UNDERGROUND

TICKETING & REVENUE UPDATE 98 JAN/FEB 2017

T&R Ticketing & Revenue Trivia

Part 1
Where's Olly?

Answers on Page 19

FTP4 Goes Public

In **TRU95**, we outlined details of the fourth phase of the Future Ticketing Project (FTP4), which will see the launch of a new TfL Ticketing app and the Faster Universal Load (FUL) facility.

Following an initial trial involving TfL and LU staff, we have recently launched a customer pilot involving around 3,000 users, which will identify areas to improve and new features which could be added before the official launch later in the year.

The customer pilot started on **02 February 2017** involving customers who had been invited to participate via email.

Initially users will be able to;

- *top-up and check their PAYG balance*
- *buy or renew Travelcards*
- *receive notifications when their PAYG balance is low or their Travelcard is due to expire*
- *view maps*
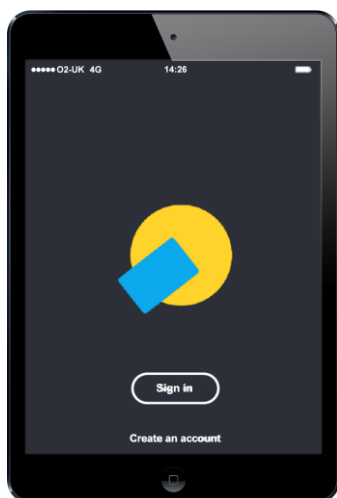
In late February / early March participants in the pilot will also be able to view their journey history via the app.

Any orders for PAYG top-ups or Travelcards made via the app will be available to collect after 30 minutes from any station at which Oyster is accepted.

The new app is not currently available to download via any of the app stores.

Customers wishing to participate in the pilot can apply via tfloysterapp@2cv.com and if accepted will be sent a welcome email with a link enabling them to download the app.

INSIDE THIS EDITION

KEY STORIES INSIDE

Welcome to the first TRU of 2017. As we outlined in TRU97 (the last edition of 2016) the coming year promises to be another busy one in terms of T&R changes, some of which are previewed inside.

JANUARY FARES REVISION

WHAT WENT WELL / NOT SO WELL?

The main fares revision on **Monday 02 January** went exceptionally smoothly, with no major issues being reported.

The fact that there were very few changes to TfL Single, Return and PAYG fares made this a more straightforward revision than in previous years.

On the morning of the fares revision we only had five devices across the whole Oyster network that failed to upload the revised tables and required an engineer visit to resolve the problem.

This was made up of 4 gates and one POM:

- **AFM 28** at **Acton Town**
- **Gate 50** at **Holborn**, **Gate 73** at **Stratford** and two further gates at **Victoria (NR) and Paddington (NR).**

There were also 3 NR stations; **West Ealing, Acton Central** and **Tulse Hill,** where communication faults prevented Cubic from confirming whether fares tables had uploaded at start of traffic. Engineers visited all of these sites and confirmed all devices were functioning correctly early on the Monday morning.

NEW COINAGE

In previous editions of TRU we have covered the forthcoming launch of a new design of one pound coin in March 2017 and plans to make our devices ready to accept them.

However, rather unexpectedly in the weeks leading up to Christmas we had a number of reports from different stations, concerning £2 coins being rejected by POMs and CHDs.

The coins concerned were all of the same design, commemorating the British Army of World War I.

Most of you will be aware that there are many different designs of £2 coins in circulation, commemorating various events, including one with an image of a tube train, celebrating the 150th anniversary of the Tube.

The £2 coin pays tribute to the comradery and community within the army during WWI. The reverse displays three Pals' side by side.

Although there are multiple designs of these coins, the have generally all conformed to the same parameters, so are therefore accepted by devices regardless of the actual design. Unfortunately the latest examples would appear to have slightly different characteristics, leading to them being rejected by validators.

SCAN COIN Scancoin, who manufacture and maintain our cash handling equipment, have identified a modification to the validator software to allow this and another recent design featuring William Shakespeare to be accepted by the CHD.

CUBIC Cubic have undertaken some testing using samples from some of the affected stations, which established that the older validator within our AFMs accepted the newer design of £2. They are currently in discussions with the validator manufacturer to establish why the newer designs of £2 coin are currently being rejected by the new Eagle validator which has now been fitted to all of our MFMs.

Part 2 – Staying with the subject of the Two Pound coin…

Ticketing & Revenue T&R Trivia

Q1) **When was the £2 coin introduced into general circulation?**

A	12 March 1986	B	04 December 1994
C	01 January 1996	D	15 June 1998

Thickness = 2.5mm
Weight = 12.0g
Diameter = 28.4mm
Composition Outer = Nickel-Brass (76% copper, 4% nickel, 20% zinc)
Composition Inner = Cupro-Nickel (75% copper, 25% nickel)

Answers on Page 19

NEW £1 COIN

As mentioned in the previous article, all MFMs have now been fitted with the new Eagle validator which is supplied ready to accept the new design of £1 coin. All MFMs fitted with Bank Note Accepters (BNA) were upgraded before Christmas, with the rollout of the polymer note fix.

The remaining 98 devices currently fitted with Bank Note Recycler (BNR) units that had not already been upgraded were picked up as part of the current MFM PED rollout (see update on **Page 15**).

The upgrade of the AFM requires a little more work, as to accommodate the new Eagle validator, a new bracket needs to be fitted to the device backbone. This work was originally going to be undertaken as part of the PED upgrade on the AFM. However, a combination of the amount of work to be undertaken, the PED programme starting much later than previously expected and the need to rollout the Eagle to approximately 600 AFMs before the **28 March** launch of the new coin, led to this aspect being taken forward as a separate package of work.

The AFM validator replacement programme is now underway and further details can be found on **Page 16**.

£1 COIN TIMELINE

➔ *The new 12-sided £1 coin will enter circulation on Tuesday 28 March 2017.*

Thinner ➤ 2.8mm
Lighter ➤ 8.75g
Larger ➤ 23.43mm

➔ *The Royal Mint is producing 1.5 billion of the new and very secure coins (see feature below).*
➔ *Until 15 October 2017 both old and new £1 coins can be accepted by businesses, but must be banked in separate bags.*
➔ *From 16 October 2017 businesses will no longer be obliged to accept old £1 coins, but customers will be able to still deposit them with their bank.*

Scancoin are incorporating software modifications to allow the acceptance of the new £1 coin by their CHDs as part of the current programme of software updates being undertaken Recent testing using sample coins at **St James Park**, confirmed the device was able to process both old and new designs of £1.

As we have previously reported in TRU, although the new design of £1 is radically different to the existing coinage, it is intended that all of our devices will treat both designs the same. Once the current pound coin is withdrawn from circulation, devices will need a further upgrade to stop the old design of coin being accepted.

As the new coin is a different weight to the existing coin, it will not be possible to accurately weigh bags in which the two types of coin are mixed. In the longer term weighing scales within our POM Rooms will need to be recalibrated to the correct weight for a bulk coin bag of the new coins. From the launch of the new coinage any stations that order in supplies of £1 coins will only receive the new design of coin. Old coin that is banked will be withdrawn by the banks and will not generally be reissued.

As our Cash Handling Devices will mix both types of coin, the bulk coin bags we prepare will potentially be made up of a mixture of both types of £1 coin. Operationally it would be extremely difficult to separate the coins and make up complete bags of each particular type of coin, so our stations will submit mixed bags until further notice. We are currently finalising arrangements with G4S, for them to separate these coins when the bags are processed at their cash centre.

In the longer term, once the volume of the old design of £1 coin still in circulation reduces, we will have to review this situation and potentially set the CHD to reject or divert the old design of coin to the overflow box at the bottom of the device, so that they could then be banked separately.

THE MOST SECURE COIN IN THE WORLD   www.thenewpoundcoin.com

The new coin has a number of features that make it much more difficult to counterfeit

12-sided ❶ *its distinctive shape makes it instantly recognisable, even by touch.*
Bimetallic ❷ *it is made of two metals. The outer ring is gold coloured (nickel-brass) and the inner ring is silver coloured (nickel-plated alloy).*
Latent image ❸ *it has an image like a hologram that changes from a '£' symbol to the number '1' when the coin is seen from different angles.*
Micro-lettering ❹ *it has very small lettering on the lower inside rim on both sides of the coin.*
One pound on the obverse "heads" side and the year of production on the reverse "tails" side, for example 2016 or 2017.
Milled edges ❺ *it has grooves on alternate sides.*
Hidden high security feature ❓ *a high security feature is built into the coin to protect it from counterfeiting in the future.*

OPENINGS & CLOSINGS

The original planned opening of a new ticket hall at Victoria before Christmas was postponed but eventually opened to customers after the morning peak on **Monday 16 January**.

The new **Victoria (North)** entrance situated on the corner of Victoria Street and Bressenden Place is adjacent to the Cardinal Place shopping development and offers a new direct route to the Victoria line platforms for customers.

At a later stage of works at Victoria a further link will be provided between the north ticket hall and the District and Circle line platforms.

The new ticket hall gateline includes
  ➢ **7 x E2 Gates,**
  ➢ **1 x WAG**
and a new POM room containing
  ➢ **2 x MFMs**
  ➢ **6 x AFMs.**

This is actually the first new POM Room to be opened with a Cash Handling Device installed within it.

LAMBETH NORTH

Also opening, well actually reopening, at the beginning of February is **Lambeth North** station, closed since **Wednesday 13 July 2016** for lift replacement works.

During the closure the Pneumatic gateline has been removed and replaced with a brand new E2 gateline including a WAG.

All devices were upgraded during week commencing **Monday 06 February** to bring them fully up to date before reopening to customers on **Saturday 11 February**.

While POM rooms at Victoria and Lambeth North have opened, **Wednesday 04 January** has seen the temporary closure of **Lancaster Gate** station.

As with Lambeth North, this closure is to allow lift replacement work to take place and for the existing pneumatic gates to be replaced with an E2 gateline and WAG.

£50 NOTES

Customers inserting £50 notes into MFMs continue to be a problem on devices fitted with Bank Note Recycler (BNR) units. Once inserted, the device struggles to reject and return the note to the customer, in most cases resulting in a note jam which can usually only be cleared by dumping the contents of the Note recyclers into the vault.

This obviously has a negative impact on the availability of the device for other customers.

Despite the screen of the MFM depicting which bank notes the device will accept, the message clearly isn't getting through to customers.

This has resulted in an outbreak of locally made notices (as illustrated) to try and get the message across to customers.

In response to this a corporate sticker is now being developed and once this is ready, the T&R team will be arranging distribution to all stations that have MFMs fitted with BNR units.
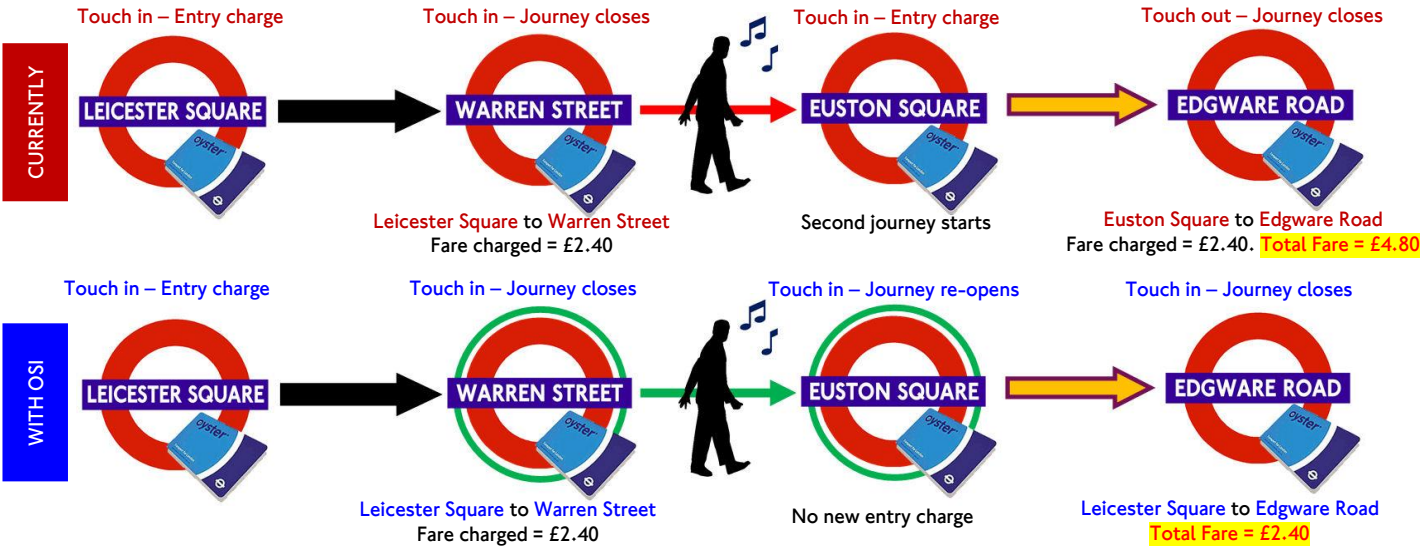
NEW INTERCHANGE OPTION

Following customer feedback, agreement has been given for an additional Out of Station Interchange (OSI) for Oyster and contactless users to be introduced between **Euston Square** and **Warren Street** stations.

This will improve interchange options particularly for PAYG customers wanting to interchange from the Charing Cross branch of the Northern line onto a northbound Metropolitan line service.

The change will mean that instead of being charged for two separate journeys, they will in future be charged for one journey.

CURRENTLY

Touch in – Entry charge	Touch in – Journey closes	Touch in – Entry charge	Touch out – Journey closes
LEICESTER SQUARE	WARREN STREET	EUSTON SQUARE	EDGWARE ROAD
	Leicester Square to Warren Street Fare charged = £2.40	Second journey starts	Euston Square to Edgware Road Fare charged = £2.40. Total Fare = £4.80

WITH OSI

Touch in – Entry charge	Touch in – Journey closes	Touch in – Journey re-opens	Touch in – Journey closes
LEICESTER SQUARE	WARREN STREET	EUSTON SQUARE	EDGWARE ROAD
	Leicester Square to Warren Street Fare charged = £2.40	No new entry charge	Leicester Square to Edgware Road Total Fare = £2.40

The new OSI was due to be implemented as part of the May Fares Revision changes, but Cubic have recently advised us that they would prefer to implement the change as part of a scheduled base data change on *Sunday 26 February*. The necessary changes within the contactless payment back office software will actually be made earlier in February, but these will not be publicised to customers until the Oyster functionality has also been changed.

The facility will not be available for magnetic ticket holders, as our ticketing system has a physical limit on the numbers of magnetic ticket OSIs that can exist at any time.

An updated version of the PAYG map will be available on the T&R pages of the intranet once the change has been implemented, but we will not be reissuing the A3 laminated versions we supply to stations until further changes are made.

DEVICE RENUMBERING

For some time we have been working to improve the consistency of device numbering at a number of stations, where devices have either been numbered outside of the normal device numbering ranges, or where for one reason or another, devices have been numbered rather erratically.

Prior to Christmas we completed a number of phases of work to renumber gates at **Stratford**, so each of the three gatelines are numbered with consecutive numbers in the gate range. This is quite a complicated and slow operation, as the number of devices at the station means that there are very few spare numbers to utilise. The process so far has involved renumbering a small number of gates, then transferring the numbers to a different SC and then switching the next set of gates to their new numbers.

The final position at Stratford will see the gatelines numbered as follows:

Gateline		NUMBERING		NUMBERING	
		Original Gate Nos.	Revised Gate Nos.	Original WAG Nos.	Revised WAG Nos.
STRATFORD	East	60 – 71	40 – 44 and 50 – 56	21, 23, 24 and 27	22 – 25
	Mezzanine	77 – 89	60 – 72	23 and 26	26 and 27
	North	49 – 59	80 – 90	21 and 22	20 and 21

The expansion of *Victoria* underground station and the addition of new devices will mean that we have insufficient numbers, as one of the constraints of the ticketing system is that we can only have a maximum of 99 devices attached to any NLC (National Location Code). At other stations with large numbers of devices, such as Stratford, Waterloo and Kings Cross, the problem has been resolved by splitting the station between different NLCs.

At Stratford most of the PVals have been allocated to a separate NLC in the NR range, whilst at the other sites different LU NLCs have been allocated to different parts of the station. At Victoria a similar solution is soon going to be used, with the introduction of a new NLC for the devices in the District line ticket hall. This will give us the opportunity to renumber all of the devices at Victoria into the normal device ranges, as currently the pressure on device numbers has resulted in a number of recently installed devices ending up with unusual device numbers.

Mi-FORM CHANGES

In TRU97 we outlined plans to make a number of new items available via the Mi-forms e-form for ticketing consumables in early January. Unfortunately after we went to print the implementation was postponed until early March.

From **Tuesday 07 March 2017**, all ticketing and revenue related Mi-Forms will be upgraded to a new platform called Mi-Apps. A new icon will appear in the TfL app catalogue from **Tuesday 28 February**.
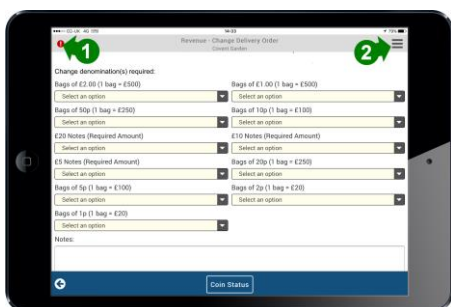
As well as changes to the general look and feel of the forms, there are a number of enhancements and improvements, some of which are shown below;
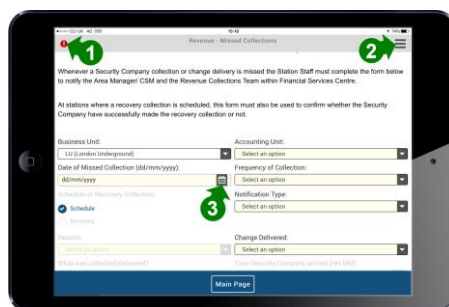
Log-in page

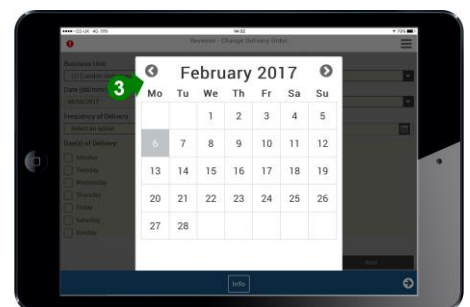| 1	Marker changes to green when all fields completed.
2	Drop-down "Options" button is now in the top right corner

3	Manual date entry has been replaced with a simpler "Date selection" feature

Change delivery page

Missed collection page

Date selection box

POM PERFORMANCE

A common gripe amongst many station staff is that devices, particularly POMs are unreliable and have high failure rates. As we've highlighted in previous TRU articles, there are often differences between *perceptions* of how much time a particular device out of service and the *actual* time it was not usable.

That's not to say that there are not individual devices which have repeat failures or which do not perform well over a period of time. The impact of these is obviously felt by those working at the stations affected.

Having said that even in bad months the overall performance of devices and the percentage of time they are available is generally always in the upper 90 percentile.

The current contract between TfL and Cubic covering the provision and maintenance of our ticketing system, is the Revenue Collection Contract (RCC). One of the key deliverables of the contract on which Cubic are measured and paid is the overall availability of retail devices. This covers all devices that sell tickets and Oyster products and in the case of LU, covers all of our POMs and the TOM/SAF.

The RCC requires Cubic to deliver availability of 98.4% or more across the network. If they exceed this target they can earn bonuses, if they fall below this and other measures they incur service credits which count against them and may result in abatements being charged.

In recent periods there has been a drop off in the MFM performance, as shown in the graph to the right. A large element of this has been attributed to issues with the note handling side of the device and in particular issues since the introduction of the new polymer £5 note.

The graph shows performance by each 4 week contractual period, covering the last 12 periods (almost a year).

LU Services Retail Availability by Devices

The red line for the MFM lies considerably below the high level of availability for the QBM (green) and AFM (blue) bearing in mind that there are nearly twice as many AFMs on the network as we have MFMs.

LU Services Retail Incident Rate
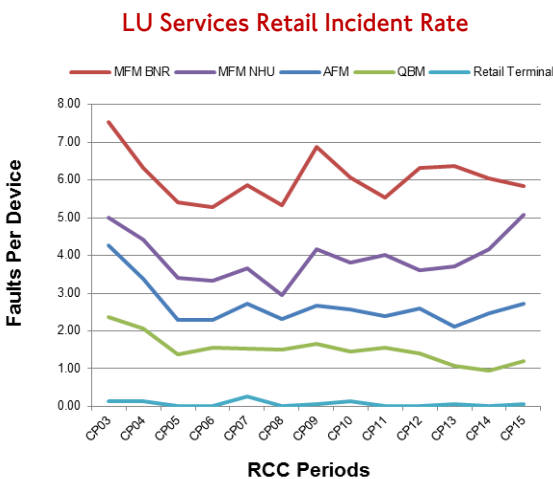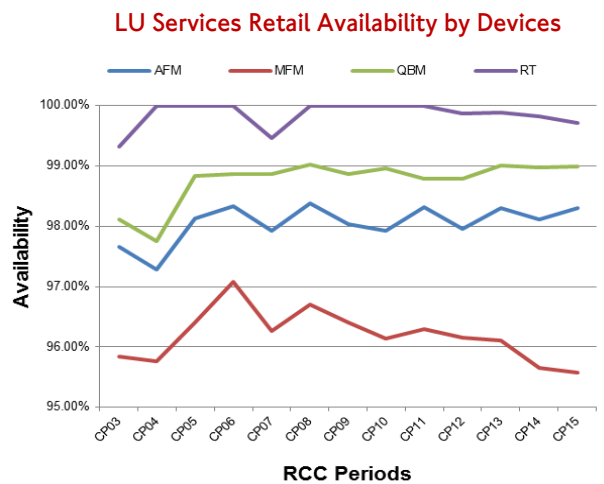
The incident rate graph shows a split between MFMs with BNR units (red) and those with BNA (classed as NHU), which are shown by the purple line.

Although problems with polymer note acceptance on BNA units has now been largely addressed by the modification to the sensors which open and close the flap on the note vault, we have recently seen significant issues occurring on MFMs with BNRs.

Over the last few weeks we have had a number of reports from different stations that have MFMs with Bank Note Recycler units (BNR) concerning repeated note unit failures.

This in turn had resulted in the whole BNR unit being changed for a workshop repair and then caused a shortage of replacement units.

This then considerably extended the time that subsequent devices were out of service awaiting the delivery of spares. As we are highly dependant on the BNR for both note acceptance and change giving, this is not a good stare of affairs. Following these issues Cubic have reviewed the BNR units and put in place an action plan to:

- *Reduce the need to send units back to the manufacturers, thereby reducing turn round times and improving availability of spare units*
- *Introduce a 2 monthly preventative maintenance visit to clean sensors*
- *As a high level of faults are being attributed to a wax like material from the new polymer notes affecting the sensors it is hoped that the increased cleaning will alleviate this.*

Next month as a follow-on, we will focus on how Cubic monitor and deal with repeat failures together with a reminder of what to do if you are concerned that one of your devices regularly fails with similar faults.

REVIEW OF 2016

In this special feature, as we traditionally do in our first edition of each year, we take a look back at some of the main Ticketing & Revenue events of the past 12 months.

In **TRU89,** published in **December 2015**, we took a light-hearted look forward at some of the projects and initiatives that were planned for the year ahead. We did this in the form of a wish list for Olly Oyster.

We have reproduced below "*Olly's Wish list for 2016*" and on the page opposite, we review each of these 12 wishes, to see whether things went;

1. *WELL*   *2.* *NOT-SO WELL*   *… or perhaps in some cases*   *3.* *NOT AT ALL*

OLLYS WISHES FOR 2016

11
Rollout of the modified E2 gate lid successfully trialled at Kings Cross Western

12
Completion of Gate LCP upgrade for E1, Pneumatic gates and WAGs

1
Completion of the replacement of E1 gate service panels

10
Upgrade of MFM Note Handling Units (NHU) and BNRs to accept new polymer bank notes

2
Installation of a further batch of 20 BNR units to MFMs

9
Rollout of the new coin handling unit (CHU) to MFMs

3
Installation of a further batch of WAGs at 74 stations

8
Implementation of the Device Monitoring app to review status of POMs and Gates via staff iPads

4
Rollout of Cash Handling Devices to all stations

7
Software upgrades to AFM, MFM and TOMs to address known issues

6
Replacement of the Chip & PIN unit (PED) on all POMs

5
Upgrade to a better and more consistent gate POD

REVIEW OF 2016 continued..

So how did things go?

1	Unfortunately little progress was made during 2016, on the deployment of the new E1 Service Panel, as this was delayed by problems with the LCP project.	👎
2	Most of the additional 20 BNR units were successfully deployed, with the final 2 units reserved for newly installed devices. The first for a recently installed MFM at Westminster, which has been delayed due to the need to acquire an additional JLE MFM conversion kit. The second will be installed into one of the newly installed MFMs in the Victoria (North) ticket hall, once an additional BNR unit has been purchased for their 2nd MFM.	👍
3	WAG installations are well underway with 62 stations completed so far. The programme which was originally scheduled to be completed by end of March, is now scheduled to be completed in early May.	👍
4	The CHD rollout was probably one of the successes of the year. Devices were successfully deployed to all stations except **Charing Cross (Strand)** and **Bromley By Bow**, where installation will be completed as part of major station projects at these sites. We have had favourable feedback from most users and implementation has greatly assisted with the simplification of processes and a reduction of time spent servicing POMs and undertaking banking and safe audits.	👍
5	This is the one project which never really made it out of the blocks. Undoubtedly a good idea and something worth doing, but a victim of budget cuts and a lack of available funds.	👎
6	Progress on the 3 fronts of the PED project hasn't been as quick as we had thought. The programme slipped several times and towards the end of the year, the new bankcard processing supplier TLG set a limit on us only being able to upgrade a maximum of 100 devices before Christmas. This proved not to be too much of an issue as we failed to reach this target due to a number of installation issues, mainly with the AFM.	👎
7	Software upgrades to the MFM and AFM resolved many of the outstanding faults, but no progress was made on implementing software to address a number of known issues on the TOM.	👍
8	Although the Device Monitoring app was launched for POMs, delays to the LCP programme have prevented more than a handful of stations being able to see or report device faults. There have also been a number of issues identified with the operation of the app and some of the notifications.	👎
9	The new validator has now been successfully deployed to all MFMs and all AFMs should be completed by the middle of March.	👍
10	Implementation of polymer notes was something of a mixed bag. All devices were upgraded prior to the new notes being introduced, but we had major problems with the Bank Note Accepter sensors, which was resolved towards the end of the year. More recently we have had issues with BNR units which have been linked to oil from the notes affecting the BNR unit.	👍
11	This has not really moved forward, although a revised lid mechanism has been developed and we hope to undertake a second trial early in 2017.	👎
12	Finally it was another frustrating year for LCP3. We did manage to produce a revised version of software for E2 gates, which hopefully addresses all the bugs found since rollout of LCP3, but this has only just been deployed in early 2017. During 2016 we only managed a modest extension of the E1 gate Vanguard and although we were ready to commence the long awaited rollout in late 2016, we are now only just starting this.	👎

So as we bid farewell to 2016, we hope that all of Olly's wishes or 2017 will come true in the not too distant future.

SPECIAL FEATURE

TICKET IRREGULARITY SURVEY

The results of the November 2016 On-train Ticket Irregularity Survey have been published by the TfL Transport Strategy team. This survey was conducted throughout that month by RCIs, following set criteria for each line. Customers were surveyed on LU trains 7 days per week; from the first train out of a depot to the last one back in at night. In total *51,636* customers were checked, of which *2.64%* had a ticket irregularity of one form or another.

Below we have provided a detailed line by line breakdown of the number of customers surveyed in November and listed the number of offences encountered.

It is worth pointing out that although there is recognised fraudulent travel across the network, almost **98%** of all customers who use our services are in possession of a valid ticket, Oyster card or contactless payment for the journey they make.

Survey Date	On train irregularity	Estimated revenue loss
November 2015	2.80%	1.68%
February 2016	2.30%	1.31%
May 2016	2.54%	1.63%
NOVEMBER 2016	2.64%	1.51%
12 month average	2.49%	1.48%

Line	Best / Worst	No	Runners	No Ticket	Out of Area (Magnetic)	Adult on Child ticket	PAYG not validated	Out of Area (Oyster)	Other	Total	Invalid
BAKERLOO		3,484	6	37	6	2	19	11	0	81	2.32%
CENTRAL		7,054	50	66	5	6	71	19	42	259	3.59%
CIRCLE		2,934	1	3	2	5	9	5	10	35	1.19%
DISTRICT		9,044	18	55	4	11	48	10	8	154	1.69%
HAMM & CITY		3,143	0	5	9	2	14	5	9	44	1.40%
JUBILEE		2,881	3	32	0	0	12	3	5	55	1.85%
METROPOLITAN		5,788	4	16	9	10	30	11	14	94	1.62%
NORTHERN		6,125	8	55	14	5	32	14	21	149	2.37%
PICCADILLY		6,947	3	69	0	1	33	11	18	135	1.94%
VICTORIA		4,236	3	53	20	7	31	13	19	146	3.42%
Total (all lines)		51,636	96	391	69	49	299	102	146	1566	Best
Averages		5,164	10	7	7	5	30	10	15	157	Worst

Data collected from the most recent survey shows that overall irregular travel patterns and estimated revenue loss are down on both the May 2016 survey and the one conducted in the previous November.

In November 2016 the Circle line produced the lowest percentage of offenders (1.19%). The Central line had the highest rate of all lines (3.59%), fared worst in 4 of the 7 categories and accounted for more than 50% of "Runners". Fare evaders on the Piccadilly line were possibly less athletic than other lines with 69 confessing to simply having No Ticket.

Data for *contactless payments* is very difficult for RCIs to collect as bank cards and applications do not show validations (touch in or touch out on gate readers). Every RCI is issued with their own *Revenue Inspection Device* (RID), which adds an "inspection tap" to each contactless payment method presented to them.

If the passenger did not use that method to start their journey, they will be issued with a maximum fare and where a trend of fare evasion is identified there is also the potential for a Penalty Fare or possible prosecution.

RCIs are also able to call on their questioning skills and training to determine if information provided by a customer is false.

HOW ARE SURVEYS CONDUCTED?

- Surveys are conducted three times a year throughout the months of February, May and November.
- Revenue Control Inspectors are issued with specific areas to conduct their survey (labelled 'runs') on each line.
- The survey is conducted entirely 'on-train', and each run is divided into times of day and areas, the principle objective being to cover all the line over the entire traffic day.
- RCIs inspect tickets for each passenger and when they come across an irregularity, the details are recorded onto a data sheet.
- All the data is then collated and reviewed by S&SD Transport Strategy who analyse this and provide the fare evasion results.

Year on year trends

The table on the right shows the percentage of irregularities from each November survey between the years of 2010 and 2016.

There are a few trends and patterns, notably;

➤ Except for a very slight fall in Nov 2015, there has been year on year increase in the percentage of customers with "No Ticket" for their journey.

➤ Except for Nov 2012, there has been a steady reduction in the number of customers with Non-validated PAYG.

➤ Nov 2016 saw a large decrease in the number of adults using child tickets.

➤ Nov 2016 also saw a large increase in the categories of "Runners" and "Other" offences in comparison to previous years.

Offence (%)	Nov 2010	Nov 2011	Nov 2012	Nov 2013	Nov 2014	Nov 2015	Nov 2016
No ticket	24	29	30	31	32	31	34
Non validated PAYG	32	29	24	27	28	26	26
Child impersonation	14	13	13	13	10	13	4
Out of area (Oyster)	14	10	11	11	12	12	9
Out of area (Magnetic)	10	8	11	10	5	9	6
Runners	2	5	6	5	2	2	8
Other	4	6	5	3	11	7	13

A	No ticket
B	Non-validated PAYG
C	Child impersonation
D	Out of Area – Oyster
E	Out of Area - Magnetic
F	Runners
G	Other
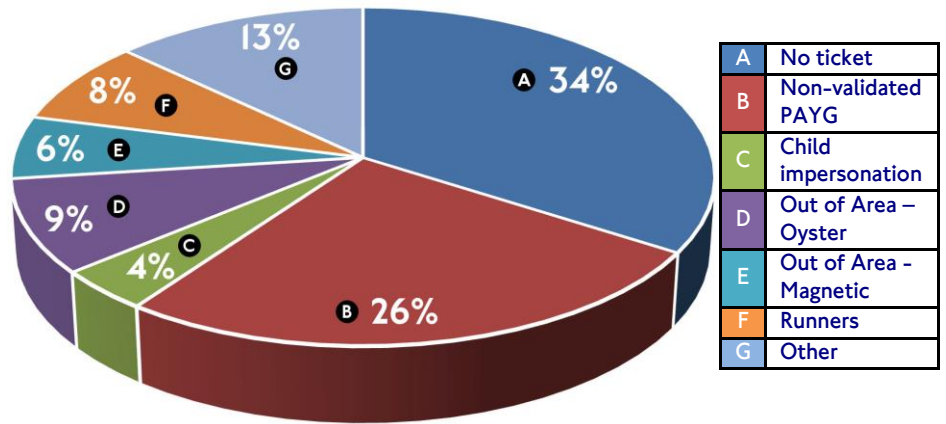
What is the loss to LU through irregular travel?

LU traffic revenue for 2015 / 16 was £2,559m, so the rolling irregular travel average of *2.49%* represents a *potential* loss to LU in the region of *£64m* per year.

However, once adjustments have been made to take account of revenue collected through penalty and maximum fares for incomplete journeys, this figure is reduced to around *£38m*, which equates to around *1.48%* of total revenue.

The table below shows the trends from each November survey from 2010 to the present date. You will notice that although the amount of revenue lost has almost doubled in just seven years, there has not been a comparable increase in the actual percentage. This is due to the increase in fares over this period and also the increase in the volume of customers using the network.

Date	Nov-10	Nov-11	Nov-12	Nov-13	Nov-14	Nov-15	Nov-16
Revenue Loss %	1.12	1.06	1.4	1.34	1.4	1.68	1.48
Revenue Loss in £M	19.6	20.9	30.6	30.8	33.61	35.32	38

## CUSTOMERS ARRIVING AT GATELINES WITH NEGATIVE BALANCES

A far too common occurrence at exit gates is for a customer who has failed to touch-in at the start of their journey to approach a member of staff with their Oyster card which has been declined with a *"36" Reject Code* due to them having insufficient PAYG.

Although the customer is usually and correctly informed that they do not have enough PAYG credit on their Oyster card, they are then often let through the gate and incorrectly advised to just top up at the POMs, which means they do not pay for the journey they have made.

As the customer has effectively travelled without a ticket they should be charged the Standard Single fare for the journey made. This can be collected using the "Manual charge" option on the staff screens on the POM. On MFMs change is given and the fare paid ticket issued as a receipt.
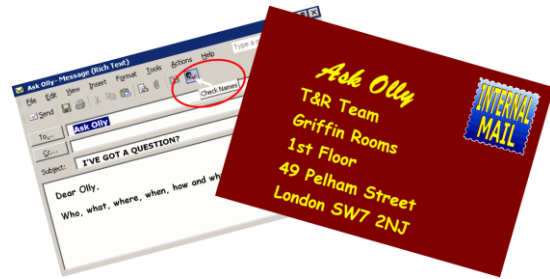
ASK OLLY!

askolly@tube.tfl.gov.uk

From: ▮▮▮▮▮▮▮▮
Sent: 03 February 2017 14:50
To: Ask Olly
Subject: Daily capping with incomplete journeys

Dear Olly,

Please can you clarify something for me as I am receiving conflicting information?

If a customer has an incomplete journey is it only that journey that doesn't contribute toward their daily cap, is this correct?

Meaning that all other journeys that day contribute toward their daily cap and their card will still cap that day?

Many thanks,

▮▮▮▮▮▮
▮▮
▮▮▮▮▮▮▮▮▮▮

Hi ▮▮▮▮,

Thank you for your email and query.

If an Oyster customer has an incomplete journey it will not contribute towards their Daily cap, even if the journey is subsequently resolved by a member of staff.

All other journeys made that day will contribute towards the daily cap as normal, but the customer is likely to end up with a higher daily spend of the daily price cap plus the cost of the incomplete/resolved journey.

In the case of customers using contactless payment, because the final charge for each journey is not made until the end of day, there is an opportunity for the incomplete journey to be resolved automatically (e.g. using auto-fill or auto completion) and for the final charge for the day not to exceed the daily price cap.

Regards

Olly Oyster

Dear ▮▮▮▮▮,

Thank you for your email and suggestion.

We are featuring the results of the last On Train Fraud Survey which was conducted in November 2016 on **Pages 10 & 11** of this edition of TRU, so it is too late to include this additional information within the results.

The next survey is currently being undertaken during February 2017, so as this information is likely to require additional data to be recorded by the surveyors, it is unlikely that we would be able to include such a measurement until the following survey is conducted in May.

We will forward your suggestion on to the team responsible for the survey's format.

Regards

Olly Oyster

From: ▮▮▮▮▮▮▮▮
Sent: 07 February 2017 18:09
To: Ask Olly
Subject: Irregularity survey

Dear Olly,

It's the time of year when you present us with the results of the last year's irregularity surveys. Looking back, I notice that there is one category for PAYG not validated on entry. Would it be possible in future to split this in two please?

One category for those who will be charged a maximum fare on exit and then another category for those whose cards will be rejected on attempting to exit.

Such a change would make it clear how many are likely to pay eventually even if they are technically irregular travelling.

Yours

▮▮▮▮▮▮
▮▮
▮▮▮▮▮▮▮

From: ▮▮▮▮▮▮▮▮
Sent: 01 February 2017 07:34
To: Ask Olly
Subject: CHD / POM DISCREPANCY

Dear Olly,

Sometimes, when floating an MFM, I will ask, for example for £100 from the CHD. The receipt from the CHD will say £100, but when floated the MFM might say £99.

How do you record the discrepancy?

Do you say you only received £99 transfer from the CHD, and £100 coin entered into POM service, or the other way round?

Thank you,

▮▮▮▮▮▮▮▮
▮▮▮
▮▮▮▮▮▮▮▮▮▮

Dear ▮▮▮▮

The example you have quoted sounds like it is due to an issue that we have previously covered in the TRU, where one or more 50p coins ends up in the £2 hopper of the device. In the example quoted it is likely that the CHD dispensed 49 x £2 coins and 2x 50p.

When this happens you should always report the incident to the Scancoin helpdesk as an engineer visit will be required to purge the £2 and 50p hoppers to ensure that no other coins have found their way into the wrong hopper and to reset the device contents correctly.

In this case you would record the transfer from the CHD as the amount shown on the CHD receipt and make a log book entry in the Secure Suite Log Book to explain the discrepancy with the Scancoin reference number.

The good news is that Scancoin are currently trialling a modified sorting wheel which has greatly reduced instances of coins being sent to the wrong hopper, at the stations at which they have been fitted.

Regards

Olly Oyster

Hi ▮▮▮▮

Thank you for your email.

You are correct in that the planned implementation on 09 January which we covered in the last TRU, was delayed due to some issues with linking the release with other work that the IM team have been undertaking.

The new Mi-form app which will replace the previous e-form is now scheduled to be launched on **Tuesday 07 March** and will include the additional items you mention.

Further details on this are included on **Page 6** of this edition.

Regards

Olly Oyster

From: ▮▮▮▮▮▮▮▮
Sent: 24 January 2017 09:22
To: Ask Olly
Subject: order! order!

Hi Olly,

Did the ordering of G4S Transportation Sacks and Scancoin CHD Supplies, go live on our iPads on Monday 09 January 2017?

I checked on the Mi-Forms App, but was unable to find these items.

Regards

▮▮▮▮▮▮▮▮
▮▮▮
▮▮▮▮▮▮▮▮▮▮.

Join our *email Distribution List* to ensure you get the benefits from;
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PROJECT UPDATES

SCU UPGRADE

In **TRU97** we outlined plans to develop a touchscreen PC based Station Control Unit (SCU) as a long term replacement for the ageing SCUs we currently have on our stations.

CURRENT CRT SCREEN SCU

In the much shorter term, Cubic are planning to replace all of the current Cathode Ray Tube (CRT) SCU monitors with more modern flat screen monitors. This follows an initial trial last year at **Embankment** and **Green Park**, which we covered in **TRU87**.

You may wonder why we are embarking on this programme, when we have already outlined plans for a more extensive replacement programme for the whole SCU.

NEW FLAT SCREEN SCU

The answer is simply that the screens are now so old, that Cubic are not able to keep up with the number of screen faults being reported.

The short term screen replacement should help improve visibility of information and reliability of the kit until the new SCU becomes available. This upgrade programme is likely to commence towards the end of 2017.

The SCU screen replacement programme is scheduled to start on **Monday 06 February** and will see the replacement on a station by station basis on both ticket hall SCUs and those located in Station Offices, Control Rooms and larger POM Rooms.

From our station visits we are aware that there are some locations where during ticket office closure works, the SCU should have been removed, but has been left behind, sometimes in working order but sometimes as disconnected components as in our photograph on the right.

If you have redundant equipment like this please advise ▮▮▮▮▮▮ via email or call **Auto 44070** so that we can arrange for the removal during the forthcoming programme.

In the longer term, the SCU replacement project will require the installation of new cabling between the Station Computer (SC) and each SCU, so will offer the opportunity of ensuring each SCU is located in the best possible location and for us to reinstate a number of POM Room SCUs which were wrongly removed during the ticket office closure and strip out process.

JLE POM UPGRADE

Back in **TRU91** we outlined plans to reuse some of the old ticket handling units (THUs) from TOMs to replace the current non-standard THUs in the small number of JLE style MFMs we have scattered around the network.

After a fairly lengthy wait, Cubic commenced the upgrade programme on **Sunday 15 January** initially at a rate of 2 or 3 machines per night. Like other POM upgrades, this work requires the device to be emptied of all cash, so we are also taking the opportunity of upgrading any devices that have not already been completed, with the new Eagle validator during the same visit.

All 35 of these MFMs should have been upgraded by **Sunday 05 February**. The work is being co-ordinated so as not to conflict with the PED upgrade programme outlined on **Page 15**.

Please note that in addition to devices at stations on the Jubilee Line Extension, a batch of similar devices were later manufactured for the rebuilding of Kings Cross and to provide some additional machines for other works.

PED UPGRADE **UPDATE!**

After an enforced break for Christmas, New Year and the fares revision, we resumed the rollout of the new PED on MFMs on **Monday 09 January** at a rate of 4 devices per night, before increasing to 6 devices per night from **Sunday 29 January**. This should see us complete the final MFM PED upgrade around **29 March**.

One bit of feedback we have received from a number of stations with the new style PED, was that some of their customers appeared to be confused by the new arrangements and had attempted to insert their bankcard into the note accepter above the new keypad, rather than in the new slot cut out below.

The situation is probably not helped by the absence of a sticker to highlight which card schemes the device will accept. The design for this sticker (see following article) has now been agreed with Cubic and is now available. Supplies have been issued to Cubic's installation teams to apply to devices as they are updated, with a number of the MFMs already completed being fitted when engineers revisit the station to upgrade the AFM early in the rollout.

Some additional stickers will be supplied to the T&R team to pick up devices that would otherwise be missed. A second sticker will also be fitted to highlight the function of the note accepter slot.

We are pleased to report that Cubic have now identified the cause of an issue which had been hampering the installation process for the new AFM PC. This had resulted in the AFM Vanguard being suspended after the installation of the 5th device. Although once in operation the 5 devices had continued to perform well, we considered that the problems in actually commissioning the upgraded AFM represented too great a risk.

After testing Cubic are confident that changes to the way the PC allocates ports for the components that are connected to it, will speed up the installation process and avoid the problems encountered during a number of the previous upgrades.

The 5 Vanguard AFMs were scheduled to be remotely upgraded to the new software on the night of **Thursday 26 January** with a further AFM at **St James Park** being added on the same night.

Following this we plan to expand the Vanguard further, initially at a rate of one machine per night. This will hopefully demonstrate the improved installation process and all being well we should be able to resume the upgrade programme at a rate of 2 devices per night from **Wednesday 15 February**, to build the AFM Vanguard up to the target of 26 AFMs that we had hoped to achieve before Christmas.

Finally to the QBM. We are progressing towards the start of a planned Vanguard on 2 devices; **QBM 39** at **Embankment** and **QBM39** at **Blackfriars** in early March. Although some testing has already been undertaken, the issue that had hampered the AFM upgrade also needs to be addressed within the QBM software, as this upgrade will also see the installation of a new PC within the device.

To facilitate the fitting of the new PED, the QBM upgrade will involve the physical removal of the whole device and its replacement with a pre-upgraded machine from a float of spare devices.

The actual upgrade being undertaken within the Cubic workshop will see;

- *Fitting of a new PED unit*
- *New device PC*
- *Software on Windows 7 operating system*
- *New larger touchscreen (same size as AFM)*
- *Hardware modification to receipt printer*
- *Enabled for audible tones when keys pressed (as AFM)*
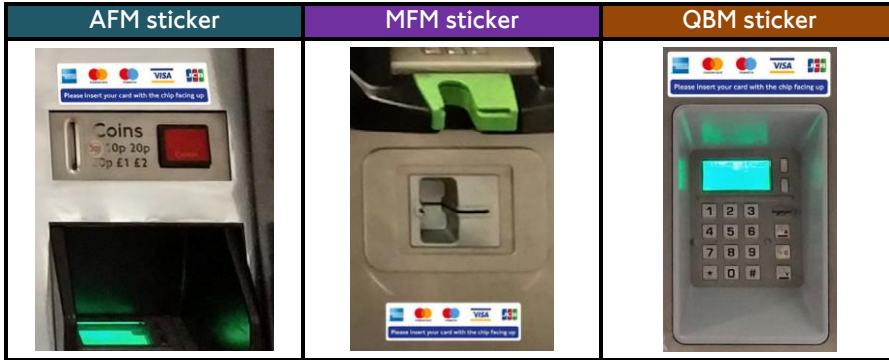- *Revised signing-on arrangements using Staff Oyster rather than the magnetic swipe on the TSID card*

In next month's edition we hope to be able to provide a further update on the start of the QBM Vanguard.

PROJECT UPDATES

NEW BANKCARD STICKERS

As part of the PED upgrade programme, Cubic are now applying new stickers showing the card scheme logos to each of the devices they are upgrading.

AMERICAN EXPRESS   mastercard.   maestro.   VISA   JCB
Please insert your card with the chip facing up

AFM sticker	MFM sticker	QBM sticker

Due to the physical layout of the AFM, MFM and QBM being different, the position of the new sticker will be slightly different on each device, as illustrated on the left.

Devices that had already been installed before the stickers were available, will be picked up when Cubic return to site to complete the upgrade of AFMs.

> **Please remember – that following each PED upgrade, POMs no longer have the capability of processing magnetic swipe transactions, but will be able to accept non-UK Maestro cards.**

AFM COIN VALIDATOR UPGRADE

Now all of our MFMS have been upgraded with the new Eagle coin validator, with the final devices completed on **Friday 10 February**, attention turns to the AFM, which as previously reported in **TRU97**, has now been separated from the PED upgrade works and will be completed as a different programme.

The Eagle upgrade on the AFM commenced on **Sunday 05 February,** with work split between 4 teams, 2 of these working at night and the other 2 during the day.

Our plan is to complete all stations within central London and a couple of the bigger stations such as **Heathrow T123** and **Wembley Park** during the day, when it will be less disruptive to have to empty multiple devices and more staff are available to complete the task.

The smaller outlying stations will be done at night, but this will generally only require one or two machines at each station to be emptied before close of traffic.

Apart from the need to complete this upgrade to get us ready for the introduction of the new £1 coin, the better rejection rate for some of the common invalid coins will help us address the issue outlined in our feature on **Page 20**.

We have prioritised the rollout of some of the units, to a number of stations on the Northern and Jubilee lines where we have recently seen high levels of invalid coin accepted.

LAL MXIDE PU

Part 3 – We've mixed up the letters in these station names. Can you work them out?

Ticketing & Revenue T&R Trivia

(b) **BLIND RED GOON**

(d) **ODD PINT NAG**

(a) **END FORGER**

(c) **NONE ALRIGHT**

(e) **SINGULAR SPIDER**

Answers on page 19.

LCP UPGRADE

After a period of inactivity leading up to the Christmas break, the New Year started with progress on a number of fronts.

E1 Gates – The Planned start of the LCP rollout to stations with E1 gatelines was further delayed to allow Cubic greater confidence that the upgrades would not cause them further maintenance issues.

This followed some faults which had been detected on Vanguard devices, which they wanted to ensure hadn't been caused by the upgrade. Instead of going straight into the upgrade of large numbers of gates at some of our bigger stations, a decision was made to expand the number of vanguard stations and instead to upgrade gates at 10 further sites.

This work commenced on **Sunday 22 January** and embraced 40 E1 gates and 14 WAGs at the stations listed in the table on the left.

Station	E1 Gate					WAG		Date
EAST PUTNEY	41	42	43	44				Sun 22 Jan
PUTNEY BRIDGE	40	41	42			21	22	
PARSONS GREEN	40	41	42	43	44	21		Mon 23 Jan
FULHAM BROADWAY	40	41	42	44	46	21	22	
QUEENS PARK	40	41	42	43	44	21	22	Tue 24 Jan
KILBURN PARK	40	41	42					
WARWICK AVENUE	40	41	42	43		21		Wed 25 Jan
MAIDA VALE	40	41	42			21		
SWISS COTTAGE	40	41	42	43		21		Thu 26 Jan
ST JOHNS WOOD	42	43	45	46		21	22	
						23	41	

These sites also saw the updating of a number of WAGs and E2 gates recently installed ready fitted with a new LCP as part of the WAG programme to the latest version of E2 gate software, so that all devices were fully up to date. We also took the opportunity of switching on the facility to monitor device status of gates via the Device Monitoring app on the iPad for the **Fulham Broadway**, **Swiss Cottage and Kilburn Park** areas.

The main E1 rollout is now scheduled to commence on **Wednesday 08 March** with all of the upgrade teams being deployed to **London Bridge** and **Canary Wharf** to allow all engineers to be trained up, before being deployed to separate stations the next week.

E2 gates – Following the Vanguard at **Cannon Street**, **Embankment**, **Sloane Square** and **Tottenham Court Road**, Cubic were given approval to deploy the latest version of software to all other E2 gates that have been fitted with the new LCP3. This upgrade which can be completed remotely will start at a rate of 20 devices per night on **Wednesday 01 February**.

The rate of gates per night is lower than we would normally attempt, due to concerns that following previous upgrades we have seen high levels of battery failures and **Error 01** being reported. A combination of a slower rollout and some gaps between the upgrades should help Cubic deal with any issues that do arise.

This latest software release includes the fix to resolve the issue which has caused the "*ticket soon to expire*" message to remain on the gate POD, much to the confusion of some customers.

From **29 January**, the new software will also be deployed to all new E2 Gates and WAGs avoiding the need to upgrade these later. All E2 gates fitted with the LCP3 should have been updated with the new software by **Thursday 02 March**.

Pneumatic Gates – Having completed work on the E1 and E2 gate software, attention has now been turned to completing testing on the remaining pneumatic gates. Following completion of testing we plan to recommence the P-Gate Vanguard, initially on the **Liverpool Street** (**Central**) gateline from **Monday 13 February**, before extending the Vanguard to both of the gatelines at **Tower Hill** the following week.

This represents a change from the original vanguard planned in October 2015, when we had planned to use Euston Square as our second Vanguard site. This change was necessary as Euston Square is due to have some of its gates replaced as part of the current WAG programme, which would have disrupted the Vanguard.

During the Vanguard we will be monitoring the performance of the pneumatic gates concerned, before making a decision on whether to start rolling out the LCP3 to other stations with pneumatic gates.

We are also planning to progressively connect the gates at more stations to the Device Monitoring app on the iPad, as all the gates on a particular Area have been upgraded with the new LCP and software.

CHD UPGRADES AND SCREEN CHANGES

As we reported in **TRU97**, Scancoin are currently undertaking a programme of upgrades to all of our CHDs. This will include preparing these devices to complete a change to the way the device accesses the user file, communicates any changes made and to enable the CHDs to deal with the new one pound coin when it is introduced at the end of March.
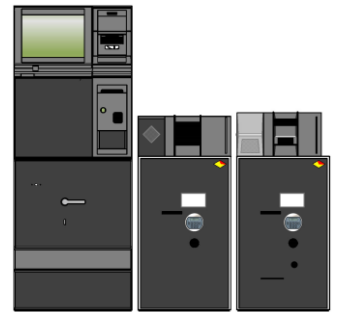
Scancoin have recently started a programme of engineer visits to complete the upgrade for the £1 coin and make a number of other changes, including modifications to some of the screens. These visits initially focused on stations on the Embankment, Fulham Broadway, High Barnet areas and stations on the north end of the Metropolitan, east end of the District, south end of Northern and west end of the Central lines.

Prior to Christmas around 45 stations in these areas were upgraded with the change to the user file, but this unfortunately resulted in some unexpected changes to options and positioning of some of the buttons on the main menu screen at these stations. In addition to correcting this, the current upgrade will also change the text on the sign on screen on all devices.

We have had a number of irregular users of the CHD contact us due to not being able to sign on to the device. In a large number of these cases this was due to them pushing the 'start' button rather than swiping or inserting their TSID card.

The modified screen shown to the left, highlights that the start button is only for custodians and engineers to be able to log on to the device.

In a further change to the CHD screens we will also be implementing an additional screen to show users a graphical representation of the device contents as an alternative to printing off the device contents report.

This was a feature of the original Scancoin trial devices at **Euston** and **Hendon Central** and was popular with some users.

In **TRU90**, we did report on plans to implement such a function, but this has not been implemented until the recent upgrades started. The new screens illustrated on the right are slightly different to the previous versions shown in TRU.

One issue that is yet to be addressed is that the graph showing the contents of the Collection Sack may indicate the sack as still having space available when it has in fact already reached the £20k limit. This is due to the limits set in our software being less than the physical note capacity of the actual sack. This is hopefully something that can be fixed in a later upgrade.
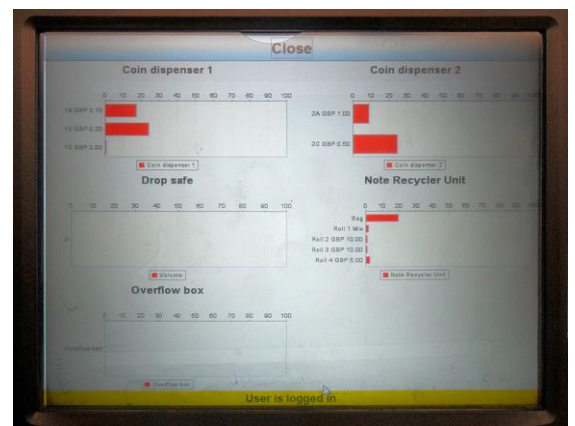
Hopefully users will find the new screen a useful indication of the contents of the coin hoppers and note recyclers, although we are aware that some people may prefer to see actual figures and values.

One of the most common problems experienced on the CHD since introduction, is the mis-sorting of 50p coins, which despite being correctly validated and counted, can occasionally end up in the £2 hopper rather than the 50p hopper where they should be directed. The net result of this is that when a dispense of £2 coins is subsequently selected, the user may receive a 50p instead of £2.

It can also mean that the £2 hopper is indicated as being empty when there are still coins in it and the 50p hopper gets exhausted of coins whilst the device still believes there are further coins to dispense.

Whenever there is evidence of a mis-sort having occurred, a fault call should be logged with Scancoin on **Auto 12261**, as this will require both hoppers to be purged of coins to ensure the CHD contents are accurate.

CHD UPGRADES AND SCREEN CHANGES …continued

As we outline in the response to one of this month's *Ask Olly* letters on **Page 13**, the good news is that Scancoin believe that they have now identified a fix for this particular problem and have trialled a modified sorting wheel at a couple of sites that had previously reported a high level of mis-sorts.

At **Swiss Cottage** the new wheel has eradicated mis-sorts, whilst the second trial unit installed at **East Finchley**, significantly reduced but did not eradicate the problem. Subsequent investigation identified some damage to the sorting mechanism on this device, which probably contributed to the problems.

The sorting wheel was subsequently reinstalled at **Angel**, another site with a high level of callouts, where again it has helped identify a further issue on that device.

Scancoin have ordered a further 10 of the new sorting wheels which they are now in the process of installing at further sites where we have seen higher levels of mis-sorting of 50p coins. Providing that results at these sites are equally encouraging, we will look to extend the rollout to other devices.

SAFE DETAILS UPDATED

Within the SAF base data for each station are details of each safe within that accounting unit, so that users can assign bags and other items to the appropriate safe and undertake safe audits to confirm the contents of each safe.

During the ticket office closure and enabling works for the installation of Cash Handling Devices (CHD) a number of stations had either their Deposit Safe or Float Safe removed to free up space. Until recently the information shown on the SAF's Safe Operations menu had not been updated to reflect these removals and at some sites, users have therefore been presented with options that are no longer available.

After lengthy discussions with Cubic around how we could best bring this information up to date, we have recently started a programme to identify locations where we are updating base data to add or remove devices and then review the safe information to ensure it is accurate.

The first 6 locations listed below were due to have their base data updated on **Sunday 12 February**.

ICKENHAM	*LAMBETH NORTH*	*STRATFORD (NORTH)*
WEST BROMPTON	*WHITECHAPEL*	*STRATFORD (MEZZANINE)*

At these sites the description of the remaining safe will be updated to just show "Safe" with an appropriate description where more than one POM Room exists on a station.

When these changes are made, although the description of a safe may change on the SAF, the contents will be automatically copied over. A further batch of 4 locations are scheduled to be updated in the next base data load on **Sunday 26 February**, with further batches taking place at 2 weekly intervals .

ANSWERS TO T&R TRIVIA

How did you do?

Pt.1	**WHERE'S WOLLY?**	Page 1 - Olly's at WOOD LANE station

Pt.2	Page 2	**D**	15 JUNE 1998 – commemorative coins were issued from 1986

Pt.3	Page 16	LAL MXIDE PU

(a) GREENFORD (b) LONDON BRIDGE (c) NORTH EALING (d) PADDINGTON (e) RUISLIP GARDENS

[REDACTED]

NEXT ISSUE

Our next edition, TRU99 is scheduled to be published at the end of March.

It is likely to be a smaller edition than usual, as we brace ourselves for a bumper edition in April, in which we will have a joint celebration for our 100th Edition and the 30th anniversary of the start of the original UTS Project trial, which introduced the MFM, TOM, SCU and other familiar bits of equipment.

In TRU99, we aim to include:

- *Updates on the Gate LCP rollout programme*
- *Progress on the deployment of new Chip & PIN units to our POMs*
- *An overview of the T&R team*
- *More of your letters to Olly*

Plus the latest T&R news stories, other project updates and a selection of our other regular features.