a period of one (1) year to enable the generation of service reports to support the business	Storage capacity to hold all data for one (1) year, speed of access to Data defined in reporting tab
Ability to report upon all System Faults and Faults and performance of the Third Parties contracted throughout the Term	Trouble ticket which captures all of the maintenance/change management activities of each Third Party shall be held for at least three (3) years, though preferable to hold for the Term	All Data held for a minimum of three (3) years
Customers shall be able to access their travel details for a period of one (1) year	Data availability	One (1) year
Monitor FTP CSC Agents and number of concurrent users	180 concurrent users	180
TTL web API should be monitored as this is the main interface with Customers	Consecutive users of the TTL web API Assume concurrent	30,000
Daily usage	Count of successful Customer logons per day	Maximum of 365,000 logons per day
Registration: There will be security so that online account facilities can only be accessed by the account holder	100% of logins must be validated against username and password. Detection of security breaches	100%
Ability to monitor complaints received by Customers and assess cause	Reduce fare adjustment/refunds having to be made to Passengers each Period	Zero (0) refunds/adjustments
Timeliness of processing and response to authorisation requests to and from the Merchant Acquirer	Time taken to process and respond to authorisation request	80% <= 1 second over X time period
		95% <= 3s over x time period
		97% <= 5s over x time period
		99% of authorisation requests will be responded to < 7s
		Authorisation request for each and every Card Transaction is processed and responded to within twenty-two (22) seconds of the Merchant Acquirer receiving a request for authorisation

Objective	Measure	Target Threshold
Timeliness of processing and response to authorisation requests to and from the Merchant Acquirer	Time taken to process and respond to authorisation request	Authorisation request for each and every Card Transaction is processed and responded to within twenty-two (22) seconds of the Merchant Acquirer receiving a request for authorisation
Monitor the Status List size	Monitor delta Status List size changes	5% decrease/increase creates alert compared against average list size in previous twenty-four (24) hours. Period list size monitoring +/- 5%
Site attendance target from problem dispatch time	Contractor Personnel response time	< four (4) hours
Problem identification and dispatch from time problem detected	Time to dispatch	<= 30mins
Port status monitoring	Timeliness of port failure or where a network Configuration Item is unable to pass Data	Logged within fifteen (15) minutes
Packet delivery of IP/VPN - basic/basic plus CoS	Packet delivery success rate	< 99.9% per calendar month
Latency round trip time	Average latency	> 65 ms over twenty-eight (28) day period
Enable access to journey history by Operator Personnel and Customers	One hundred per cent (100%) of the taps received in the Back Office Modules shall be processed in journey information and be made available in the accessible storage area by the start of each Traffic Day	< 100% by 04:30
Accurate billing	One hundred per cent (100%) of journey information and billing will be available for reporting purposes in accessible storage area by 08:00 hours to support Customer self service web page if the transaction data was received in the Back Office Modules before end of Traffic Day	<99.9% within seven (7) day period
Customer self service billing information access	Customer shall be able to log onto the web and access all journey information and journey values the day after travel has been completed	99.9%
Availability of financial settlement reports	All TAPs shall be processed by the FAE and the data made available in the data warehouse for overnight reports to be run and made	08:00 hours

Revenue Collection Services
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Objective	Measure	Target Threshold
	available for business users by 08:00 hours	
Monitoring	FTP System application monitoring	Tap Files waiting TAP files processed app's read/processed TAP's filtered TAP's loaded, capped, written per second, loaded per day, revenue per second/day TAP file threshold exceeded TAP fails awaiting processing
The overnight delta Status List will be sent to Card Readers each Traffic Day	The delta Status List will be distributed to ninety-nine per cent (99%) of readers by 06.00 each Traffic Day. Status List delta arising from end of day authorisations must be available for distribution by 05.30	>99% < 2 minutes >99.5% < 10 minutes
CPC authorisation to be performed in a timely manner	Performance of authorisation processing 90% of authorisations < 5 seconds, 95% < 10 seconds and 5% < 60 seconds	90% of authorisations < 5 seconds, 95% < 10 seconds and 100% < 60 seconds
The performance requirement to enable TTL to access data and provide management, operational and financial reports on the System.	Availability over twenty-eight (28) day period	99.99% over twenty-eight (28) day period
Response time of the report tool to return Data Aspirational target 0 – 100,000 rows of data coming back in 10 seconds 100,000 – 1,000,000 rows of data coming back in 30 seconds 1,000,000 plus back in one (1) minute	Report Data retrieval and presentation response time Measured from Operator Personnel requesting information until received back at their work station	<=100,000 rows of data returned in > 10 seconds
		100,000 – 1,000,000 rows of data returned in < 30 seconds
		> 1,000,000 returned in < 1 minute
Status, alerts and error messages storage	All alerts and error messages generated by the OSS	Minimum of one (1) year to support operational trend reporting
Measurement and reporting on fraud level e.g. CPCs on the Status List but used on the System etc. All figures should be by scheme and for total of all cards.	<ul style="list-style-type: none"> Daily count of unique CPCs used for travel by scheme Number of CPCs sent for authorisation after the first tap Number of CPCs approved and declined For declined CPCs, number and value with a 	Daily report with summaries in Service Performance Report

Objective	Measure	Target Threshold
	<p>daily spend below ■ and above £■</p> <ul style="list-style-type: none"> • Details of any declined CPC that made more than one journey on the day • Number of CPCs sent for authorisation at the end of the day • Number of CPCs approved and declined and the respective values of daily spend • Number of CPCs not requiring authorisation and their value of daily spend • Details of any declined CPC that made any journey the following day • Number of CPCs and value of debt re-submitted (showing the age of the debt) • Number of CPCs and value of debt successfully authorised • Number of cards and value of debt declined • Debt Recovery - All figures should be by scheme and for total of all CPCs • CPCs that were denied entry but tap was collected and submitted for authorisation • Acquirer processing of transaction and payment files • Status list processing at Reader - PARE - Acq - PARE - PCS - Reader time and date stamped for each stage of the process with a means to identify cards within each list • CPCs used on system whilst on a Status List - card identifier, location/s used, value, status time and date CPC should have been declined • Charge back values • Fraud levels • All figures should be by 	

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Objective	Measure	Target Threshold
	scheme and for total of all CPCs	