



INSIDE TRU132

TRU NEWS – THE LATEST FROM THE WORLD OF T&R

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A ROAD BACK TO NORMALITY?

Looking back over the eight editions of TRU that were published during 2020, the headlines above several of our lead articles make for interesting reading. The March edition ([TRU124](#)) focussed on a raft of T&R changes that had been implemented during the first three months of 2020, but from that point onwards, things were to change in a way that none of us may have expected at the start of 2020.

[TRU125](#) (April / May) led with the headline “*Not Business As Usual*” and focussed on some of the impacts of the pandemic on T&R issues. By [TRU127](#) (July / August) which carried the headline “*Strange Times Continue*” we were optimistically looking ahead towards customer numbers slowly building and the re-opening of some sectors of the economy.

The following edition [TRU128](#) (September / October) carried on this optimism with the headline “*A Slow Return Towards Normality?*” Unfortunately, at that point we didn’t perhaps realise how slow that return might actually be and as we now know, things very much took a turn for the worse towards the end of the year with the arrival of the much more prevalent Kent strain of the COVID virus.

November’s headline of [TRU129](#) was perhaps something of an understatement, “*A Year of Uncertainty?*” Focussing on several areas where we clearly didn’t know what was going to happen next.

As we move forward in 2021 a new roadmap for resuming activities and re-opening various sectors of the economy has been outlined by the Government, this time backed up by the hugely successful roll-out of vaccines by the NHS.

All being well, this time we will be on our way back to “normality”, unlike the false dawn of the autumn. It remains to be seen what “normal” is like and undoubtedly there will be several areas that will not return as they were.

A year of working remotely will mean that many of our former customers do not return to the 5 day a week commute and for some time many people are likely to have reservations about crowds and be less willing to crowd on to public transport in the way that they used to.



KEY STORIES INSIDE

Page 2 [NOT THE JANUARY FARES REVISION](#)

We take our customary look at the implementation of the recent fares revision.

Pages 8-9 [CHARITY DONATION UPDATE](#)

We report on the first year of the POM Oyster Donation facility and the latest payment made to Railway Children.

Page 10 [POM REMOVALS](#)

We update you on the completion of the first phase of reducing the number of POMs at stations.

Page 14 [NOTE HANDLER REPLACEMENT](#)

We look forward to the start of the rollout of new note handling units for our MFMs.

Page 15 [COMBATING SKIMMING](#)

We provide an update on the completion of the first phase of our battle to combat card skimming attacks.

+++TfL RESTRICTED+++

This publication often contains sensitive information and must not be shared outside of TfL without express permission.

WHAT WENT WELL / NOT SO WELL?

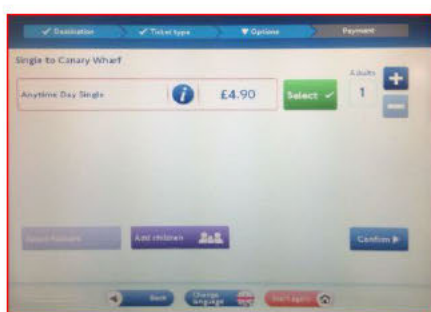
The delayed January fares Revision which this year took place on Monday 01 March went extremely smoothly.

Given that the end of a 4 year freeze on TfL fares meant that it was one of the largest fares changes we have had to implement for many years, together with the fact that a decision on an implementation date was taken very late and left minimal time for preparation of the new fare tables, the whole revision went remarkably well and credit goes to those involved in achieving this.



Following the implementation of the fares changes on 01 March, no issues were reported with any LU devices failing to switch to their new tables or of any incorrect charges being applied by gates or validators.

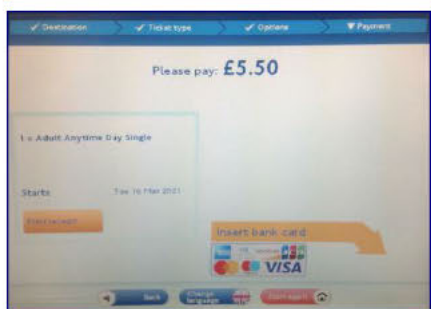
It was a similar picture on other modes too with the only notable issue being reported on Heathrow Express TVMs, which it transpired was not directly related to the fares revision.



On LU we did again have some minor issues with distribution of the revised Fares Poster to stations. Baker Street received incorrect posters and a delivery to Earl's Court was not made.



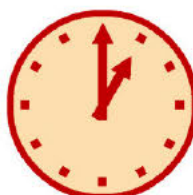
Both issues were quickly addressed by Cubic following the fares revision. Unfortunately, we again had one case of a station losing their posters after they had been delivered.



Since the fares revision we did have one odd event reported, when staff at Green Park spotted that on one of their AFMs, when a Single ticket to Canary Wharf and certain other destinations was selected, the POM screen initially incorrectly displayed the pre-March price of £4.90. However, when the customer advanced to the payment screen, the price of their ticket changed to show the correct price of £5.50.

Following this being reported, the device was reset by a Cubic engineer, after which it then showed the correct prices throughout subsequent transactions.

SUMMERTIME BEGINS



Aside from fares revisions, the other major system affecting events of the year are the annual switch from Greenwich Mean Time (GMT) to British Summer Time (BST) in the spring and back to Greenwich Mean Time each autumn.



This year the switch to BST came hot on the heels of the delayed fares revision and the switch was completed in the early hours of Sunday 28 March, without any issues being reported across the network.



Like 2020, the switch this year was made somewhat easier by the current suspension of night tube services, which removed the additional complexity of having to deal with customers whose night time journey may have been extended by an hour due to the change and who may therefore have exceeded the Maximum Journey Time allowed for their trip.

Part 1 – Picking up the theme of Bank of England notes on the opposite page...

Q1) ...Who is on the reverse of the paper £20 note still in circulation?

A ADAM SMITH

B EDWARD ELGAR

C MICHAEL FARADAY

D WILLIAM SHAKESPEARE

Ticketing & Revenue

T&R
Trivia

[Answers on Page 15](#)

£20 STAY OF EXECUTION

One beneficiary of the Covid 19 pandemic is the paper £20 note, which following the introduction of the polymer version on 20 February 2020, was scheduled to have been quickly withdrawn. However, the onset of Covid and the subsequent lockdowns implemented last year have resulted in a slowdown in the circulation of money.



The Bank of England postponed its original plans to withdraw the paper version of the note during 2020, due to a large volume of the notes still being in circulation somewhere. Under normal circumstances, as soon as these notes had been banked, they would have been withdrawn from circulation, but the missing millions are either in circulation and not being banked or maybe are 'stashed away' somewhere?

The Bank of England is required to give six months notice of the date that notes will be withdrawn. The latest indications are that the paper and polymer £20 notes will both be acceptable until spring 2022.

The withdrawal of the paper £20 isn't a major issue for us, since although our POMs accept them, they always go straight to the note vault and are therefore never dispensed to customers. There aren't therefore the same time pressures to get devices upgraded not to accept the note, as even after the official date that they are withdrawn, we will still be able to bank them and get credit for the note.

As outlined in our article covering the forthcoming MFM Note Handler replacement on [Page 14](#), the new units being installed are much easier to update with new note sets and will not therefore require an engineer to visit each device to undertake an upgrade, as would be the case if we retained the current designs of note handlers.

NEW £50 NOTE

On a related topic, the final stage of the switch from paper to polymer notes will see the Bank of England introduce a polymer version of the £50 this summer.

The new note is scheduled to be launched on 23 June 2021 and features twentieth century mathematician, computer scientist, logician, cryptanalyst, philosopher and theoretical biologist Alan Turing.



The new note will feature:

- A 1951 photo of Turing now in the National Portrait Gallery
- Mathematical formulae from Turing's 1936 paper "On Computable Numbers, with an application to the Entscheidungsproblem" - foundational for computer science
- The Automatic Computing Engine (ACE) Pilot Machine - the trial model of Turing's design and one of the first electronic stored-program digital computers
- Technical drawings for the British Bombe, the machine specified by Turing and one of the primary tools used to break Enigma-enciphered messages
- A 1949 quote from Alan Turing: "This is only a foretaste of what is to come, and only the shadow of what is going to be"
- His signature from the visitor's book at Max Newman's House in 1947
- Ticker tape depicting Alan Turing's birth date (23 June 1912) in binary code. The concept of a machine fed by binary tape featured in Turing's 1936 paper

Although our POMs have never accepted £50 notes our Cash Handling Devices (CHDs) at stations accepting cash payments will need to be updated to be able to accept the new version of the note.

Staff also need to be aware of the new design of note and security features, in the event of a customer needing to be given change to enable them to use our POMs.

These are similar to other polymer notes, including foil patches, holograms and see-through windows which are based partly on images of Bletchley Park, where Turing spent the war years working to decrypt German codes and his work in the early development of computers.

It is likely that the current paper version of the £50 note featuring Steam engine pioneers James Watt and Matthew Boulton will be withdrawn at the same time as the paper £20 note, early next year.

REISSUE OF NR STAFF TRAVELCARDS

From the beginning of April, NR Staff Travel will be issuing new 2021/22 NR Staff Travelcards to staff eligible to Privilege rate travel.

The cards which are valid from 01 April 2021 through to 30 June 2022 will be printed on a grey background and this year features a red banner across the top, as in the image on the right.

One impact of the Corona virus epidemic and restrictions on non-essential journeys, is that over the last year many NR Staff Travelcard holders were not able to utilise the dated boxes on the front of the card that entitle them to free journeys.

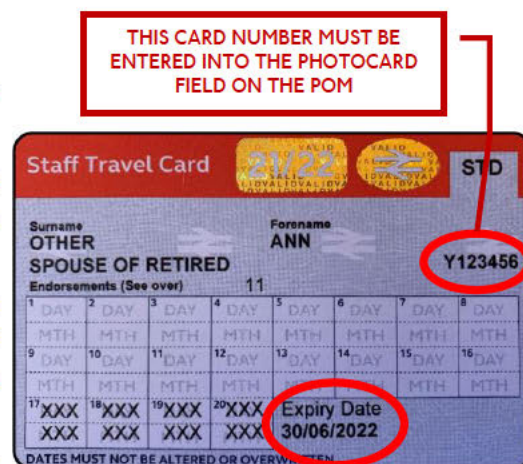
As a result, the NR Rail Staff Travel Committee has extended the validity of cards that would be due to expire on 30 June 2021, by three months.

Holders can therefore use dated boxes on these cards for travel until 30 September 2021.

This only impacts LU stations that are directly served by NR services or where inter-availability between LU and NR allows travel on certain LU services as set out in [T&R Book 6](#).

Staff at these stations should accept cards with dated boxes for travel during this 3-month extension.

Please note that this does not extend the validity of these cards in terms of setting privilege discounts on Oyster cards, as the holder will have received a new 2021/22 card which should be used for this.



↑ New 21/22 card – valid from 01 April



↑ Current 20/21 card – extended until 30 September at inter-available stations

DISCOUNT REMOVAL

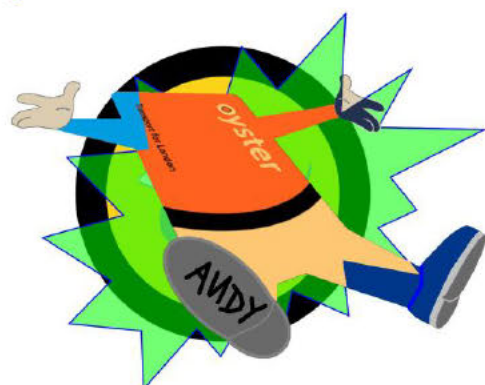
Further to the feature included within [TRUI31](#) and following successful tests on a batch of Oyster cards, which confirmed the process for us to be able to remotely hotlist and de-activate individual discounts on cards, the T&R team have started to process the de-activation of discounts on certain customer Oyster cards, where discounts appear to have been wrongly set.

The targeted cards include those on which multiple discounts have been incorrectly set, where an incorrect expiry date has been applied or where the details recorded in the photocard field do not support the particular discount that has been set.

Following hotlisting, the discount will be automatically removed by the card reader (RTD) the next time that the Oyster card is presented.

THE KEY POINTS

- ▶ Check the supporting card
- ▶ Make sure the right discount is added
- ▶ Ensure the holder is entitled to the discount
- ▶ Enter the correct expiry date
- ▶ Update the photocard field with the number of the new discount card



This works in a similar way to how hotlisting of an Oyster card results in the de-activation of the whole card the next time it is seen by an RTD.

It is therefore now particularly important that discounts are set correctly on the POMs when requested to do so by a customer, as an error made in doing so, could lead to the customer being inconvenienced or having to have their discount added to their card again.

Over the next couple of months, the reissue of NR Staff Travel Cards (as outlined above) and the ability to make non-essential journeys, is likely to result in an increase in requests to add discounts to cards, so it is a good time to ensure that you are clear on what you need to do.

FREEDOM PASS EXTENSION

On Wednesday 31 March 2021, approximately 120,000 Freedom Passes expired and now no longer work the automatic gates at LU stations, instead displaying **Reject Code '57'**.

Although London Councils started the renewal process back in February, a number of eligible holders did not apply for a new Freedom Pass in time to receive their new card by the time their previous one expired.

TfL and TOCs have agreed to continue to accept Freedom Passes with an expiry date of 31 March 2021 until **Friday 07 May 2021**. For cards displaying reject code 57 Station Staff should follow COVID protocols and safely:

- Visually check both the Freedom Pass and the reject code
- Allow the customer to travel / complete their journey if it would otherwise be valid
- Advise the customer they must apply for a new Freedom Pass as soon as possible
- Do not advise customers they can continue to use their expired pass until 07 May
- Cards showing other reject codes such as disabled card, cancelled, 07, etc must not be accepted and customers be advised to use alternative payments for their journey.



R.I.P DEVICE MONITORING

Since its inception as part of the additional tools developed by the Fit for Future Stations project, the Device Monitoring App has never really functioned as it was intended to. It was supposed to have provided an easier method for station staff to report faults on gates and POMs and to view the previous history of failures on an individual device. However, its major failing was that faults that had been cleared by staff or had self-cleared remained open unless they were manually updated and were subsequently escalated to Supervisors and CSMs.

As a result of these flaws the device was never accepted for use by the T&R team and staff were discouraged from using the app due to the known issues with it.

We had hoped that these issues would be addressed, but despite numerous discussions with Cubic and our inhouse IT team, a solution has not been forthcoming. Recent events have seen plans to update the Remedy platform that the app used and as a result a decision was taken not to update the servers used due to the low usage of the facility.

It is therefore planned to shut down this facility and remove the link into the Cubic reporting system with effect from Tuesday 13 April.

Device Fault Reporting & Escalations Process	
Description	Action
Initial Fault is identified ↓	Station staff attempt to clear (actions for Gate and POM faults are in T&R Book Appendix 5)
Either; 1. Station staff cannot resolve the fault or 2. the same issue reoccurs 3 times within the same traffic day.	Report the fault to either; <ul style="list-style-type: none"> • Cubic Helpdesk (Auto 1610) or • PayComplete (formerly Suzohapp) Fault line (Auto 12261)
To chase an unresolved fault	To chase the fault contact either; <ul style="list-style-type: none"> • Cubic Helpdesk (Auto 1610) or • PayComplete Fault line (Auto 12261)
The same fault re-occurs after initial clearance by an engineer.	1. Report the new fault to the appropriate report centre. 2. Request that they link the new fault to the original fault number
To highlight a recurring fault or the unsatisfactory clearance of a fault	1. Escalate issues by emailing " Ticketing Escalation " 2. Information in the email must include <ul style="list-style-type: none"> • previous fault numbers • the nature of the faults • dates of recurrences
Escalation is raised	↓ T&D managers will raise the issue with Cubic / PayComplete management

FASTIS RETIREMENT

For those of you who are not familiar with it, FASTIS was a ticket issuing device developed by Cubic and largely based on our own TOM, which was subsequently used in a number of NR ticket offices in the London area and gave them the ability to sell and update Oyster cards in a similar manner to LU ticket offices.

Over recent years several Train Operating Companies (TOCs) have switched to alternative issuing devices and support for FASTIS is soon to be withdrawn.

As a result of this the remaining TOCs that have been using FASTIS devices within their stations are gradually removing the remaining machines and switching to other equipment.

The main impact of this is that these stations will no longer be able to sell Oyster cards, although customers will continue to be able to top-up or add products at self-service NR Ticket Vending Machines (TVMs) at these and other NR stations. The locations affected include several where a NR ticket office was on, or very close to one of our stations, some of which are not currently accepting cash.

As a follow-on from this we have been working with TfL and Govia Thameslink Railway (GTR) to reallocate any remaining stocks of Oyster cards they hold to nearby LU locations, where the cards can be used.



The T&R team will advise the LU stations affected ahead of stock being delivered to them.

The withdrawal of FASTIS also removes an avenue by which holders of NR Leisure Travel cards could get the PRIV NR only discount set on their Oyster card.

This particular discount cannot be set using the staff facilities on LU POMs and any requests to have the discount set should be directed towards London Overground or TfL Rail operated stations where the discount can be set on their TVMs.

RETURN TO REVENUE CONTROL DUTIES

Sunday 28 March saw a step towards normal operations, when members of our Revenue Control team resumed revenue control duties on our stations for the first time in a year.

Members of the team who can undertake customer facing duties will now be issuing Penalty Fare Notices, reporting customers for possible prosecution and assisting with the enforcement of the wearing of face coverings on the network.

This is the first step in a staged return towards undertaking the full range of revenue control duties, once issues around travelling, social distancing and use of facilities at stations have been addressed. It should mean over the next couple of months the team will again be gradually able to respond to reports from stations concerning fare evasion issues.

This will then greatly assist in the battle to ensure that customers who may have got out of the habit, return to paying for their travel.



Part 2 – Staying on the subject of banknotes...

Q2) What is the total value of £50 notes that the Bank of England say are in circulation as of 25 March 2021?

- | | | | |
|---|-----------------|---|-----------------|
| A | £17,850 million | B | £44,741 million |
| C | £15,405 million | D | £2,033 million |

Ticketing & Revenue
T&R
Trivia

[Answers on Page 15](#)



TfL RESTRICTED

askolly@tube.tfl.gov.uk

Got a ticketing and revenue related question, problem or simply noticed something you think your colleagues should know about?

Why not test the knowledge of Olly - our resident ticketing guru.



From: [REDACTED]
Sent: 22 January 2021 13:08
To: Ask Olly
Subject: Gate line settings for paper tickets

Hi Olly,

I seem to recall from years gone by that some stations used to have their gates set to allow paper ticket holders through before 09:30, if there was a reason such as timetabling that meant a customer would miss the train and have a long wait for the next one.

Is this still the case? If so, which stations would this cover as I can't seem to find anything about it?

T&R Book 6 Section 6.2 has a paragraph stating that "On certain TOC services, different time restrictions apply and in some cases Off Peak tickets may be valid for travel before 09:30." – maybe that is what is in the depths of my mind, but I am pretty sure that there was a lot more written (possibly in the old Ticket Office Procedures Handbook?).

Kind regards,

[REDACTED]
[REDACTED]
[REDACTED]

Hi [REDACTED]

You are correct that there are a very small number of outlying stations, where customers are allowed to travel slightly before 09.30 to tie in with a timetabled service.

Examples would include locations where there is a half hourly service departing at say 09.28 and it would be unreasonable for customers not to be able to travel until 09.58, particularly where the journey into Central London might for example take an hour.

Another case would be where the first off-peak train is scheduled to depart at 09.31 but customers need a few minutes to be able to reach the platform safely.

These are referred to as "Easements" and are quite complicated in that some stations have an easement for Off Peak Day Travelcards, whilst others have an "easement" to allow PAYG journeys to be charged at the reduced rate applicable after 09.30.

We have tended not to publish too much detail on these, as they do tend to change from time to time as timetables change.

Hope this answers your query.

Regards

Olly Oyster

Hi [REDACTED]

Thank you for your email and apologies for the delay in getting back to you with a definitive answer.

You are correct that the original plan was to deploy the fix to deal with contactless payment cards rejected with Code 80 last summer in conjunction with a planned RTD upgrade.

Unfortunately, this element of the work was a victim of TfL's financial cutbacks and the project was suspended after completion of initial testing by Cubic.

Since then we have been waiting for confirmation as to when this work might be resurrected.

We are pleased to be able to advise you that approval has now been given for the project to be restarted and currently it is hoped that the change to resolve denied exit validations will be deployed in the summer.

Regards

Olly Oyster

From: [REDACTED]
Sent: 26 November 2020 10:30
To: Ask Olly
Subject: Code 87 contactless cards

Hi Olly,

I read in a T&R Update in May that contactless cards that previously showed Code 80 on the exit gates would instead show Code 87 and let the customer out but charge their account the maximum fare (the contactless version of Code 36 for Oyster cards).

As far as I can tell this has not happened as yet, the article said it would start in August '20, as we are still getting many customers with Code 80 trying to exit and stating categorically that they had touched in. Could you tell me when this will be introduced as it will claw back much needed revenue for LU as well as stopping fare evasion.

Many Thanks,

[REDACTED]
[REDACTED]
[REDACTED]

POM CHARITY DONATIONS

At the beginning of March, we celebrated the 1st anniversary of the start of the Vanguard of a facility on our POMs that allowed customers to donate the residual value of an unwanted Oyster card direct to the Railway Children charity.

The facility built upon our previous scheme which allowed customers to donate their cards via collection boxes at a number of gateway stations and more recently within the terminal buildings at Heathrow Airport.

From 22 March 2020 the facility on MFM and TVM was rolled out across the whole network, allowing customers to donate at all our stations, rather than the previous small number of sites that had collection boxes.

Unfortunately, our timing wasn't great with the onset of the Covid 19 virus pandemic and a national lockdown shortly afterwards, preventing our plans for a public launch and the promotion of the facility to customers.

Over the last 12 months, with virtually no promotion of the facility, with customer usage of LU services dropping massively through travel being restricted to essential journeys only and a complete lack of visitors to London (who in normal circumstances would be one of the main sources of donations), the scheme has been remarkably successful in generating much needed income for the charity.



Hopefully, within the next twelve months, we will see the gradual return of some form of 'normality' and with increasing ridership on LU services and the potential return of events and visitors to London, we will hopefully see an increase in both the use of the Oyster donation facility on POMs and in the amount that is donated through it.

However, the value is likely to be impacted by the fact that Oyster cards issued since 23 February 2020 no longer have a £5 refundable deposit on them, so it is only the remaining amount of PAYG on the card being surrendered that will go to charity, rather than the combined value of the deposit and PAYG as on older cards.

RAILWAY
children
Fighting for street children

THE KEY POINTS

- Facility on MFMs & TVMs introduced March 2020
- Donation facility available on MFMs even when in card only mode
- To date, a total of £74,076.68 has been generated in the first year
- £68,487.57 paid to Railway Children so far
- Most recent payment to charity of £28,025.46



At the beginning of February, we made our second payment to Railway Children, of money generated through the POM Oyster Donation scheme and represented the amount donated by customers between 02 August 2020 and 09 January 2021.

A total of £28,025.46 was paid to the charity, which like other recent charity payments had to be done remotely rather than at a cheque presentation ceremony, but we have provided a mock-up (left) to better represent the size of the donation.

Since the last payment was made, donations have continued to trickle in through our POMs and although the average amount per week has dropped off to around £500 per week, the pennies are gradually building up towards our third payment to the charity later in the year.

Up until Saturday 20 March, which effectively marks the anniversary of the network wide deployment, the scheme had generated a total of £74,076.68 and will almost certainly top the £75k mark before the end of the current financial year.

POM CHARITY DONATIONS...continued

On receiving the latest donation from the POM Charity Donation scheme, Dave Ellis, the Corporate Parentships Manager for Railway Children told TRU:

"It has been such an unusual 12 months for us all, but I think we would all agree that amongst the challenges, concerns and undoubted lows, there have also been some real highs. For us one of those has been the reminder that we have such unbelievable support with LU and across TfL and the latest payment from the automated Oyster donation facility developed by Cubic and LU, of £28,025 is testament to that. The real excitement is that the scheme has proved so successful within its first 12 months and yet customer numbers and the footfall at stations has been so reduced. So we are hoping that the next 12 months could be all the more exciting and successful and enable us to help even more children.

We've also included (below) some of our other highlights from Railway Children's last 12 months here.... only possible thanks to the likes of LU and your incredible and continued support. We are so grateful, to the T&R team, all your customers and everyone within LU and across TfL. Finally, thank you and I look forward to seeing more of you all soon !!!!"

Difficult times, different challenges – still changing children's lives

The global pandemic has had an impact on every area of all our lives, and as a charity we've had to adapt and find new ways to raise money as well as new approaches to reaching the children that need us

Thanks to you 15,822 children have been reached and protected last year

We couldn't have done it without you, and more than ever this last year has shown what we can achieve together even in the face of extreme adversity.

LET YOUR LEGACY BE THEIR FUTURE

We already know that this global pandemic is going to leave poverty and hardship for generations to come.

THE LEGACY OF CORONAVIRUS WILL BE ONE OF SUFFERING AND TRAUMA – BUT YOURS COULD BE ONE OF HOPE AND HAPPINESS

You can support the work of Railway Children by making a donation or participating in one of the fundraising events planned by the charity for this year. Further details can be obtained from the website below;

www.railwaychildren.org.uk



How your money was spent LAST YEAR

Outreach	26%
Shelter	12%
Reintegration	27%
Influencing	15%
Raising more funds *	20%

* For every £1 spent on fundraising a further £5 is raised to help change children's lives.



DEVICE REMOVALS UNDERWAY

In [TRUI30](#) we outlined plans to remove a batch of free-standing QBMs as the first step of a project to reduce the number of POMs across the LU network, to more closely match the predicted level of demand for ticket machines once we recover from the pandemic.

Even before Covid 19 arrived, we had already been seeing a steady decline in POM usage as customers swapped to Oyster and more recently contactless payment for their journeys. As a result, usage of POMs at some of our stations had dropped considerably, with very low utilisation of certain devices at some stations.

In [TRUI30](#) we identified 38 free-standing QBMs which were scheduled to be removed in the first phase of this work, which started at the end of February. It turned out slightly more money was available during the current financial year, so we were able to include a second batch of QBMs which were located within POM arrays within the first phase of removals, bringing the number up to 68.

Despite some technical challenges at a couple of sites which required some adjustments to the programme along the way, between Sunday 28 February and Thursday 25 March, Cubic were able to successfully remove a total of 66 out of the planned 68 removals, reducing the number of QBMs on the LU network from 115 to 49.

We encountered two devices which were difficult to remove due to structural issues and these were swapped with other devices that were easier to remove and have now been moved to the next phase of work to allow more time to organise the necessary enabling works.

The overall shortfall in 2 devices was due to access issues at two sites, where we were unable to obtain approval to move the device across other properties from the relevant parties. These sites have again been deferred to the next phase of work.



↑ Blackfriars before



↑ Blackfriars after



The next phase of the POM reduction work is currently being planned and we hope to be able to move forward with this in the new financial year, once the package has been costed by Cubic.

The next batch of device removals will focus on:

- *Potential POM consolidations at sites with split POM rooms*
- *QBM removals deferred from Phase I*
- *Replacement of QBMs with AFMs at some sites where projected demand requires the retention of the current number of POMs*
- *Removal of a batch of lightly used AFMs*
- *'Mothballing' of a further batch of AFMs at stations where they are not currently required, but demand may increase in the future.*

The mothballing of certain AFMs will see devices decommissioned but left on site and covered over with a metal panel to hide them from customer view.

A prototype of the panel was recently installed by Cubic as a trial, on an AFM at Heathrow T4, whilst that station remains closed.

We hope to be able to provide further details on the phase II POM removals in the next edition of TRU.

TVM SOFTWARE ROLLOUT COMPLETED

COMPLETED ✓



Another programme that was completed recently was an upgrade to TVM software to improve the performance of these devices. The main changes were outlined within [TRUI31](#).

Following a Vanguard in January, the new software was successfully progressively deployed to all LU stations with TVMs between Tuesday 09 February and Tuesday 16 February.



SR8+ ROLLOUT COMPLETED

Another project that was successfully completed during March, focussed on the deployment of new gate reader software. This particular release being Strategic Release 8, or SR8+ as it has lately been known. The original deployment of this had been planned for July 2020 but was delayed by some issues affecting ITSO card functionality identified during the initial Vanguard.

As outlined in [TRUI31](#), following the re-started Vanguard in February, we successfully completed the network wide deployment of the new card reader (RTD) software to all Gates and Passenger Validators on the night of Saturday 13 March.

The new software came into use from start of traffic on Sunday 14 March, one week later than we had originally planned, but deployment went smoothly with no issues reported.



The original plan had been to deploy the SR8 changes along with a change to the way the reader dealt with denied exit validations on contactless payment transactions. Regular readers of TRU may remember that this element was subsequently de-coupled at the completion of testing, when a decision was made not to proceed with the deployment of the denied exit changes for budgetary reasons.

However, it was recently confirmed that funding for this element has now been approved and it is intended to revive the work that had previously been completed with a view to being able to deploy the change as a Vanguard this summer.

It is possible that the deployment will be combined with further updates to the RTDs across the rail network.

Details of the change were originally included in an article in [TRUI25](#), in which we outlined the intention to try to recover lost revenue resulting from denied exit validations (reject code 80) being ignored when processed by the contactless payment back-office system.

We will provide further updates and a more detailed explanation of the planned changes in the TRU as we get nearer to the start of the planned Vanguard.

Part 3 – Picking up on the theme of POM removals...

Q3) Prior to the recent QBM removals, the last major batch of POM removals involved the last of the FFM's. What year did that take place?

- | | | | |
|---|------|---|------|
| A | 2012 | B | 2013 |
| C | 2015 | D | 2016 |



Ticketing & Revenue
T&R
Trivia

[Answers on Page 15](#)

GATE POD UPGRADE COMPLETED

The final pneumatic gates at Euston were upgraded with the new style PODs on Sunday 21 February 2021, marking the completion of the rollout across all LU gates.

One issue that is still being discussed with Cubic, is the number of single direction gates on which there is currently no feed to the rear of the POD.

COMPLETED ✓



As a temporary measure Cubic have applied stickers indicating a red "X" and "No Entry" or "No Exit" as appropriate.

This has caused some issues at certain sites where despite the new POD improving visibility of information for customers and staff, the lack of a display on the rear of the POD has created difficulties for gateline and revenue control staff who are now unable to view reject codes and ticket monitoring indications if standing on the wrong side of a single direction gate.

It is hoped a modification can be made to these single direction gates to provide a power and communications feed to illuminate the back of these PODs in the same way as on reversible gates.



E2 GATE UPGRADES COMPLETED

Another gate related project that was recently completed, was the combined rollout of the new paddle control software and the installation of cooling fans within all of our E2 gates and WAGs. The final LU devices were upgraded on the night of *Thursday 18 March*.

This particular rollout covered just over 1000 gates and generally went very smoothly apart from one slight blip during a very cold spell in January, when the installation teams had difficulty in getting the adhesive used to attach the new fans to set in the cold weather.

The affected sites were revisited towards the end of the rollout to have their fans fitted, whilst the weather was a little warmer.

The Cubic engineers are currently undertaking similar modifications on E2 gates at London Overground and TfL Rail stations and once these are completed, they will then move on to start work on our E1 gates.

As previously mentioned in earlier editions of TRU, the programme will combine the rollout of similar paddle control software to that already applied to E2 gates along with a modification to the Beam Logic Unit (BLU), the light beams which monitor customer movements through the walkway of the gate.

The second improvement which was successfully Vanguarded last summer, should help improve the reliability of E1 gates, as a significant number of current faults relate to the operation of the BLU.

At the time of going to press with this edition of TRU, the E1 programme is scheduled to start at the end of April, with initial priority being given to the completion of work at stations that are earmarked for the expansion of the current trial of the new light weight gate paddles, as the new paddle control software must be deployed to these sites before the new paddles can be installed.

COMPLETED ✓



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MANUAL GATE REPLACEMENTS

The programme to remove a number of Manual Gates and replace the last of the remaining older style ABP Manual Gates from our stations has been continuing over the last month.

However, a variety of issues have resulted in the progress being a lot slower and taking us beyond the original estimated completion date, which was the end of March 2021.

Following a short break in the programme leading up to Easter, work is scheduled to resume in early April and it is now likely that completion will be towards the end of May.

Further to our update in [TRUI30](#), Cubic have since successfully completed the removal of Manual Gates from the following:



BANK (Monument)	SOUTHWARK (East)
TURNPIKE LANE	VICTORIA (District) – Entry Gateline
WATERLOO (Main and Auxiliary)	WEMBLEY PARK (Bridge Road)
WESTMINSTER	

A variety of issues have hampered recent progress, including jammed manhole covers, the need to relocate the Emergency Open Controller, previously housed in the pillar of the Manual Gate, the need to submit space applications for new cable routings at several sites and calls on the installation team resources for other projects.

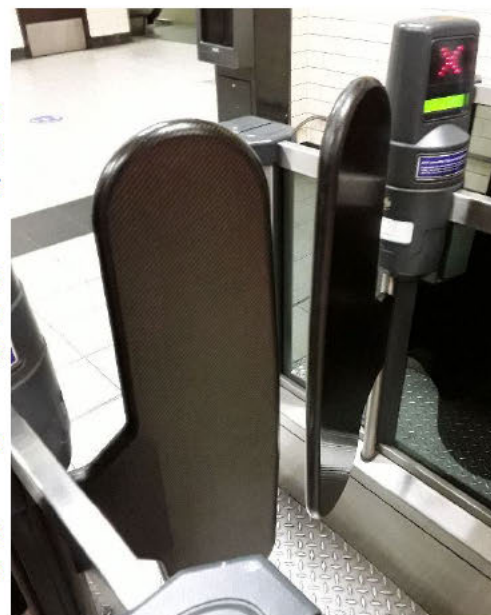
COMPOSITE PADDLE TRIAL

As mentioned in the article concerning gate upgrades on Page 12, Cubic are planning to expand the current trial of the new light weight composite material gate paddles from Embankment, to include a wider selection of stations with E1, E2 gates and WAGs.

Paddles are currently being manufactured and the first batch of paddles are scheduled for delivery to Cubic in early April ready for installation later in the month. Subsequent deliveries will allow for further stations to be fitted with the new paddles during May and June.

The first station scheduled will be West Ham, which has E2 type gates that have already been upgraded with the new paddle control software.

This needs to be loaded onto the gates before the new paddles are installed as the new design of paddles do not have the 'soft edge' which is included within the current design of paddle.



The new paddle control software results in the paddles changing angle when an obstruction is obstructed, so this compensates for the lack of a soft edge on the paddle itself.

Currently the planned implementation dates for the trial stations are:

WEST HAM	← Wednesday 14 April	CANNON STREET	← Monday 24 May
UXBRIDGE	← Monday 17 May	ACTON TOWN	← Monday 14 June
WALTHAMSTOW CENTRAL	← Wednesday 19 May	EDGWARE ROAD (Bakerloo)	← Tuesday 15 June
BLACKHORSE ROAD	← Thursday 20 May	HAMMERSMITH (D&P)	← Monday 12 July
* these dates are subject to change and are dependent on delivery of the new paddles and availability of labour to install the paddles.			

NHU REPLACEMENT

Following the completion of an extended Vanguard of the new PayComplete (formerly Suzohapp) Note Handling Unit (NHU) on devices at Liverpool Street, we outlined in [TRUI30](#) our initial plans to rollout these units to other LU MFM's.

We had been expecting the deployment of the new units to start at the end of March, but due to some late deliveries and the Easter holiday period, it is now planned not to start the upgrade of MFM's until after Easter. The first upgrades are therefore scheduled to take place on Sunday 11 April.

Although Cubic had purchased enough new NHUs for all of the fleet of MFM's, the on-going uncertainty around cash acceptance meant that a decision was taken to initially only purchase sufficient upgrade kits to fit the new NHUs to devices at stations which are currently taking cash.

This will mean that in the first phase of upgrades around 100 of the 330 MFM's currently in service will receive the new units.

Both the current Bank Note Acceptor (BNA) and Bank Note Recycler (BNR) units will be replaced under this upgrade and rather than having two completely different units with different keys, components and note vaults, the new units have the capability of acting as either a simple note acceptor or with an added module to be able to recycle notes and dispense them as either change or when making a refund.

This also has the advantage of making the equipment standard across the network and should assist with staff familiarisation with the equipment.

The rollout of the new NHUs will be undertaken at a rate of two devices per night, five nights a week, so that we will be able to replace 10 NHUs per week. Our initial focus will be mainly on replacing the less reliable BNR units, which also tend to handle a higher volume of notes.

However, to assist with the process of getting staff familiar with the new equipment we will be completing the upgrade of the final MFM in the Liverpool Street (Central) ticket hall with a note acceptor unit, followed fairly quickly after by MFM's at Victoria, Euston and Waterloo

The initial deployments of the new NHUs are scheduled to take place as follows:

Station		MFM's		Details	Installation Date
LIVERPOOL STREET (Central)		36		BNR to BNA	Sunday 11 April
OLD STREET		30		BNR	
VICTORIA	(Vic)	33	34	BNR	Monday 12 April
		35	36		Tuesday 13 April
		32		JLE BNR	Wednesday 14 April
	(District)	31		BNR	
EUSTON		30	31	BNR	Thursday 15 April
		32	33		Sunday 18 April
WATERLOO	(Assist)	33		BNR	Monday 19 April
	(Southbank)	32		BNR	
	(Main)	31		BNR	Tuesday 20 April
	(Colonnade)	31		JLE BNR	
		30			
	(Main)	31		BNR	Wednesday 21 April
WESTMINSTER		30	31	JLE BNR	Thursday 22 April



AFM ANTI-SKIMMING MODIFICATION

In our last [Crimewatch](#) feature in [TRU130](#), we outlined plans to deploy a modified version of the current Chip & PIN unit or PIN Entry Device (PED) as it is often known, to try and counteract the threat of skimming devices being inserted into devices to capture customer's bankcard details.

This deployment, which was originally scheduled for early February, followed on from an earlier trial which had been in operation on about 10 devices for just over a year and was planned to cover around 140 devices at 'high risk' locations.

The start of the deployment of the modified PEDs was delayed and eventually commenced on Wednesday 17 February with devices being upgraded during traffic hours over an 8-day period.

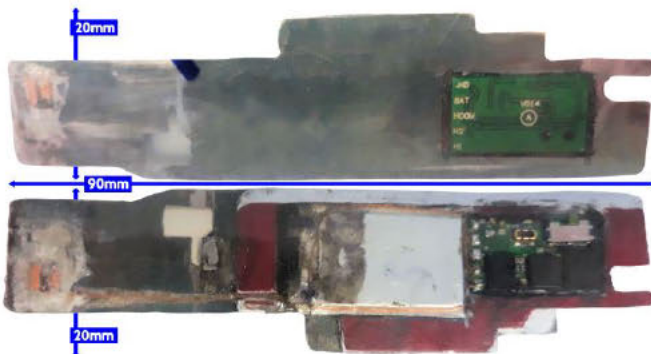
Unfortunately, some of the modified units failed inspection and were found to be faulty when being prepared at the Cubic workshop, resulting in upgrades at a couple of stations we had planned to visit being postponed until after these units had been returned to the suppliers. This reduced the initial batch of upgrades from 140 down to 129.

Although most of the station visits to fit the modified PEDs went smoothly, the engineers did encounter some problems with certain units reporting errors once fitted to a POM and as a result a number of further PEDs were returned to the suppliers for rectification.

Fortunately, a batch of 30 modified PEDs were quickly returned by the suppliers, allowing the remaining devices that were due to receive the modified PEDs to be upgraded on Friday 26 March.

Having fitted these modified PEDs to a total of 138 POMs, the standard PEDs removed from these devices will now be sent off to be modified and will then form a spares pool to cover any future failures of the modified devices.

We also have the potential option of deploying further units to other POMs if there are further machines which are identified as being at high-risk of skimming activity.



As we outlined in our feature in [TRU130](#), the low level of current customer ridership on the tube, has meant that over the last few months there have been few reports of either skimming devices being found at stations or of suspected skimming attacks being reported to us by the bankcard issuers.

As the current lockdown restrictions are eased and businesses re-open, it is likely that customer usage will begin to increase again.

This may well result in the return of skimming device attacks on POMs, but hopefully the steps that we have taken recently will make it harder for those involved to succeed.

However, experience has taught us not to be too complacent, as the technology used by those interested in this type of crime, often develops at a much quicker rate than we can develop and deploy our own equipment.

ANSWERS TO T&R TRIVIA

Pt.1 A ADAM SMITH

Pt.2 A £17,850 million

Pt.3 B 2013

How did you do?

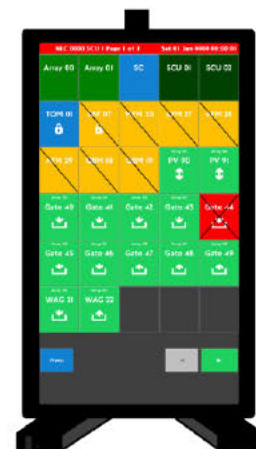
A COUPLE OF PROBLEMS HIGHLIGHTED

A couple of device related issues have recently been highlighted as a result of work on another project. The first of these relates to the new Station Control Unit (SCU). During the SCU software upgrade, which was completed in November 2020, it was discovered that the facility to remotely connect to each SCU to load the new software, had been lost from certain devices. This required Cubic to send an engineer to site to restore the remote access to the device before the new software could be loaded.

As part of the recent QBM and Manual Gate removals (featured on [Pages 8 & 13](#) respectively), it had been intended that Cubic would remotely update each SCU screen to remove the redundant buttons for devices that had been removed.

Unfortunately, the problem of remote access being unavailable has raised its head again and although some devices can be accessed and have been successfully updated, we have again encountered some devices which could not be connected to remotely.

In the short term these will again require engineer visits to restore the facility and then update screen displays. There is no particular pattern to which devices have again been affected and we have seen examples of 1 or 2 out of 3 devices at a particular station being affected, whilst others functioned as expected.



The cause of the problem is currently being investigated and it is thought that this may be related to the Windows Operating System that the SCU uses, rather than the actual device software. We will be continuing to push Cubic for the identification and deployment of a solution to this problem, to ensure we get the full benefit of the ability to update and view SCU screens remotely.

The second issue which was first highlighted following the installation of the first of the new style SCUs at East Putney, involves the activation of the Paddle Forced alarm on gates. At East Putney and subsequently at London Bridge (another of the SCU Vanguard locations) we identified that certain gates were triggering spurious paddle forced alarms on the SCU. Subsequent checks of the gates concerned established that they had faults that generally resulted in the paddle vibrating as it moved to its closed position. This resulted in the gate interpreting this as the paddles being forced and thereby triggering the alarm.

The engineer visits to investigate these gates, successfully resolved the problem, but recently analysis of data from gates to identify potential fraud patterns has identified a small number of gates which appear to be reporting disproportionate levels of 'Paddle Forced' events. We have since arranged for Cubic to investigate a gate at Bethnal Green which had the highest level of paddle force activations on the network and this again highlighted a fault which was subsequently rectified, and the alarm status events then stopped on that gate.

We have subsequently identified a further batch of individual EI gates that seemed to be exhibiting similar symptoms and Cubic have recently visited and rectified issues on each of these. Over the coming months we will continue to review the data and hopefully eradicate other gates where underlying faults may be distorting our data.

In the meantime, if you are aware of a particular gate on which the Paddle Force alarm is regularly activated for no apparent reason or where the paddles appear to judder as they close, please ensure that this is raised as a fault with Cubic Helpdesk.

LOOKING AHEAD TO TRU133

The next edition of TRU will be published towards the end of April.

TRU133 will include:

- *A preview of the May Fares Revision changes*
- *An outline of changes to procedures around Journey Resolution*
- *Oyster Explained feature on Journey Resolution*
- *Updates on current and planned projects*
- *The latest T&R news stories*

Plus a selection of our other regular T&R features.....

