

Report on Holborn Pilot for Standing on Both Sides of Escalators



By

Celia Harrison, Neera Kukadia, Paul Stoneman and Grant Dyer

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Abstract

A pilot was carried out at Holborn Station on London Underground for standing on both sides of escalators exiting the station. The aims were: to look at safety by reducing slips, trips and falls; to reduce congestion by using the escalators more effectively; and, to change customer behaviour. The data collected was both qualitative and quantitative. The data collected on safety was statistically insignificant. The data collected on congestion and on effective use of space on escalators showed that using both sides of the escalators to stand on did reduce congestion and increased capacity by approximately 30%. The data collected on customer behaviour showed that the change was only effective while staff were present to encourage the requested behaviour and produced no lasting change.

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Appendices

1. Introduction

In seeking to improve safety on London Underground's escalators, a series of initiatives have been put into place. One of those initiatives was a three week series of tests at Holborn Station to encourage customers to stand on both sides of certain escalators. The context is described in the next section with a description of the other initiatives. The aims of the tests at Holborn were widened to include Congestion and Flow, and Customer Behaviour, in addition to Safety; these are elaborated on in section 3. Previous research affecting these areas is referred to in Section 4 which underpins the methodology described in the next section. Theoretical calculations were made to estimate how many extra customers might be carried by escalators with a vertical rise of 24 metres (as at Holborn) and these predicted an increase in the region of 25-30%, which would be sufficient to increase flow in the station and reduce congestion and the associated station control measures normally in place. Risk assessments were carried out to ensure that the tests were carried out as safely as possible. Many methods of data collection were available and it was decided to collect as much data as possible and analyse it both qualitatively and quantitatively. The outcomes are given in sections 6 and 7, followed by a summary of the outcomes and conclusions.

2. Context

The Escalator Passenger Safety Strategy Group (EPSSG) at London Underground used a report (Lau, 2015) as a basis for a series of initiatives with escalators to improve customer safety.

"One thing that is worth remembering; the behaviour of their customers is vastly different to our own. I was keen to get solutions and ideas into tackling the rising "Slips, trips and falls" that we have on LU. However, they have a very low number of these reported on the MTR. It's not to say that it doesn't happen, but their customers surmise a fall as their own fault and therefore never report it. They trip and fall for the same reasons that our customers do; carrying luggage, looking at their mobile phones and general carelessness, but they don't claim it to be the companies fault."
Lau (2015)

These included messages embedded in escalator handrails, messages on escalator step risers, hologram "staff" giving safety messages, foot prints indicating where to stand on escalator steps, brightly coloured combs at the entry and exit points of escalators separating static to moving, and under-step lighting.

"On the MTR they actually encourage customers to stand on the escalators. About a decade ago they tried to get customers to walk on the left and stand on the right (same as LUL). However they found that this increased incidents and did not reduce crowding by very much."
Lau (2015)

P. Harley of the EPSSG carried out a survey of escalator use at Canary Wharf and found that *“‘Stand Only’ escalators would not reduce congestion, rather they would have the opposite effect, by reducing overall passenger throughput by approximately 10% during heavy usage periods.”*

P. Harley, 2015

Davis and Dutta (2002) produced theoretical data suggesting that *“until a rise of 18.43 metres, it would be beneficial to allow walking on one side of the escalator.”* Canary Wharf escalators used for Harley’s survey have a vertical rise of 10 metres. Holborn escalators 4, 5, 6 and 7 have a rise of 24 metres which is above the optimum height for walking capacity.

In addition to Holborn having escalators with a rise appropriate for testing standing on both sides of an escalator to see if capacity could be increased, Holborn had been suffering from customer congestion because of the long term closure to the Central Line at Tottenham Court Road. Customers who would normally use Tottenham Court Road had been displaced to stations on either side: Oxford Circus and Holborn.

Holborn was selected as the location to carry out a series of tests on how escalators are used.

3. Aims

The aims of the tests on escalators at Holborn were to see if changing the way that escalators were used could:

Improve safety by reducing slips, trips and falls

- Accidents happen every day on London Underground escalators. The purpose of the EPSSG is to improve safety by reducing accidents on escalators.
- Most accidents occur when customers have heavy luggage, or are mobility impaired.
- Walking on escalators exacerbates the risk of accidents

Improve the flow of customers through the station in order to reduce congestion.

- London Underground places emphasis on safe evacuation from stations with the focus on customers exiting the station and managing numbers of customers entering to prevent over-crowding.
- With an increasing frequency of trains passing through stations as the service improves, congestion is an issue on older stations with limited space and new solutions are needed to ease the congestion.

Achieve customer behaviour change

- Ever since London Underground installed escalators at Earls Court Station in 1911, customers have been requested to stand on the right and walk on the left.
- A significant change in behaviour would be necessary for the proposed tests to be carried out.

4. Previous Research

4.1 Improve Safety by Reducing Slips, Trips and Falls

The Safety Assessment Federation's 2011 paper providing guidelines on BS EN 115, which defines escalator safety requirements in the UK, stated that

"Slips trips and falls are the most common incidents on escalators ...and should be a prime consideration in any risk assessment. There are a number of reasons why they occur, which include: poor lighting, location of the installation, crowding, distraction, inappropriate footwear, poor judgment by users, horseplay, use of alcohol and drugs, loss of balance, spillages, debris, environmental conditions, use as a static staircase, or by unsupervised minors."

Safety Assessment Federation, 2011

In an article entitled "Escalator Injuries and Deaths and the Role of Design" (2011) it was identified that the highest risk group of slips, trips and falls on escalators were those aged 65 and over, and those aged 5 and under.

According to the South China Morning Post in August 2015 it is now mandatory to stand only on both sides of the escalators on metros in Hong Kong and Japan. The practice was brought in to improve safety. "According to the MTR, in the first seven months of 2015, 382 escalator accidents were recorded – about 12 per cent fewer than in the same period last year. Some 51 per cent of the accidents involved seniors and children due to loss of balance, standing too close to the step edge, or carrying heavy luggage."

4.2 Improve the flow of customers through the station in order to reduce congestion.

People need more space than the size of their physical bodies as discussed by J. Fruin (1987). The space needed is represented as the human ellipse (see Fig. 1 below). The central circle represents the head, with the two dark extensions from the head representing the shoulders. The blue ellipse surrounding the head and shoulders is the space that a person requires to feel comfortable. The size of the ellipse varies from country to country, depending on both physical size and cultural norms.

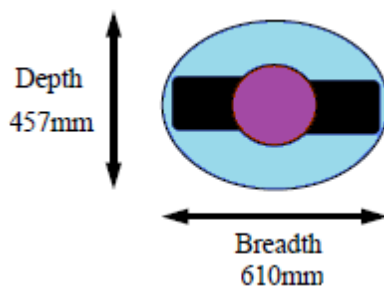


Fig. 1 The Human Ellipse

Fig. 2 shows different configurations for standing on escalators. The first diagram shows two people standing side by side on one step. Below that are three people standing in front of each other occupying every step. The second diagram shows both sides of the escalator

occupied, but each person has a step between them and the person in front, and occupancy of each step is staggered on each side of the escalator.

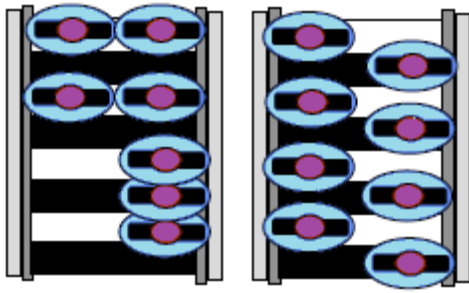


Fig. 2 Escalator Occupancy Configurations

LU escalators have width of 1.01m and depth of 0.41m and height of 0.4m. These dimensions mean that the configurations shown in the first diagram will be uncomfortable for people to be in. Two people, side by side, will require 1.22m width, where LU escalators have 1.01m available. One person on a step requires 0.457m, where LU escalators have 0.41m available. Again, this will make a person in this position very uncomfortable.

“...escalator utilisation and capacities are closely related to human factors such as shoulder width, personal space preferences, and ability to adjust to system speed. Even under heavy queuing, vacant steps can be observed on most escalators...”

Fruin, (1992)

This is described as “the empty step phenomenon” and Fruin (1987) explains this as capacity is never as high as two people on every step would be. The two reasons he gives for this is the slight hesitation that people have when getting onto an escalator, and the innate desire for personal space (the human ellipse).

Fruin (1987) also studied movement on stairs, which can be assumed to be the same on escalators. He observed that, in general, people keep two vacant steps in front of them when walking on stairs.

Lee (2005) examined peoples’ behaviour and choices on public transport escalators in Holland. He observed that

“...passengers may find that their walking choices have been deprived by standing passengers in front of them. Normally...people just follow the behaviour of their predecessors and stand on the escalators since no other choices exist” Lee (2005)

On London Underground, the behaviour varies from this: there is the convention of standing on the right and walking on the left; however, this behaviour is seen when there is congestion and customers are encouraged to use both sides of the escalators. This would be because

“...speeds decrease when densities increase...The variation of speeds decreases when densities increase.”

Lee (2005)

All escalators in Lee’s study were less than 5m in vertical height.

Davis and Dutta (2002) carried out a study of escalator capacity on London Underground which observed that escalators with a greater vertical height have fewer people walking up them. Other factors apart from vertical height affect on how escalators are used: where there

is more than one escalator, and where escalators are next to a corner which reduces the approach space to the escalator. Non-commuters also have an effect, as they tend to stand rather than walk up escalators. When looking at if standing on both sides of an escalator at Holborn was more efficient, they concluded that *“Passengers will not stand on both sides of an escalator simply because they are asked to. When passengers do stand on both sides capacity is high....it would ...be advantageous for high rise double escalators...”*

4.3 Achieve customer behaviour change

Larcom et al (2015) looked at the effects of forcing behaviour change on commuters by London Underground workers strike action, where commuters under-experiment with routes in normal times. The implication is that people do not naturally seek change for improvements in their journeys i.e. do not want to change their behaviour. However, if forced to change their behaviour, people can recognise benefits and make changes.

In work carried out by Dolan et al (2010), which drew on academic evidence of what influences behaviour, suggestions for innovative interventions were made:

“...much of behaviour change is about battling habits...Habits ...usually develop when actions are repeatedly paired with an event of context (e.g. drinking coffee after waking up)...Often attempts to break habits rely on providing information, but conscious thoughts may not provide an effective means for addressing automatic behaviour...the most effective way of changing...habits is by going with the grain of behaviour: harnessing the same automatic effects to nudge people onto a different, self-sustaining, track, without always explicitly stating the need to pursue a particular goal.”

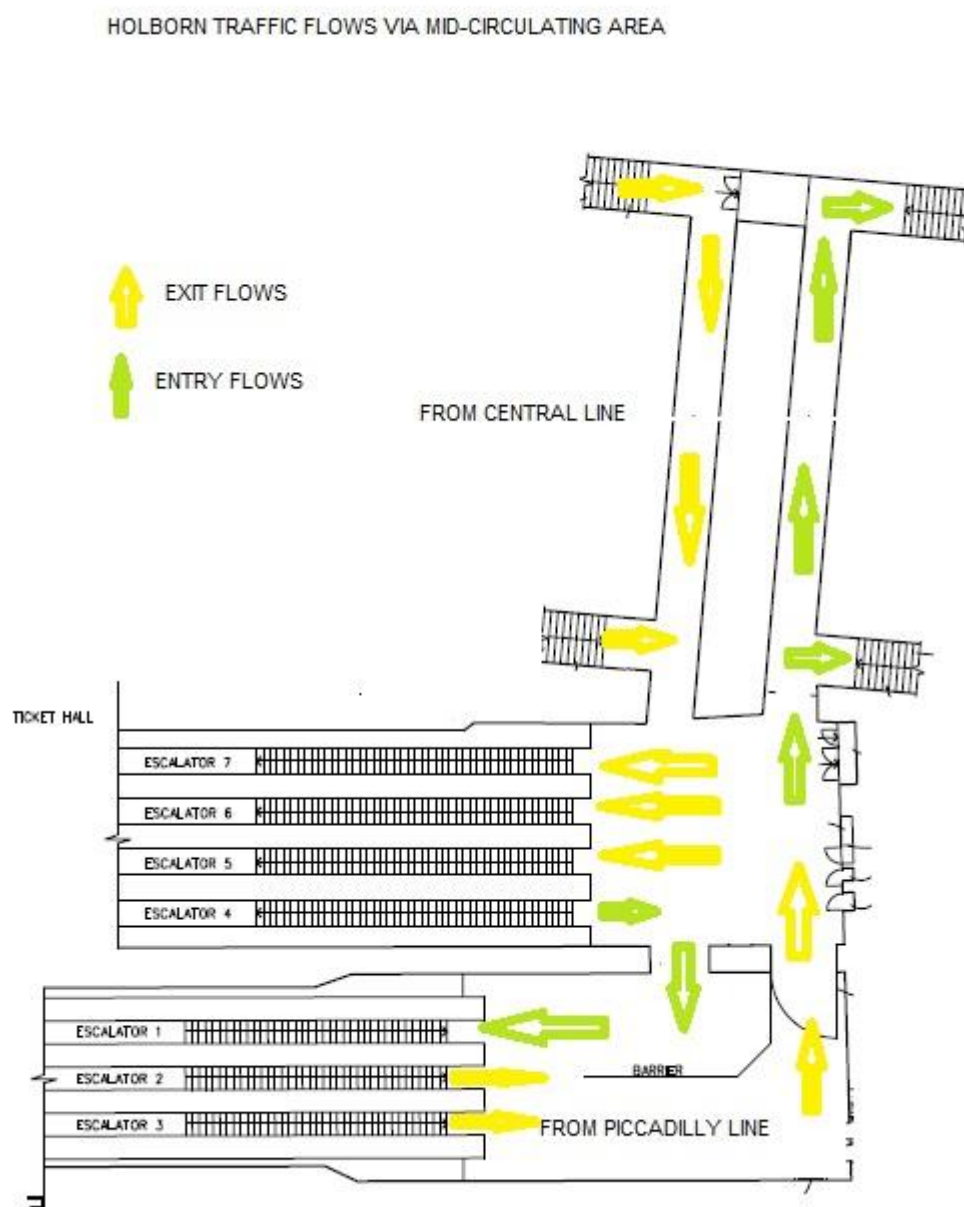
Dolan et al (2010)

The habit of walking, or standing, is very entrenched with LU customers. So, a gradual progression on tests with one escalator only, followed by two, then three over the three weeks was decided on in an attempt to introduce the standing on both sides slowly, leaving the option to walk open until the third week of tests.

When considering how to introduce standing on both sides of the escalators, it was initially intended that this should be “enforced” with staff to both be visible and make the message clear, together with uniformed staff to stand on the left so that customers would have to stand behind them, rather than walk. This idea was then rejected as too confrontational and likely to cause raised emotions. It was decided, instead, to “encourage” customers to stand on the left.

5. Methodology

Once it had been agreed at the EPSSG that a pilot should be carried out at Holborn, a site meeting was arranged with relevant people. The customer flows and routes were discussed (see diagram below). A start date for three weeks of testing was agreed for the 23rd November as this would permit two weeks of tests before Tottenham Court Road re-opened to Central Line trains, which was expected to result in a reduction of customer numbers at Holborn.



5.1 Calculations To Show Theoretical Increase in Capacity of Escalators at Holborn

Simple calculation to show escalator capacity

This calculation will show the potential capacity of the escalator looking at the theoretical and assumptions of different options.

Actual speed calculations

$$\text{Speed of escalator } (v) = 0.75 \frac{m}{s}$$

$$\text{Depth of step } (D_p) = 0.4 \text{ m}$$

$$\begin{aligned} \text{Time per step } (ts) &= \frac{D_p}{v} \\ &= \frac{0.4 \text{ m}}{0.75 \frac{m}{s}} \\ &= 0.533 \text{ s} \end{aligned}$$

$$\begin{aligned} \text{Number of steps passing } (S_{PAS}) &= \frac{60s}{ts} \\ &= \frac{60s}{0.533s} \\ &= 112.5 \text{ steps} \end{aligned}$$

112.5 steps means a potential of 112.5 passengers on each step.

Therefore the theoretical full load, with no gaps and 2 passengers per step =

$$\begin{aligned} \text{Theoretical full loads passengers } (P_{tho}) &= S_{PAS} \times 2 \\ &= 112.5 \times 2 \\ &= 225 \text{ passengers} \end{aligned}$$

Calculate Nominal Running Capacity

$$\text{Standing on the right only} = 0.5 \times \text{full capacity}$$

$$\text{One gap between passengers} = 0.5 \times \text{full capacity}$$

$$\begin{aligned} \text{Theoretical capacity} &= 0.5 \times 0.5 \\ &= 0.25 \times \text{full capacity} \end{aligned}$$

$$\begin{aligned} \text{Passengers standing on the right } (P_{SOR}) &= P_{tho} \times 0.25 \\ &= 225 \text{ passengers} \times 0.25 \\ &= 56.25 \text{ passengers} \end{aligned}$$

Walking on the left

$$\text{Assumed walking speed } (u) = 0.5 \frac{m}{s}$$

$$\begin{aligned}\text{Effective walking speed } (v^1) &= (v + u) \times 60 \\ &= \left(0.75 \frac{m}{s} + 0.5 \frac{m}{s}\right) \times 60 \\ &= 75 \frac{m}{\text{minute}}\end{aligned}$$

$$\begin{aligned}\text{Theoretical walking speed } (w_c) &= \left(\frac{v^1}{D_p}\right) \\ &= \frac{75 \frac{m}{\text{minute}}}{0.4 m} \\ &= 187.5 \frac{\text{steps}}{\text{minute}}\end{aligned}$$

Theoretical walking speed does not take into account spacing by the act of walking. This spacing needs to be two clear steps.

$$\text{The assumed gap is 2 steps } (q_w) = 0.33 \times \text{capacity}$$

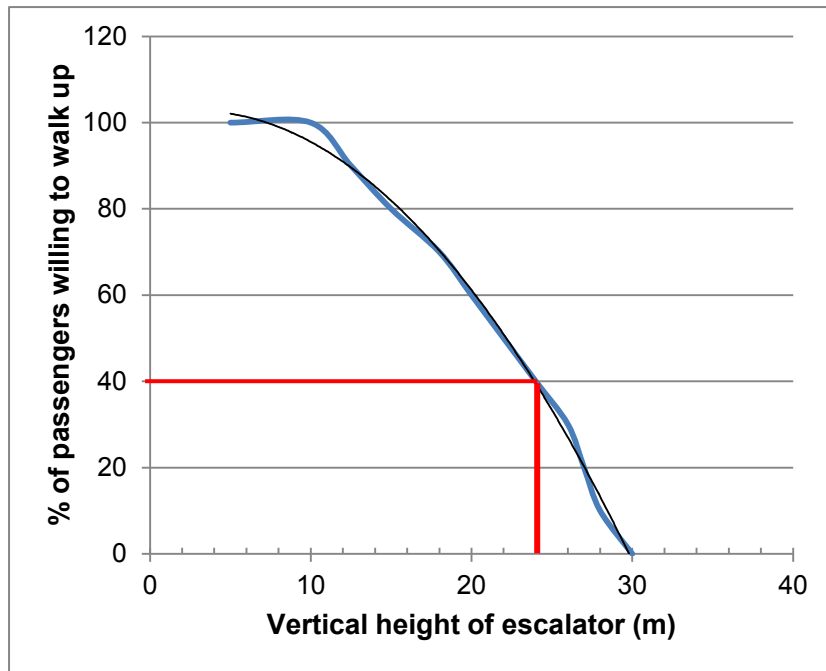
$$\begin{aligned}\text{Factored walking passengers } (P_{WOL}) &= w_c \times q_w \\ &= 187.5 \frac{\text{steps}}{\text{minute}} \times 0.33 \\ &= 62.5 \text{ passengers/minute}\end{aligned}$$

Walking passengers vs vertical height

The previous calculations do not take into account the vertical height of escalators. It is assumed for the purpose of this calculation that there is a decreasing percentage of passengers willing to walk up a high machine.

The percentages given below are partly based on the results of the Canary Wharf observations, together with observations of customer walking behaviour on escalators with a greater vertical rise than 10 metres. The graph on the following page shows vertical height vs % of passengers willing to walk.

At Holborn the escalator rise is 24 m which gives an estimated amount of 40% of customers willing to walk.



% of Passengers	Vertical height (m)
100	5
100	10
90	12.5
80	15
70	18
60	20
50	22
40	24
30	26
20	27
10	28
0	30

$$\begin{aligned}
 \text{Factored walking passengers } (P_{FWOL}) &= P_{WOL} \times 40\% \\
 &= 62.5 \frac{\text{Passengers}}{\text{minute}} \times 0.4 \\
 &= 25 \frac{\text{Passengers}}{\text{minute}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Total factored nominal escalator capacity } (P_{TOTFAC}) &= P_{SOR} + P_{FWOL} \\
 &= 56.25 \text{ Passengers} + 25 \text{ Passengers} \\
 &= 81.25 \frac{\text{Passengers}}{\text{minute}}
 \end{aligned}$$

For a comparison review of standing on the right and standing on the left

$$\begin{aligned}
 P_{SOTL} &= P_{SOR} + P_{SOR} \\
 &= 56.25 + 56.25 \\
 &= 112.5 \text{ Passengers/minute}
 \end{aligned}$$

$$\begin{aligned}
 \text{Passenger difference} &= P_{SOTL} - P_{TOTFAC} \\
 &= 112.5 \text{ passengers} - 81.25 \text{ passengers} \\
 &= 31.25 \frac{\text{passengers}}{\text{minute}}
 \end{aligned}$$

Theoretically, passengers standing on left and right of escalator at Holborn should increase number of passengers per minute by 27.8%

5.2 Safety Risk Assessment

A Working Risk Assessment was carried out based on the initial plan and the risk register produced alongside the calculations predicting how many more passengers could be carried by an escalator at Holborn. It had been proposed that uniformed staff “enforce” standing on the left by standing on the left in front of customers, preventing them from walking up. Previous observation had shown that when a person stops on the left of a busy escalator, often people patiently stand behind them. However, this is not always the case and the risk of assault to the member of staff was considered and resulted in the decision to use staff to “encourage” customers to stand on the left as well as the right.

The running of the station was to remain under control of the station supervisor with the power to suspend the tests at any point where they believed the running of the station might become unsafe or compromised.

The plan was revised in consequence.

5.3 Data collection

It was decided to collect data from as many sources as possible:

- Numbers of customers counted off escalators
- Observers at top and bottom of escalators to note crowd behaviour and use of escalators
- Staff de-briefs after each test
- Dwell times and headways of all services
- Gate line exits
- CCTV downloads
- Timed walks from platforms
- Incident comparison
- Customer feedback

As the data did not lend itself to one type of analysis, it was decided to analyse it both qualitatively and quantitatively. Observations by observers and staff and customer feedback were designated qualitative data. Numbers of customers counted off escalators and exiting through gates, dwell times and headways (service provision), timed walks from platforms provided data for quantitative analysis. CCTV was intended to provide data for both qualitative and quantitative analysis.

5.4 Communications

Once the plan had been designed it was distributed for consultation with those involved. Some amendments were made following this and the risk assessment. From the final plan, briefs for staff were created and distributed.

Posters were designed to pre-warn customers using Holborn that a series of tests around the escalators were to take place regarding using escalators more efficiently. These posters were displayed at Holborn from the week before the tests began. PAs were also made from the station control room for which a script had been provided.

It was decided that we should pre-warn customers who travelled through Holborn at the times of the tests via emails. However, the team that provide the email service to customers in London underground decided that this would not be an appropriate way of communicating because of the complexity of the proposed tests, and that local communications via PAs and posters would be better.

During the tests simple posters asking customers to stand on both sides of the escalators were displayed. PAs from the station control room were made from an updated script and played during the times of the tests.

5.5 Mechanics of tests and staffing

Week one: Two members of staff were placed at the bottom of escalator 7 to encourage customers to stand on both sides of the escalator. An observer stood at the back wall of the mid-circulating area to monitor crowd behaviour and assist as necessary. A person was located at the top of escalator 7 to count customers leaving the escalator using a “clicker” counter. A second observer was located where they could observe crowd behaviour and assist as necessary. At the end of week one a CCTV download request was made for observation of crowd behaviour and counting.

Week two: Two members of staff were placed at the bottom of escalators 6 and 7 to encourage customers to stand on both sides of the escalator. An observer stood at the back wall of the mid-circulating area to monitor crowd behaviour and assist as necessary. Two people were placed at the top of escalators 6 and 7 to count customers leaving each escalator using a “clicker” counter. A second observer was located where they could observe crowd behaviour and assist as necessary. At the end of week two a CCTV download request was made for observation of crowd behaviour and counting.

Week three: Three members of staff were placed at the bottom of escalators 5, 6 and 7 to encourage customers to stand on both sides of the escalator. An observer stood at the back wall of the mid-circulating area to monitor crowd behaviour and assist as necessary. Three people were placed at the top of escalators 5, 6 and 7 to count customers leaving each escalator using a “clicker” counter. A second observer was located where they could observe crowd behaviour and assist as necessary. At the end of week one a CCTV download request was made for observation of crowd behaviour and counting.

Staff: The tests were carried out by a combination of the Special Requirements Team (SRT) and “volunteers” from Lifts & Escalators (L&E) and Strategy & Service Development – Customer Strategy (S&SD). Non-operational staff were identified by pink hi-vi tabards. Station

staff were not to be taken from their normal duties. Special Requirements Team (SRT) staff were requested to attend 07:00 – 10:00 to allow time for station familiarisation (which is an operational requirement for staff working on London Underground stations) and briefing prior to the test start time. “Volunteers” were to be briefed prior to the test start times.

5.6 Variations to the Planned Tests

Variations to the tests were made over the three weeks. After the first days of tests, SRT staff suggested that loud hailers be used as their voices could not be heard. Loud hailers were used for three days when one failed and SRT staff used the local PA system instead. From this time no loud hailers were used; just a combination of PAs in the mid-circulating area and speaking by SRT staff.

After suggestions from various sources including customers, some staff in plain clothes volunteered to stand on the left of the test escalators to stop people walking up. This had the added benefit of the plain clothes staff hearing comments from customers on the escalators.

SRT staff tried standing in different places at the bottom of escalators, to encourage customers to stand on both sides, in order to find the most effective location.

5.7 Unplanned Incidents

Day one: escalator 7 had been chosen as “stand only”, but was out of service. The test was not carried out on that day.

Day four: 58 minutes suspension on the Piccadilly Line (smoke from a train at Kings Cross) – the tests continued.

Day six: escalator 6 taken out of service because a fault at 08:32. Escalator 6 was used as a walk down staircase, escalator 4 reversed to “up”, with standing on both sides “encouraged” on escalators 5 and 7.

5.8 Service Provision

Leading into the tests, both Central Line and Piccadilly Line Fleets had technical problems requiring a large number of cancellations. The table below shows the 9am snapshot of train cancellations for each line. These cancellations had an impact on customer flows through the station as will be discussed in the quantitative analysis outcomes.

Date	Piccadilly Line	Central Line
23/11/15	15 trains cancelled	5 trains cancelled
24/11/15	14 trains cancelled	4 trains cancelled
25/11/15	10 trains cancelled	3 trains cancelled
26/11/15	17 trains cancelled	3 trains cancelled
27/11/15	8 trains cancelled	3 trains cancelled
30/11/15	7 trains cancelled	1 train cancelled
1/12/15	6 trains cancelled	4 trains cancelled
2/12/15	7 trains cancelled	0 trains cancelled
3/12/15	6 trains cancelled	3 trains cancelled
4/12/15	10 trains cancelled	3 trains cancelled
7/12/15	5 trains cancelled	5 trains cancelled
8/12/15	7 trains cancelled	4 trains cancelled
9/12/15	5 trains cancelled	5 trains cancelled
10/12/15	3 trains cancelled	1 train cancelled
11/12/15	3 trains cancelled	1 train cancelled

6. Qualitative Outcomes

6.1 Observations on Safety

Observers noted that there were several issues around customer behaviour that posed a potential safety risk. Early in the tests the weather became cold and wet, but customers exiting the station were hot from travelling. Many of them began to prepare themselves for the drop in temperature on the escalator, but on exiting the escalator, would drop items, such as ticket holders, clothing, etc., and would stop to pick them up without regard for the surge of people behind them. The same effect was caused by customers with wheeled suitcases, where they would lift their case off the escalator in front of them, hesitate while they extended the handle and then move forward around their case so as to pull it behind them. These little interruptions to the flow of customers exiting escalators had the potential to cause a “pile up”.

While no incidents were reported to staff during the period of testing, on 8th December at 9am a customer’s bag became trapped in the escalator skirting. One of the L&E volunteers quickly stopped the escalator and removed the trapped bag within three minutes. There were no customer injuries.

While Tottenham Court Road station had been closed to the Central Line, increased numbers of customers had led to congestion: the station response to this was to implement “station control” by holding customers exiting from the Piccadilly Line in the lower circulating area at the bottom of escalators 2 and 3 while congestion cleared in the mid-circulating area. During the escalator tests, “station control” was only implemented once and this was during the first week.

There were few gate line issues over the three weeks and none of them led to over-crowding of the ticket hall.

6.2 Customer Feedback

6.2.1 Customer Contact Centre and by Email

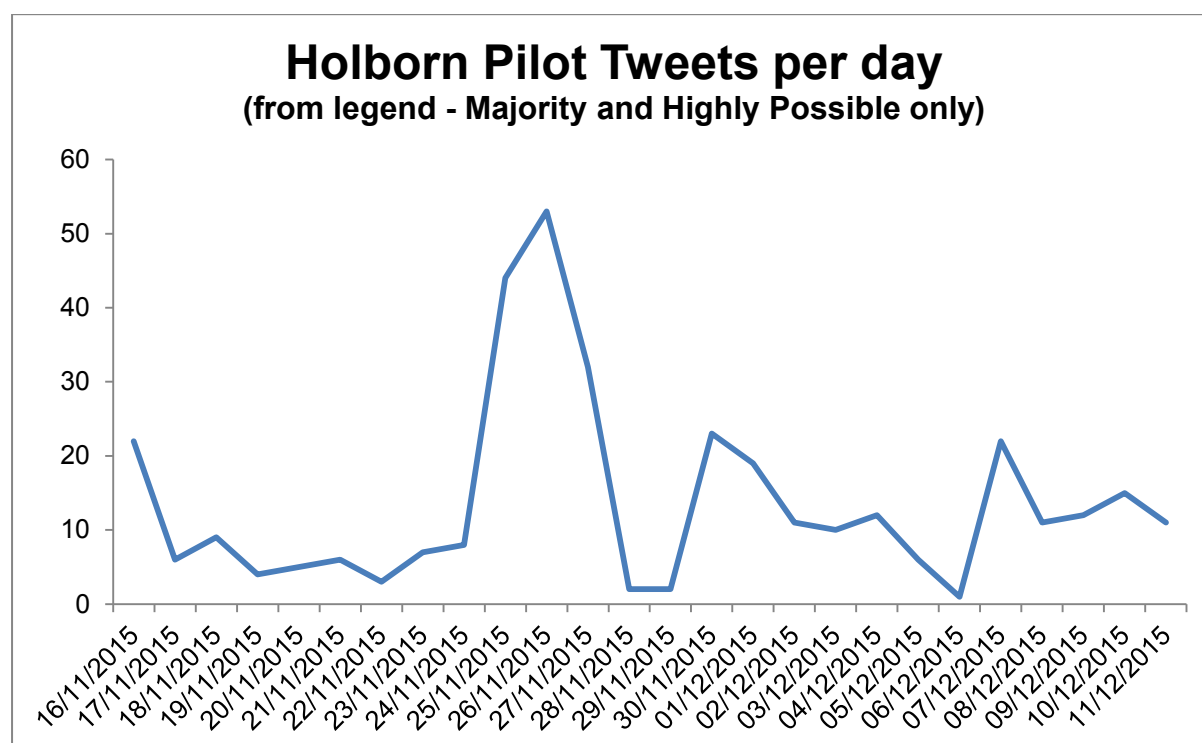
Six customers gave feedbacks which were received via the Customer Contact Centre and seven customers from other sources (e.g. phone or direct email).

Recurring themes were that the tests would not work (to relieve congestion); people feel deprived of the choice to walk and/or exercise; and, that it delays their journey. Three customers understood and supported the tests, but felt that the choice to walk up at least one escalator should remain.

6.2.2 Twitter

Twitter comments were selected based on certain keywords: Holborn, both side, escalator, pilot, stand, test and trial. The date range was selected to include a period prior to the first day that escalator tests were carried out on Tuesday 24th November. From the chart below a steady number of tweets happened in the period before the tests started. There was a large increase in tweets on the first two days of tests. The number of tweets fell sharply at

the weekend to none and then rose sharply on Monday, but not to as high a level as the previous week. Again, the number of tweets fell gradually over the week, briefly reaching zero over the weekend. On the final week there was a peak on the Monday which fell on Tuesday and Wednesday, but rose again on Thursday and fell slightly on the final Friday.



A small number of tweets on the Mondays can be ascribed to it being Monday, the first day after the weekend. However, the first week of tests did not begin until Tuesday and the sharp peak in numbers of tweets began on Tuesday. Each week the tweets peaked on the first day of tests. These fall in with the expansion of numbers of escalators included in the tests. The tweets fall off over the week as customers became accustomed to the restrictions placed upon them.

Less than half of the tweets looked at were negative. Others were humorous, neutral or questioning.

6.2.3 Media

On the second day of the test period the media began to take an interest and request details about what was doing. Some journalists went to Holborn station and took covert footage and interviews. The intense media interest had an impact on the tests. The most positive impact was that customers were given an explanation of how the tests were aiming to improve flow and reduce congestion.

Most reporting was light in tone and took an approach of mock outrage. Some reporting was more serious with expert opinion supporting the proposition that asking customers to stand on both sides of the escalator would make more efficient use of it.

Once media reporting began, customers affected by the tests began to verbally express their opinions, both positive and negative, in an uninhibited way and to take films of their ride on the escalators on their mobiles. Customer behaviour changed as they felt observed.

6.2.4 Customers at Holborn

Customer response directly given at Holborn during the tests was wide-ranging. There was a great deal of non-verbal communication in the form of head-shaking, particularly if the person concerned met the eyes of a member of staff. Many people gave short, negative feedback, such as: “This is a stupid idea”; “This is not working”; “You are making me late”; “I don’t like this”. During the first week there was a high frequency of people asking what was being done, why and saying that it would not work. After the first week, the comments changed from saying that it would not work, to saying that they did not like it or did not want to do it. This implied a level of acceptance and compliance, if not a positive view.

Another theme that was mentioned frequently was that customers felt they were being deprived of exercise and the choice to walk.

There was also a significant amount of positive feedback. Some customers commented that the flows from the platforms had improved and made suggestions about how the tests could be further improved. A few customers suggested that staff/students be used to “enforce” the standing, by standing on the left in front of customers.

By the third week, the SRT staff reported that some regular customers said good morning to SRT and made a point of standing on the left to “enforce” it.

6.3 Observations on Customer Flow, Congestion and Customer Behaviour

First day of week brought the most resistance from customers and it took the longest to gain compliance. By the third week, most customers were compliant by Tuesday.

From the first days of tests it was observed that the mid-circulating area cleared much more quickly. Apart from one day during the first week, no “station control” was required.

On the first day of testing, the weather was wet and cold. It was noticed that there was congestion around the exit to High Holborn (exit to the right at the top of escalator 7) which was attributed to customers stopping to put on coats and put up umbrellas before stepping out of shelter. This did not occur again during the three week test period, although it did rain again on other days.

Every day there was a noticeable change in customer behaviour after 9am, when customers became less compliant and less patient. This may have been because customers were late for work, or had a different purpose for their journey from pre-9am customers.

Over the three weeks there were different staff from SRT assisting with “encouraging” customers to stand on both sides of the escalators concerned. Each of these staff had different styles. Most noted that humour worked best in achieving compliance. One member of staff from SRT encouraged couples to stand side by side and hold hands. It was observed that if customers stood side by side and talked, or held hands, customers behind them did not attempt to pass them.

It was observed that those customers who really wanted to walk found a way to do so (some weaving between other customers on both sides of escalator). One man pushed a child aside so that he could walk, demonstrating how strongly ingrained the habit of walking can be that overcomes the social norm that prohibits the touching of other people's children.

Standing on both sides of the escalators was most effective when the mid-circulating area was congested and minimal encouragement was needed to get customers to stand on both sides of the escalators.

6.4 CCTV

It had been intended to review downloads of CCTV to confirm counts of customers exiting escalators and to observe customer crowd behaviour. Unfortunately, this was not possible as the CCTV downloads could not be obtained because of a technical fault.

7. Quantitative Outcomes

7.1 Safety

Incident reports from London Underground Safety and Environmental Analysis (LUSEA) for the following periods were run:

23/11/15-11/12/15 (Trial period)

2/11/15-22/11/15 (3 weeks prior to trial period)

24/11/14-12/12/14 (same time period last year)

There were only two customer related escalator incidents reported: one on the 22/11/15 and one on the 29/11/14. However, there were no reported incidents during the trial period. With such small numbers this cannot be considered significant.

7.2 Congestion and Flow

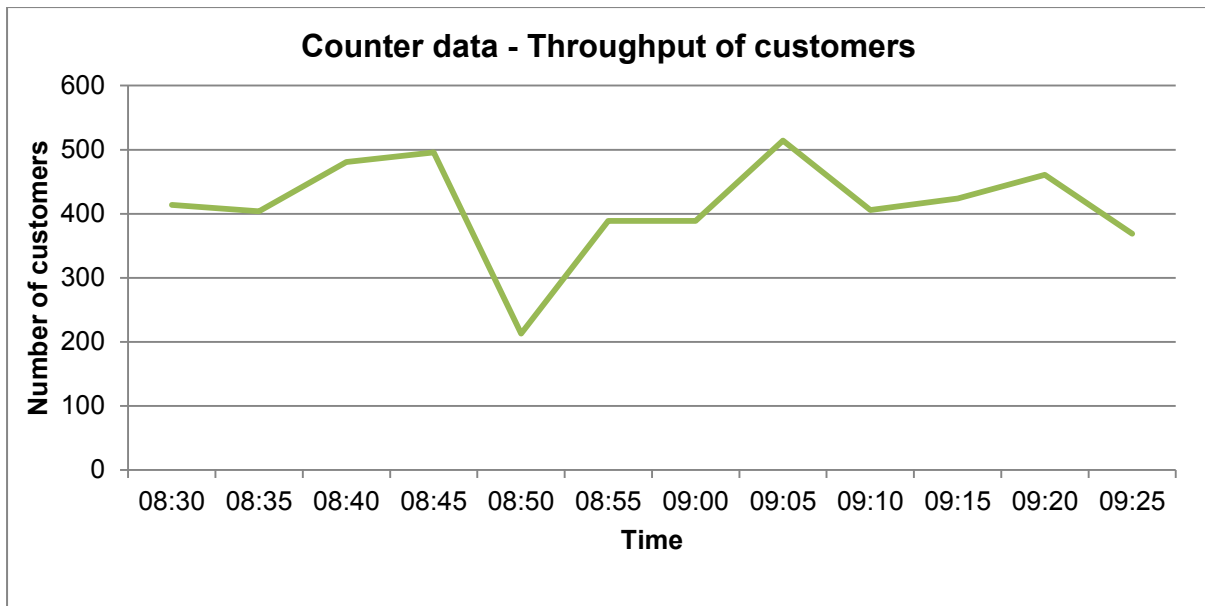
To compare escalator usage of standing and walking, simple calculations were completed to understand if there was an improvement in customer throughput. Data from previous weeks, when all escalators were walking on the left was not recorded. However through the data collated from the 3 week trial, it is possible to approximate the amount of people that used the walking escalator in the 1 hour period compared to standing on both sides.

In week 2, Escalator 5 gave customers the option to walk up the escalator as usual; the total amount of people that used this escalator was approximately 12,745 customers. In week 3 when escalator 5 was standing only, approximately 16,220 customers used it. This is around a 30% increase in the throughput of customers during the 1 hour period trial. This is also a very close estimate of the theoretical calculations shown earlier in this paper.

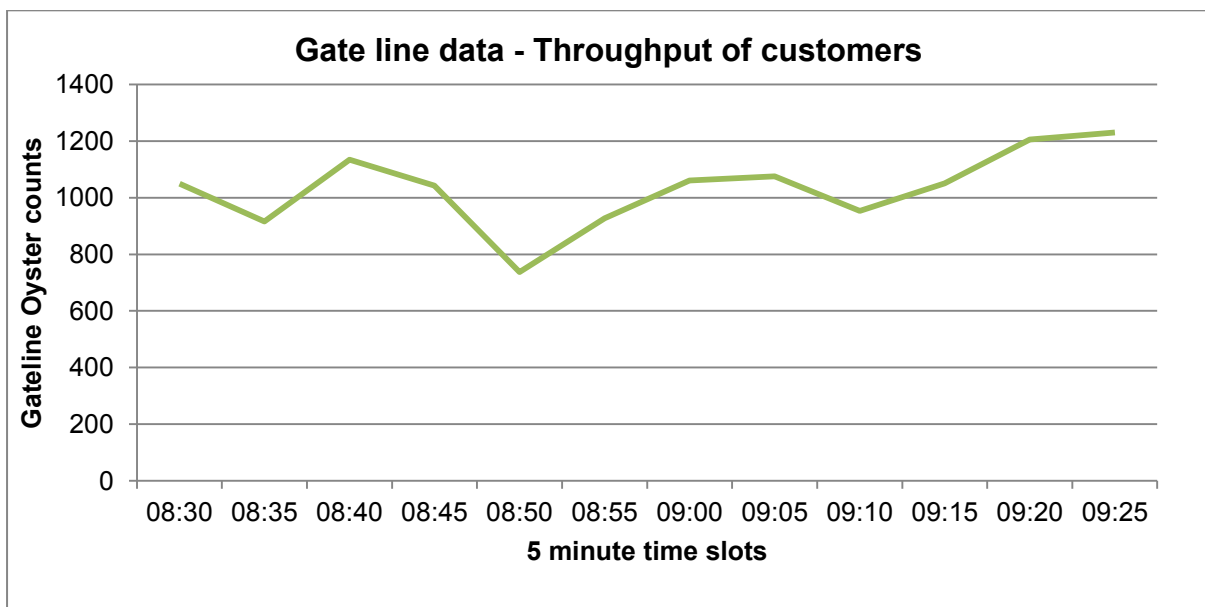
To understand the flow of passengers from the moment they get off the train, to when they arrive in the mid-circulating area, to finally using the escalators to exit the station; 3 different days were analysed over the three weeks of the trial: one from each week.

Thursday 26th Nov (Week 1, Day 3)

Graph 1 below shows the counter data for Escalator 7 only, whilst graph 2 shows the gate line data of customers exiting the station in the 1 hour time period. Visually both graphs follow a similar trend and potential line problems can easily be identified.



Graph 1 Throughput of customers on escalator 5



Graph 2 Throughput of all customers exiting the station

When analysing the head way data in Figure 3, it was seen that between 8:50 – 8:55, both Piccadilly and central line had long dwell times. This can therefore quantify the dip in customers on the escalators and leaving the station at 8:50am.

8:35, 8:50 and 9:10 had the lowest throughput of customers for both customers leaving escalator 7 and customers exiting the station. The largest head way times were between 8:40 – 8:45, 8:50 – 8:55 and 9:00 – 9:05.

For the purpose of this report, head way times over 3 minutes were considered too long, therefore denoted with red text. The time in between each train arriving onto the platform is colour coded from light red to dark red, short dwell time to long dwell time.

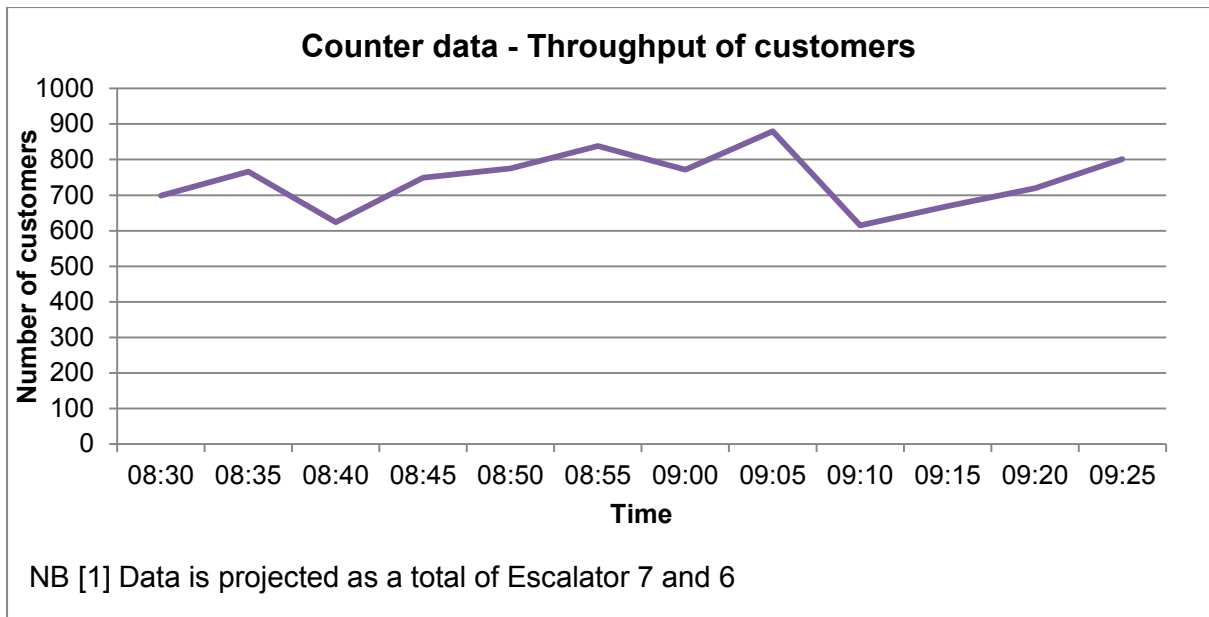
Time	Thursday			
	26 November 2015			
	Pic west	Pic east	Cen west	Cen east
08:25				
08:26				
08:27		00:01:56	00:01:30	00:01:39
08:28				
08:29		00:01:51	00:01:36	00:02:32
08:30		00:01:43	00:01:27	
08:31			00:01:25	00:02:13
08:32		00:01:30		
08:33	00:05:21		00:01:31	
08:34			00:01:33	
08:35		00:02:39		00:03:59
08:36	00:03:20			
08:37			00:02:26	00:01:33
08:38		00:03:52		00:01:30
08:39	00:02:49		00:01:54	
08:40		00:01:42	00:01:29	
08:41				00:02:11
08:42		00:02:09		
08:43			00:02:27	00:02:46
08:44			00:01:27	
08:45		00:02:25		
08:46	00:06:23		00:01:49	
08:47				00:03:52
08:48		00:03:03	00:01:29	
08:49				00:01:37
08:50		00:01:51		
08:51			00:03:24	
08:52		00:02:29		
08:53				
08:54		00:01:53		
08:55	00:09:01		00:03:39	
08:56		00:01:39		
08:57			00:02:21	

08:58		00:01:54	00:01:35	00:09:25
08:59				
09:00			00:01:46	00:02:02
09:01		00:03:02		
09:02			00:01:57	
09:03	00:08:33			
09:04			00:01:45	
09:05		00:03:59		00:05:06
09:06		00:01:40	00:01:47	
09:07			00:01:35	
09:08				00:02:08
09:09			00:01:51	00:01:35
09:10				
09:11			00:01:38	00:01:43
09:12		00:05:38		
09:13	00:09:45		00:02:25	00:01:42
09:14				00:01:37
09:15			00:02:09	
09:16				00:01:29
09:17		00:05:11	00:01:53	00:01:23
09:18	00:04:46			00:01:24
09:19			00:02:14	
09:20	00:02:25			00:01:25
09:21			00:01:33	00:01:31
09:22	00:02:12	00:04:31	00:01:23	
09:23				00:01:30
09:24			00:01:27	
09:25	00:03:02			00:02:31
09:26			00:02:25	
09:27				00:01:32
09:28	00:02:47			
09:29			00:02:32	
09:30				

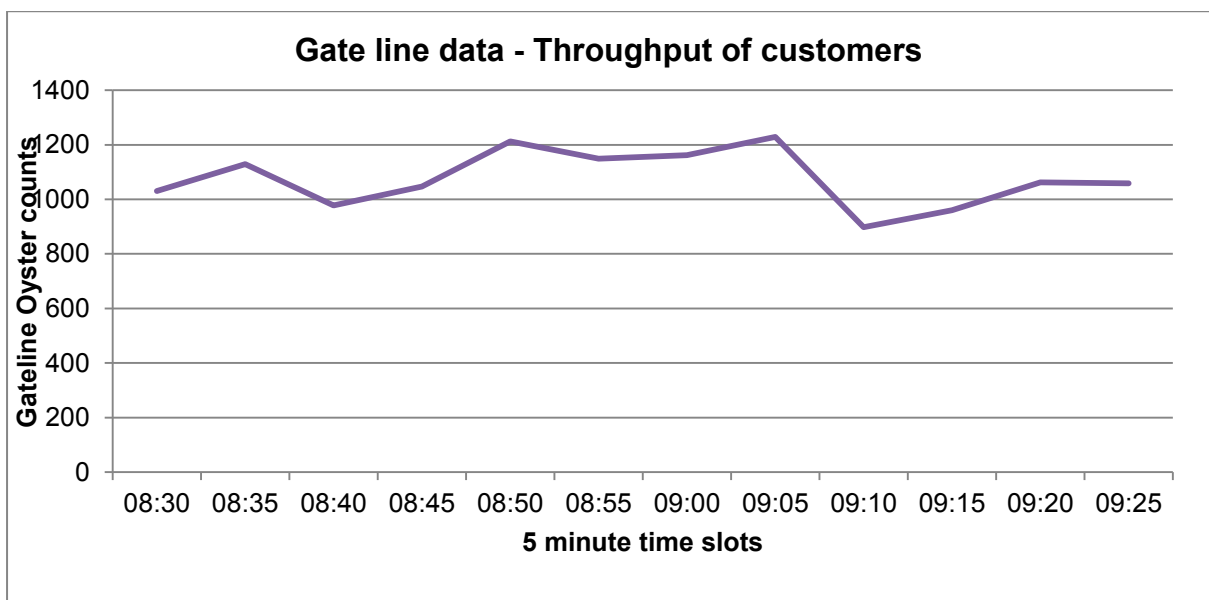
Figure 3 Head way data Thursday 26th Nov

Thursday 3rd Dec (Week 2, Day 4)

Graph 3 below shows the counter data for Escalator 6 and 7, whilst graph 4 shows the gate line data of customers exiting the station in the 1 hour time period. Compared to the data from Thursday 26th Nov, these graphs follow a fairly consistent projection of customers and peak in the expected time slots. Again, visually both graphs follow a similar trend and it can be assumed that no major delays or problems with either line were present on this day.



Graph 3 Throughput of customers on escalator 6 and 7



Graph 4 Throughput of all customers exiting the station

The counter data showed low throughput of customers at 8:40, 9:00 and 9:10, and high throughputs at 8:50, 8:55 and 9:05. These dips and peaks are also evident through the gate line data. Analysing the headway data in Figure 4 shows little inconsistency in train arrivals.

Time	Thursday				08:58	00:05:55	00:02:27	00:02:18	
	03 December 2015								
	Pic west	Pic east	Cen west	Cen east					
08:25					08:59		00:03:17		
08:26					00:02:26	00:02:26	00:02:21		
08:27									00:02:53
08:28					00:02:32	00:02:48	00:03:29	09:03	00:02:32
08:29					09:04		00:02:09		
08:30	00:02:30				09:05	00:02:28		00:01:26	00:02:18
08:31		00:02:47	00:02:06		09:06		00:01:50	00:01:25	
08:32	00:01:53				09:07		00:01:29		00:02:18
08:33		00:02:12	00:02:44	00:01:46	09:08	00:02:33		00:01:23	
08:34					09:09				
08:35	00:02:22	00:02:32	00:01:52	00:01:56	09:10	00:01:44	00:02:56	00:02:26	00:02:12
08:36					09:11				
08:37	00:02:47	00:02:09	00:01:52		09:12	00:02:02	00:02:07		00:02:06
08:38					09:13				
08:39					09:14	00:02:20	00:01:40	00:04:09	00:02:42
08:40	00:02:44	00:02:20			09:15				
08:41			00:03:38	00:02:55	09:16		00:01:32	00:01:32	
08:42			00:01:45		09:17	00:02:50		00:01:19	
08:43	00:02:18			00:01:37	09:18		00:02:09		
08:44	00:03:59				09:19	00:02:20		00:01:45	
08:45					09:20		00:01:44	00:01:29	00:05:43
08:46			00:03:14		09:21		00:01:38		
08:47	00:04:14			00:01:31	00:03:43	09:22		00:01:47	00:01:42
08:48				00:01:45	09:23	00:03:54	00:01:47		00:01:34
08:49			00:01:43		09:24				
08:50	00:05:58			00:02:09	09:25		00:02:07		00:01:54
08:51			00:01:53		09:26	00:02:39		00:03:52	
08:52	00:05:18			00:01:29	09:27		00:01:39		
08:53				00:02:24	09:28	00:02:02		00:01:35	00:02:18
08:54			00:01:46	00:01:37	09:29		00:02:23		
08:55					09:30				
08:56	00:06:04		00:01:28	00:01:37					
08:57									

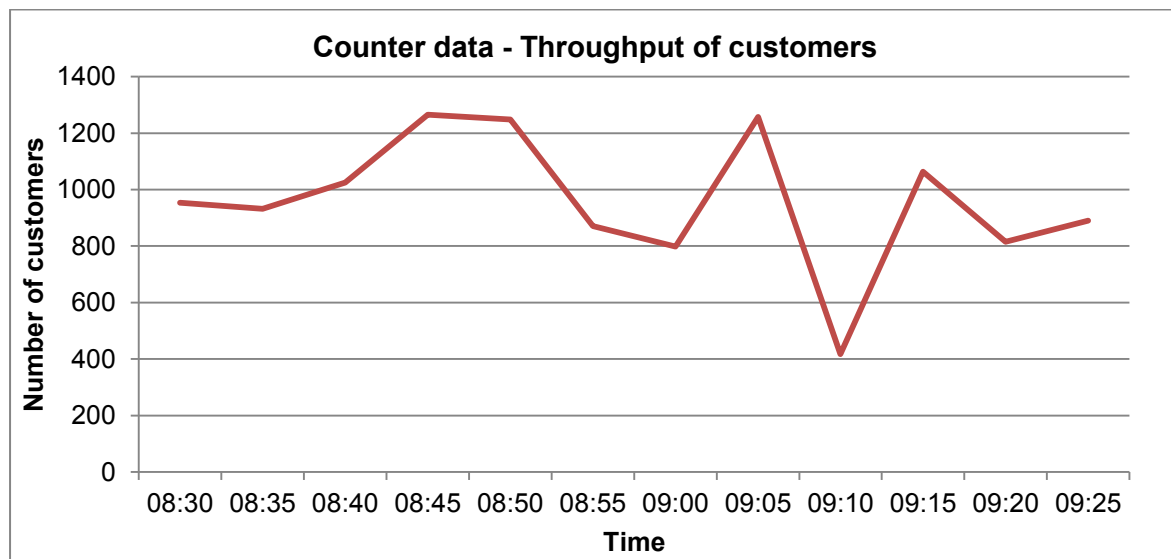
Figure 4 Headway data Thursday 3rd Dec

Figure 4 Headway data Thursday 3rd Dec

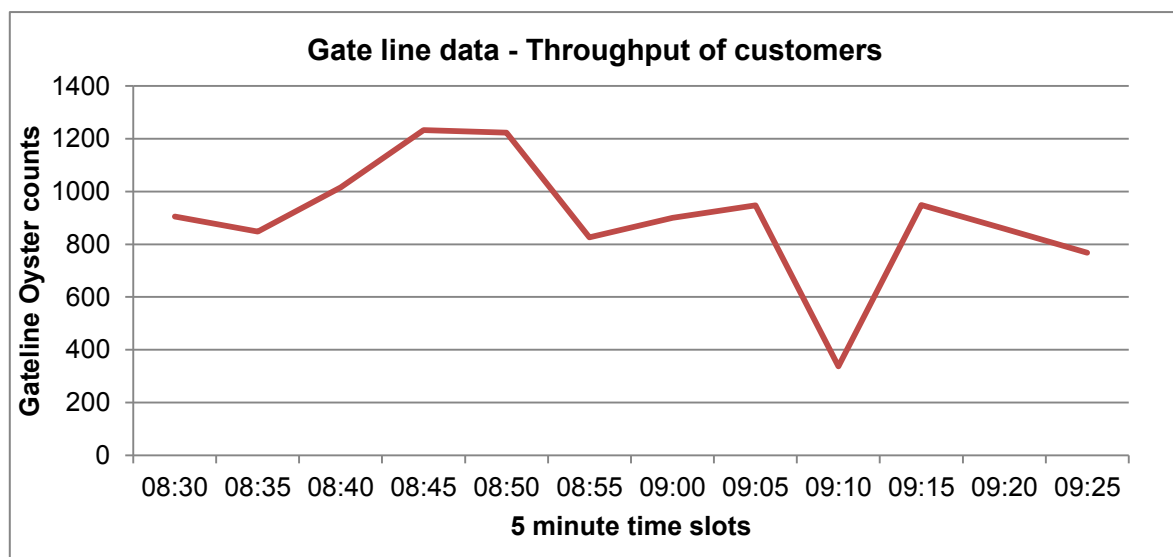
The large gaps only appear 5 times in the hour, noticeably less when compared to Thursday 26th November. This confirms that there were no major delays that extended over a 10 minute period. There is a visible grouping of delays between 8:45 – 9:00, taking into account the walking times from platform to mid-circulating area, the rise in customers at 8:50 and 8:55 can be accounted for. At 8:39, all 4 platforms would have been empty, this could be the reason 8:40 has one of the lowest counts of customers from both counter and gate line data.

Tuesday 8th Dec (Week 3, Day 2)

In week 3, all escalators were encouraged to be standing only, theoretically this means the gate line data and physical counting should be the similar, if not the same. Due to human errors there is approximately 8% discrepancy in physical counting and gate line data. Graph 5 shows the counter data from all 3 escalators on a particularly eventful day. Graph 6 shows the gate line data, and again they both follow a similar trend line. The peaks in customers are around 8:45, 9:05 and 9:15. It was noted by staff that there were particularly empty periods at 8:35, 8:55, 9:10 and 9:25; which could explain the high peaks since there would be a build-up of customers.



Graph 5 Throughput of customers on all 3 escalators



Graph 6 Throughput of all customers exiting the station

The head way data for Tuesday 8th December is shown in Figure 5 below. At 9:00 there was a trapped bag on escalator number 5, which is closest to the Piccadilly line. From the head way data, it can be deduced that the Piccadilly line had major delays between 8:55- 9:00; trains from both directions on the line came in at 9:01 which quantifies the dips and the peaks at 9:05. Between 9:08 and 9:11, there were delays on both lines in both directions; this is the cause of the exaggerated dip on the graphs.

Time	Tuesday			
	08 December 2015			
	Pic west	Pic east	Cen west	Cen east
08:25				
08:26			00:01:29	
08:27				
08:28	00:02:15		00:01:36	00:01:31
08:29		00:03:03		00:01:23
08:30	00:02:47		00:01:47	
08:31		00:02:12		00:01:27
08:32			00:01:58	
08:33			00:01:28	
08:34		00:02:27		
08:35			00:01:57	00:03:41
08:36	00:05:33	00:02:51		00:01:39
08:37			00:01:47	
08:38				
08:39	00:02:35	00:02:11	00:01:47	
08:40		00:01:42	00:01:37	00:03:35
08:41	00:02:29			
08:42			00:01:54	
08:43	00:02:20	00:02:25		00:03:07
08:44			00:01:49	
08:45		00:02:17		00:01:42
08:46	00:02:30		00:01:44	
08:47				00:01:50
08:48	00:02:05	00:03:27	00:02:13	00:01:55
08:49				
08:50	00:02:11		00:01:54	
08:51		00:02:56	00:01:28	00:02:15
08:52				00:01:41
08:53	00:02:24			
08:54			00:02:22	00:01:43
08:55		00:04:33		
08:56	00:03:19		00:02:28	
08:57				
08:58		00:02:10		00:01:54
08:59				
09:00				00:05:36
09:01		00:02:34	00:05:00	00:02:44
09:02				00:01:44
09:03		00:02:32		00:02:46
09:04			00:02:46	00:01:32
09:05		00:03:18		00:01:29
09:06				
09:07			00:02:42	00:01:23
09:08	00:04:08	00:02:44		00:01:34
09:09				
09:10				00:03:39
09:11		00:03:38		
09:12	00:04:47			
09:13		00:02:09		00:05:32
09:14				00:01:27
09:15	00:02:49	00:01:51	00:05:11	
09:16				00:01:32
09:17				00:01:27
09:18				
09:19	00:04:02		00:03:41	00:01:37
09:20		00:04:56	00:01:48	
09:21				00:01:45
09:22	00:03:29	00:02:25		
09:23			00:02:27	
09:24		00:02:32		00:02:56
09:25				
09:26				00:02:13
09:27		00:02:54	00:03:38	
09:28				00:02:19
09:29	00:06:40		00:02:54	

Figure 5 Headway data Tuesday 8th Dec

7.3 Customer Behaviour

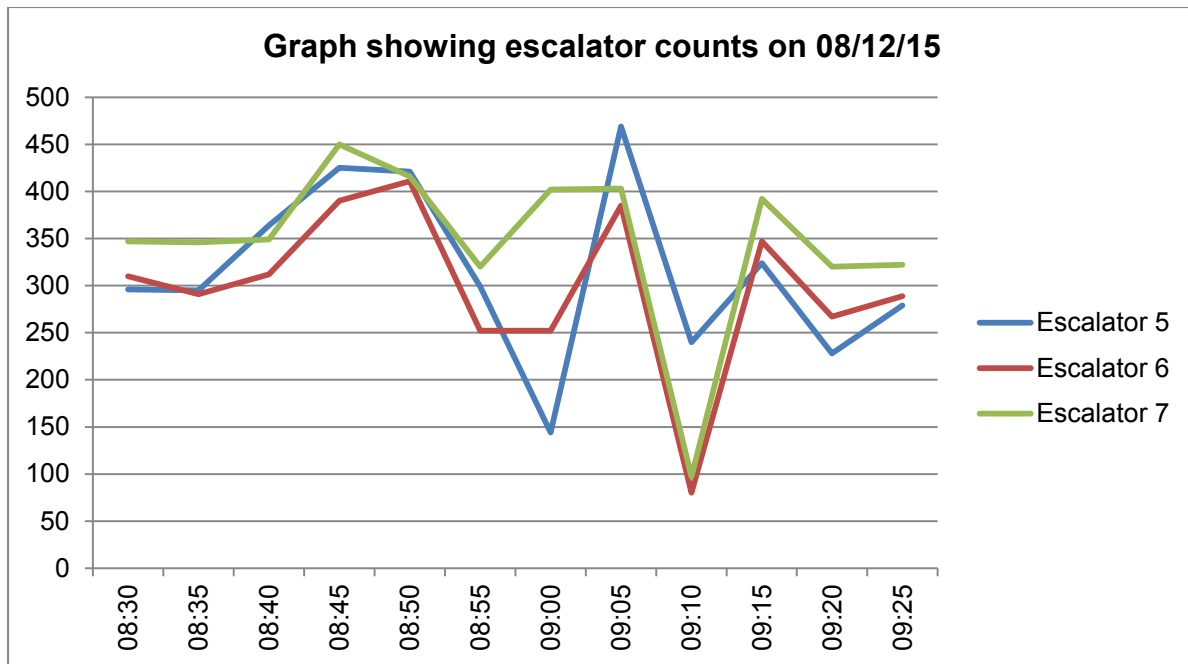
It was observed that customers exiting the central line would normally use escalator 7, and customers exiting the Piccadilly line would use escalator 5. Escalator 6 is the middle one in which where it seemed to be a mixture of the lines, but mainly still central.

Walking times from platform to the mid circulating area were recorded and this was used to create a table that showed busy periods (denoted by light pink), and quiet periods (denoted by dark pink). The busiest periods on the escalators should be in between the dark pink blocks. The data below is from the final week (8/12/15) of the trial where all 3 escalators were being tested.

Time	Central West	Central East	Pic West	Pic East
08:25				
08:26	08:26:32			
08:27				
08:28	08:28:01			
08:29	08:29:37			
08:30		08:30:05	08:30:08	
08:31	08:31:24	08:31:36		08:31:13
08:32		08:32:59	08:32:43	
08:33	08:33:22			
08:34	08:34:50	08:34:26		08:34:16
08:35				
08:36	08:36:47			08:36:28
08:37			08:37:25	
08:38	08:38:34	08:38:07		08:38:55
08:39		08:39:46		
08:40	08:40:21			
08:41	08:41:58		08:41:17	08:41:46
08:42				
08:43	08:43:52	08:43:21		08:43:57
08:44				
08:45	08:45:41		08:45:06	08:45:39
08:46		08:46:28		
08:47	08:47:25		08:47:25	
08:48		08:48:10		08:48:04
08:49	08:49:38		08:49:18	
08:50		08:50:00		08:50:21
08:51	08:51:32	08:51:55	08:51:58	
08:52				
08:53	08:53:00			08:53:48
08:54		08:54:10		
08:55	08:55:22	08:55:51	08:55:08	
08:56				08:56:44
08:57	08:57:50	08:57:34		

08:58			08:58:15	
08:59	08:59:44			
09:00			09:00:00	
09:01				09:01:17
09:02	09:02:28		09:02:00	
09:03		09:03:10		
09:04		09:04:54	09:04:06	
09:05	09:05:14			
09:06		09:06:26	09:06:50	09:06:17
09:07	09:07:56	09:07:55		
09:08			09:08:43	
09:09		09:09:18		09:09:35
09:10		09:10:52	09:10:40	
09:11	09:11:35			
09:12			09:12:36	09:12:19
09:13				
09:14				
09:15			09:15:22	09:15:57
09:16	09:16:46	09:16:24		
09:17		09:17:51	09:17:26	
09:18				09:18:06
09:19		09:19:23	09:19:30	09:19:57
09:20	09:20:27	09:20:50		
09:21			09:21:51	
09:22	09:22:15	09:22:27		
09:23				
09:24	09:24:42	09:24:12	09:24:16	09:24:53
09:25				
09:26			09:26:36	
09:27		09:27:08		09:27:18
09:28	09:28:20			
09:29		09:29:21	09:29:02	09:29:50

Using the table above, we can assume that when there are delays on the central line, escalator 7 should be less busy, and when there are delays on the Piccadilly line, escalator 5 should be less busy and vice versa. Using the counter data in the graphs below, customer behaviours can be correlated and quantified.



The graph above shows a high peak between 9:05 - 9:10 on Escalator 5. From the mid-circulating area table, a train on the eastbound Piccadilly line came in after a 4 minute delay. The customers from this train arrived in the mid-circulation area at 9:06, since the Piccadilly line is closest to escalator 5; this quantifies why there is a large peak on there.

Between 9:10 -9:15, there is very low count of people on escalators 6 and 7, the mid-circulating are table shows that only 1 train arrived from both eastbound and westbound directions In the 5 minute slot, and there were not any central line passengers exiting the station for 4 out of the 5 minutes counted. This again quantifies that central line customers tend to use Escalator 7 and 6, and Piccadilly line customers tend to use Escalator 5.

8. Summary of Outcomes

8.1 Safety

During the tests over the three weeks at Holborn, no injuries relating to escalators were reported. When compared to the period prior to the tests and against the same period last year, there were no statistically significant incidents.

Some customer behaviour was observed which posed some risk to themselves and others. When exiting escalators customers tended to show a lack of awareness regarding the flow of customers behind them e.g. bending to pick up dropped items, stopping to pull a case in a different direction, etc. With increased flows and numbers of customers exiting the escalators, the need to keep customers moving so as not to obstruct the flow, with the potential to cause a “pile up”, becomes more of a priority.

8.2 Congestion and Flow

Observations by stations staff and those implementing the tests confirmed that encouraging customers to stand on both sides of escalators does improve the flow of customers and relieves congestion. These observations were confirmed by comparing the number of customers using escalator 5 during the one hour tests in week 2 when it was the only escalator for walking, against the number of customers using escalator 5 in week three when customers were encouraged to stand on both sides. This comparison showed an approximate increase of 30% which agrees with the calculated prediction of increased capacity for standing on both sides of escalators at Holborn.

“Station control” was only implemented on one day during the first week of tests. Prior to the tests implementing “station control” was something which happened on an almost daily basis. This is a good indicator that flows had improved.

It was noted that service provision had a significant impact on customer flows.

8.3 Customer Behaviour

There was a wide variety of customer behaviours during the tests which were exacerbated by the intense media interest in the tests. Responses ranged from outraged to angry to quietly acquiescent to positively contributing. There were concerns about prevention of exercise, lateness, not believing that improving the flow in this way worked and many of these concerns were from people who did not understand how the tests were working. The media attention appeared to make customers feel less inhibited in expressing their feelings. The media attention had a major benefit in explaining in detail what the tests were trying to achieve. There were a significant number of customers who were interested and/or positive

about the tests. Some observed that they could see that the flows from the platforms had improved and others suggested ways to improve the tests.

Very few customers submitted feedback to TfL: there were 13 submissions from an approximate 130,000 customers affected by the tests.

Different staff from SRT had different styles of “encouraging” customers to stand on both sides of the escalators and most noted that humour worked best in achieving compliance.. It was observed that if customers stood side by side and talked, or held hands, customers behind them did not attempt to pass them.

Those customers who really wanted to walk found a way to do so. One man pushed a child aside so that he could walk, demonstrating how strongly ingrained the habit of walking can be that overcomes the social norm that prohibits the touching of other people’s children.

Standing on both sides of the escalators was most effective when the mid-circulating area was congested and minimal encouragement was used to get customers to stand on both sides of the escalators

9. Conclusions and Recommendations

In conclusion, regarding safety there were no significant incidents or injuries reported. Customer behaviours at the exit points of escalators do present some concern where interruption to customer flows are concerned.

The tests at Holborn were successful in easing congestion and improving customer flows. However, the tests required a large number of staff to implement, which is not viable on a daily basis. This is a consideration in how to take this forward.

Customer behaviour was only changed for the duration of the tests, with “normal” escalator usage resuming immediately that the tests were over. Some strong emotions were displayed by customers who wished to continue in their habitual routines, although most customers were compliant. A significant number of comments related to the wish to have at least one “walking” escalator for the purpose of speed, exercise and in case of lateness.

It is clear that implementing “standing only” escalators would not be suitable for all locations given that shorter escalators achieve greater efficiency when walking is permitted; not all locations have congestion issues which would benefit from this approach; and, each location varies in physical characteristics which could affect the efficiency of how the escalator is used.

A one year trial at Holborn is recommended where escalator 7 would be made a permanent “stand on both sides” escalator. As providing large numbers of staff is not viable, thought needs to be given as to how to implement this so that customers will comply. Various pilots for escalator safety are being carried out currently and some of these methods could be helpful if the pilots are successful. For example, an escalator handrail in another colour with an embedded message could differentiate the escalator from other “walking” escalators. Messages on risers, patterses and foot prints on steps are other initiatives which could be utilised.

A trial would also give a greater opportunity for work on changing customer behaviour by “nudges” rather than encouragement or enforcement.

Further to this, it is recommended that tests in other locations take place where certain criteria is met e.g. the escalators have a vertical rise greater than 18m; the escalators are part of a bank of more than two going in an upwards direction; the station has congestion issues, etc.

Bibliography

J.J. Fruin (1993), "The Causes and Prevention of Crowd Disasters", presented at First International Conference on Engineering for Crowd Safety, London

J.J.Fruin (1992) "Designing for Pedestrians", Chapter 8 of "Public Transport United States", http://ntl.bts.gov/DOCS/11877/Chapter_8.html

J.J. Fruin (1987), "Pedestrian Planning and Design", Revised Edition, Elevator World, Inc. Educational Services Division.

P. Davis, G. Dutta (2002), "Estimation of Capacity of Escalators in London Underground", File URL: <http://www.iimahd.ernet.in/publications/data/2002-11-01GoutamDutta.pdf>

Y.C. Lee (2005), "Pedestrian Walking and Choice Behaviour on Stairways and Escalators in Public Transport Facilities", Delft University of Technology.

D. Costescu, A.M. Ciobica, I.S.Mitro (2015), "On the Assessment of the Escalator Capacity in Metro Stations. Bucharest Metro Case Study", University Politehnica of Bucharest Scientific Bulletin, Series D, Vol. 77, Issue 4.

L. Lau (2015), "'MTR Hong Kong: Best Practice Share with the MTR Metro in Hong Kong".

P. Harley (2015), "Escalator Passenger Safety Strategy – Passenger Throughput Survey".

S. Larcom, F. Raunch, T. Willems (2015), "The Benefits of Forced Experimentation: Striking Evidence from the London Underground Network", University of Oxford, Department of Economics Discussion Paper Series, Number 755.

P. Dolan, M. Hallsworth, D. Halpern, D. King, I. Vlaer (2010), "MINDSPACE: Influencing Behaviour Through Public Policy", Institute for Government, UK.

"Escalator Injuries and Deaths and the Role of Design" (2011), Safety Research and Strategies, Inc. <http://www.safetyresearch.net/blog/articles/escalator-injuries-and-deaths-and-role-design>

"Guidelines for the Safe Operation of Escalators and Moving Walkways" (2011), Safety Assessment Federation <http://www.safetyresearch.net/blog/articles/escalator-injuries-and-deaths-and-role-design>

"Stop walking on escalators: Hong Kong divided over MTR plea for people to stand still ... but what do you think?" (2015), South China Morning Post, <http://www.scmp.com/news/hong-kong/education-community/article/1853813/stop-walking-escalators-hong-kong-divided-over?page=all>

Appendices

- A - Risk Register
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Appendix A – Risk Register

Purpose: To Investigate the Stand on The Left Pilot at Holborn

Subject: Safe Operational Pilot of SOTL

Moderator:

Date: 5th Nov 2015

Case No	Scenario			Estimate of Risk Elements		Protective Measures (Risk Reduction Measure)	After Protective Measures		Residual Risk
	Hazardous Situation	Harmful Event					S ^b	P ^c	
		Cause	Effect						
1.1	Passengers overcrowding on the lower concourse	Build-up of passengers on the concourse.	Passengers cannot get up the escalator.	3	C	Staff on site will monitor the passenger flow on both concourse route and exit escalators.	4	D	Passenger flow will be changed by the SOTL pilot.
		Passengers converging on concourse from Central and Pic Line	Passengers cannot get through the concourse to required lines.			SOTL abandoned. Return to normal passenger operations.			Passenger flow dynamics will be changes and will need monitored.
						Clear backlog of passengers due to dynamic passengers shifts.			Potential passenger frustration.
1.2	Passenger overcrowding on the upper concourse	Build-up of passengers on the concourse.	Gate line will be at capacity.	3	C	Staff manning gate line will have to expediently extract passengers that have ticket issues.	4	D	Passenger flow will be changed by the SOTL pilot.
		Additional passengers coming up on SOTL pilot [25% extra]	Passengers that hold up the flow will impact the throughput.			Taking the passenger away from the gate line will allow the flow to re-establish.			Passenger flow at the gateline is predicated on ticket compliant passengers.
			This could cause a backlog to the upcoming passengers.			Passengers that have ticket issues should be warned to make their way to the staff member at the gate line. Poster / comms through.			Opening the gate will allow passengers through with and without ticket issues.
						If flow becomes too much gates will have to be opened and oyster touch out only required.			Potential of revenue issues and passenger touch in / out issues electronically.

Case No	Scenario			Estimate of Risk Elements		Protective Measures (Risk Reduction Measure)	After Protective Measures		Residual Risk
	Hazardous Situation	Harmful Event					S ^b	P ^c	
		Cause	Effect						
1.3	Passengers upset / physically abusive to team members	The SOTL Pilot will inhibit passenger's right to walk up the escalator.	This behaviour is ingrained into passengers and stopping the option may cause passengers to get upset.	3	C	<i>Two weeks prior to the pilot posters and station comms will enforce the experiment.</i> <i>Staff member's "enforcing" the SOTL pilot will just talk to the member of the public.</i> <i>Staff members cannot force the passenger to comply. If the staff member feels threatened by the passenger then let them through.</i>	4	D	<i>If the member of the public refuses to comply then the staff member will allow the passenger through.</i>
1.4	Escalator fails during test	The Escalator stops during the trial. Passenger Stop Activation Escalator failure.	Passengers will be stopped on the machine. Passengers will have to walk up the escalator.	2	C	<i>Passenger activates Stop.</i> <i>Clear Passengers off escalator, restart machine, reinitialise SOTL pilot.</i> <i>Escalator Equipment Failure</i> <i>Clear Passengers off escalator, Investigate failure at controller, initialise restart. If no restart leave as walk up.</i> <i>Have an escalator engineer on stand by.</i>	4	C	<i>If an escalator fails during the pilot, stop testing and return back to normal operational SOTR.</i> <i>As Per Rule Book 9, Section 33</i> <i>Esc engineer returns esc back to passenger service. Restart SOTL, record gap in data.</i>
1.5	Fire alarm sounds during test	Fire alarm is activated and station is to evacuate	Passenger are to be evacuated from the station	2	C	<i>Fire alarm is activated. SOTL is abandoned.</i> <i>Normal evacuation protocol actioned.</i>	4	C	<i>Ensure passengers vacate in an orderly manner.</i> <i>Follow Fire Compliance Plan (P055 1- ac 006)</i>
1.6	Passenger incident / accident on incoming train	Passenger comes into station sick and required staff attention	Passenger needs to be evacuated from station ASAP.	3	C	<i>SOTL continues.</i> <i>Staff members remove ill passenger as per standard rule book practice.</i> <i>Normal passenger evac protocol actioned.</i>	4	D	<i>As Per Rule Book 11, Section 7</i>

Case No	Scenario			Estimate of Risk Elements		Protective Measures (Risk Reduction Measure)	After Protective Measures		Residual Risk
	Hazardous Situation	Harmful Event					S ^b	P ^c	
		Cause	Effect						
1.7	Passenger overcrowding onto train platform	Passengers backed up down to the platform.	Passenger capacity is exceeded. Station becomes exit only	3	C	SOTL abandoned. Return to normal passenger operations. Review of CCTV will assist in predicting passenger influx to lower concourse. Passenger flow inhibited by exit only and non stop train protocol.	4	D	Passenger flow dynamic causes backlog down adjoining tunnels. It is unknown how this will manifest. Best endeavours of concourse champion to give early warning. CCTV controller to have direct comms with concourse champion.
1.8	Gate line fails during trial	One or more gate in the line fails.	Passenger backlog due to SOTL causes overcrowding.	3	C	Staff member's open the gate line to oyster touch only / an open exit. SOTL continues, station supervisors discretion.	4	D	Passenger flow will be changed by the SOTL pilot. Passenger flow at the gate line is predicated on full working system Opening the gate will allow passengers through with and without ticket issues. Potential of revenue issues and passenger touch in / out issues electronically.

a	To carry out the SOTL Pilot there needs to be enough staff members to ensure any issues with the lower platform, gate line and escalators are
	Mitigation is in place is predicated on communication between staff members at their location and allocated station.
b	S ~ Levels of severity of the harm (see 4.5.3)
	<div>1~High</div> <div>2 ~ Medium</div> <div>3 ~ Low</div> <div>4 ~ Negligible</div>
c	P ~ Levels of probability of occurrence of harm (see 4.5.3)
	A ~ Highly probable B ~ Probable C ~ Occasional D ~ Remote E ~ Improbable F ~ Highly improbable

Risk Group	Risk Levels	Measures to be taken
I	1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B	Protective measures require to reduce risks
II	1E,2D, 2E, 3C, 3D, 4A, 4B	Review is required to determine whether any further protective measure is appropriate, taking into account the practicability of the solution and societal values ^a
III	1F, 2F, 3E, 3F, 4C, 4D, 4E, 4F	No action required
^a Society will not tolerate some specific risks. Further measures can make use, service, etc. of the escalator impractical or impossible.		

Stand on the Left of Escalator Pilot at Holborn

Aims:

- To increase customer safety (fewer slips, trips and falls if standing still)
- To increase throughput (Holborn has long escalators where walking space on the left of the escalator could be better utilised as standing space). Calculations by Paul Stoneman and concurred with by Ian Butcher, suggest that throughput could be increased by 25 – 30 %, but it is likely to be less in practice.
- To influence customer behaviour (can it be changed within the limit of the test?)

Dates:

- Risk assessment 19/11/2015
- Base data collection w/e 20/11/2015
- Station staff briefing w/e 20/11/2015
- SRT/Volunteer staff briefing to be carried out before/at the beginning of the first shift of test they are involved in
- Pre-warn posters to be displayed from Monday 16/11/2015
- Holborn customer pre-warn emails to be sent out Wednesday 18/11/2015
- Information posters to be displayed throughout test period 23/11/2015 – 11/12/2015
- Week one: escalator 7 customers encouraged to stand on both sides, 0830 – 09:30 Monday to Friday. (23 – 27/11/2015)
- Week two: escalators 6 and 7 customers encouraged to stand on both sides 08:30 – 09:30 Monday to Friday (30/11/2015 – 4/12/2015)
- Week three: escalators 5, 6 and 7 customers encouraged to stand on both sides 08:30 – 09:30 Monday to Friday (7 – 11/12/2015)
- Post pilot data review to take place on 18/12/2015

Mechanics of tests and staffing:

Week one: A member of staff will be placed at the bottom of escalator 7 to encourage customers to stand on both sides of the escalator. An observer will stand at the back wall on the mid-circulating area to monitor crowd behaviour and assist as necessary. A counter will be placed at the top of escalator 7 to count customers leaving the escalator using a "clicker" counter. A second observer will be located where they can observe crowd behaviour and assist as necessary. At the end of week one a CCTV download request will be made for observation of crowd behaviour and counting.

Week two: Two members of staff will be placed at the bottom of escalators 6 and 7 to encourage customers to stand on both sides of the escalator. An observer will stand at the back wall on the mid-circulating area to monitor crowd behaviour and assist as necessary. Counters will be placed at the top of escalators 6 and 7 to count customers leaving each escalator using a "clicker" counter. A second observer will be located where they can observe crowd behaviour and assist as necessary. At the end of week two a CCTV download request will be made for observation of crowd behaviour and counting.

Week three: A member of staff will be placed at the bottom of escalators 5, 6 and 7 to encourage customers to stand on both sides of the escalator. An observer will stand at the back wall on the mid-circulating area to monitor crowd behaviour and assist as necessary. Counters will be placed at the top of escalators 5, 6 and 7 to count customers leaving each escalator using a "clicker" counter. A second observer will be located where they can observe crowd behaviour and assist as necessary. At the end of week one a CCTV download request will be made for observation of crowd behaviour and counting.

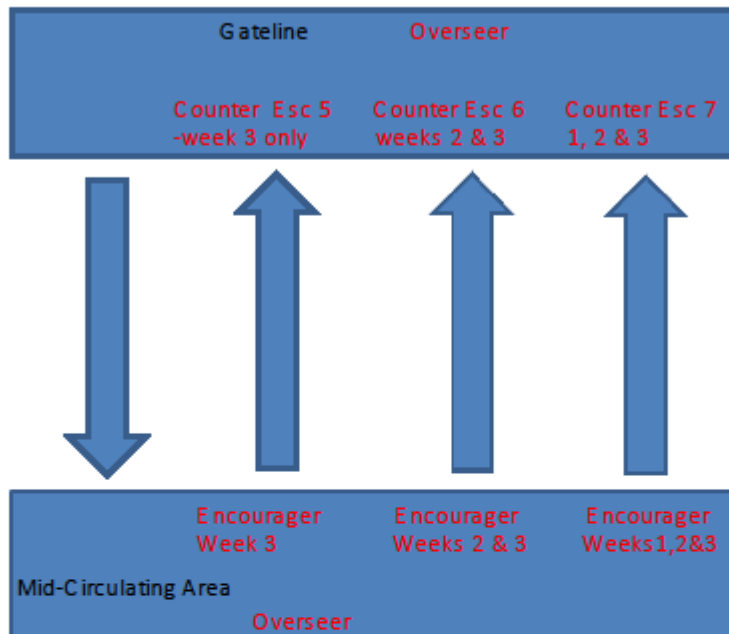
Staff: The tests will be carried out by a combination of SRT and "volunteers" from L&E and S&SD. Non-operational staff will be identified by pink hi-vi tabards. Station staff will not be taken from their normal duties. SRT staff will attend 07:00 – 10:00 to allow time for familiarisation and briefing prior to the test start time. "Volunteers" will be briefed prior to the test start times.

Communications:

- Pre-warn posters to be displayed in poster frames in mid-circulating area from 16/11/2015
- Pre-warn emails to be sent to Holborn customers on 18/11/2015
- Posters to be displayed during test dates with information about tests
- PAs to be made during test period on station (script to be provided)

See next page for diagram of staff positioning

Staff positioning Diagram



Initial Risks:

- If throughput is increased by as much as 30% crowding on the paid side of the gate line could cause over-crowding as customers try to exit
- Customer complaints about being encouraged to stand (particularly in week 3)

Premature termination of test:

- If there appears to be a risk of over-crowding, the test will be terminated immediately
- If anything occurs which appears to endanger the running of the station the test will be terminated immediately.

Central and Waterloo & City line bulletin



From: Malcolm Bate
To: Holborn station staff
Date: 16 November 2015

Escalator Testing at Holborn

There is to be a three week period of testing to see if we can use escalators more efficiently at Holborn.

Aim: to use the escalators exiting Holborn station more efficiently and safely by encouraging customers to stand on both sides, rather than walk; to encourage customer behaviour change.

Dates/times: this will be between 08:30 and 09:30 on weekday mornings from Monday 23 November to Friday 11 December 2015.

Where: the trial will take place at Holborn Station on the bank of escalators 4 - 7. The first week will be on escalator 7; the second week will be on escalators 6 and 7; and the third week will be on escalators 5, 6 and 7. These escalators go up from the mid-circulating area to the gate line/ticket hall/exit area.

How: customers travelling up from the mid-circulating area will be encouraged to use both sides of the escalator to stand on – not just the right hand side of the escalator. It is estimated that each escalator could carry 25 – 30% more customers if everyone stands. Standing still would also reduce slips, trips and falls. Extra staff (not station staff) will be positioned to encourage customers to do this. There will also be communications e.g. PAs, posters, emails to Holborn customers affected by the trial.

Termination of testing: if the station supervisor deems at any point that the testing should not continue e.g. for safety reasons such as stopping of an escalator causing over-crowding, the testing will stop immediately.

Further information: for any further questions, please contact me.

Malcolm Bate
Area Manager

Escalator Testing at Holborn: Brief For Volunteers and SRT

There is to be a three week period of testing to see if we can use escalators more efficiently at Holborn.

Aim: to use the escalators exiting Holborn station more efficiently and safely by encouraging customers to stand on both sides, rather than walk; to encourage customer behaviour change.

Dates/times: this will be between 08:30 and 09:30 on weekday mornings from Monday 23rd November to Friday 11th December 2015.

Where: the trial will take place at Holborn Station on the bank of escalators 4 – 7. The first week will be on escalator 7; the second week will be on escalators 6 and 7; and the third week will be on escalators 5, 6 and 7. These escalators go up from the mid-circulating area to the gate line/ticket hall/exit area.

How: customers travelling up from the mid-circulating area will be encouraged to use both sides of the escalator to stand on – not just the right hand side of the escalator. It is estimated that each escalator could carry 25 – 30% more customers if everyone stands. Standing still would also reduce slips, trips and falls. Extra staff (not station staff) will be positioned to encourage customers to do this. There will also be communications e.g. PAs, posters, emails to Holborn customers affected by the trial.

Termination of testing: if the station supervisor deems at any point that the testing should not continue e.g. for safety reasons such as stopping of an escalator causing over-crowding, the testing will stop immediately.

Your role: You will be asked to either be an “encourager”, “Counter” or “observer”.

“Encouragers” will stand at the bottom of the escalators being used to stand on both sides and will ask customers to stand on both sides of the escalator as part of a test to use escalators more efficiently.

“Counters” will stand at the top of the escalators being used to stand on both sides and will be issued with a clicking device to count numbers of customers coming off the escalator in question.

“Observers” will be located either at the back wall of the mid-circulating area, or on the paid side of the gate line at a point where they can see customers coming off the escalators and gates being used to exit.

Volunteers will sign in as visitors and will be briefed as a visitor (e.g. what to do and where to go if the station is evacuated, etc.) and then briefed on the testing to be carried out. In the case of evacuation, volunteers will exit the station and go to the RVP (rendezvous point).

SRT will be familiarised, if not already familiarised. They will then be briefed on the testing to be carried out. In the case of evacuation, SRT staff will follow the station supervisor’s instructions.

Appendix C – Customer Feedback to Customer Contact Centre and by Email

Customer Feedback Given to Customer Care Centre

Date / Time of Incident	Contact type	Ref	Reason	Station of Incident	Start Station	Finish Station	Summary	Time reported
01 Dec 2015 09:00	Complaint	6189400	Crowding	Holborn	n/a	n/a	<p>My complaint is actually not about overcrowding but the testing of not walking up/down the escalators but standing on both sides at Holborn station.</p> <p>It will simply not work. Everybody hates it and nobody is willing to do it. Also, it doesn't make sense to stand instead of walk up/down the escalators if what we want to reduce is crowding. If we can walk up/down the escalators then people can leave the station quicker.</p> <p>I guess you have already come to this same conclusion anyway. I'm sure there are many-many people who feel the same way.</p> <p>I hope this test at Holborn station will be abandoned as soon as possible.</p>	16:08
01 Dec 2015 09:05	Complaint	6187553	Crowding	Holborn	n/a	n/a	<p>I would like to make a couple of comments about the current trial of standing on both sides of the escalators.</p> <p>1) The speed of the escalators are much slower in London than many other European cities, therefore especially in the rush hour it would take a long time to get out of the station. Even now it takes me over 5 minutes from platform to street level and I walk up the escalator.</p> <p>2) With the ever increasing obesity levels in the UK, I think stopping people having a little bit of an exercise is a bad move.</p> <p>3) Do you have plans to roll this system out to the whole network? I would most definitely oppo</p>	13:34
07 Dec 2015 08:30	Enquiry	6203740	Station Facilities	Holborn	n/a	Holborn	<p>For some reason (no explanation offered) there is an 'experiment' at Holborn whereby all 3 up escalators were attempting 'standing only' this morning.</p> <p>I understand this is a busy station and that lots of people prefer to stand, but not keeping even one escalator for those who are prepared to walk up seems pointless in the extreme.</p> <p>Needless to say one escalator became left hand walk in the usual way</p> <p>Can this be corrected to permit at least one escalator to offer the option of walking up? people would be able to exit the station more rapidly that way.</p>	12:19

08 Dec 2015 08:35	Complaint	6208149	Accessibility	Holborn	Wood Green	Holborn	<p>Hi</p> <p>I have noticed that for the last couple of days passengers have been told to stand on both sides of the escalators. There is no scope to walk up. This makes no sense for those of use who wish to keep fit and move swiftly. If this has been introduced to improve the flow of passengers then instruct everyone to walk up the stairs. Why in this age of growing obesity levels are you encouraging people to exercise less. At the very least you could reserve one escalator for those of us who wish to climb stairs. This instruction prohibiting people from walking up the stairs is completely unreasonable.</p> <p>With kind regards</p>	13:35
09 Dec 2015 09:30	Complaint	6211265	Crowding	Holborn	n/a	n/a	<p>This morning, tube staff were conducting an experiment to reduce crowding by allowing people to stand on both sides of all three rising escalators. This follows recent experiments allowing people to stand on both sides of only one escalator.</p> <p>This is in principle a sensible measure, and certainly worth testing, given the height of the escalators and the reluctance of many people to walk the whole way up. I also appreciate the the success/failure of the test will be largely decided by quantitative results - does it increase or decrease the efficiency of getting people out of the station. However, I think it's also worth me adding some more qualitative and subjective feedback.</p> <p>I like walking up the escalators. It gives me a bit of exercise, it breaks up slightly the time between standing/sitting on the tube for half an hour and sitting in my office for most of the day, and it gives me a slightly superior feeling of saving time and being more produc</p>	11:24

09 Dec 2015 08:45	Complaint	6210507	Safety & Security	Holborn	n/a	n/a	<p>Please stop the madness at Holborn station. The idea is completely ridiculous. Here are a few pieces of food for thought. As an aside, I can't believe you this idea made it through the approval stage. I sincerely hope that a review will be taking place to determine who was at fault and was incompetent enough to allow such insanity to effect thousands of people.</p> <p>SAFETY It is insanely busy near the ticket barriers as more people get off the top at once. If one gate breaks then the lobby just keeps getting fuller. There is not space for this many people.</p> <p>LAZIES There seems to be a misconception that everyone who stands is either disabled or elderly. Do you really think more than half of the people on the tube at rush hour fall into these two categories? The people waiting to stand on the escalator are not in a rush. They do not mind waiting 20 extra seconds to get on when they have already sacrificed two minutes</p>	09:20
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Customer Complaints via other routes

6215631

Hello, I am writing about the extremely dangerous and foolhardy idea to no longer allow people to walk up the escalators which happened to me last week in the morning at Holborn. The morning is a busy period in London, one of the busiest cities in the world. People, myself included, will not tolerate being held up by some stupid, inconsiderate red tape. Personally, I will be pushing the people in front of me to squeeze through regardless if they are stupid enough to stand on the walking side. I hope when accidents happen you will be aware this is entirely the fault of management.

9681

I have read that you are about try to an experiment of preventing walking up escalators in Holborn tube. This is dreadful news. We are constantly being told to exercise more - walking up escalators is one of the few ways of effectively doing so in the course of a daily routine. I don't use Holborn regularly, but would hate this idea to spread - the result would be more porky Londoners.

6176666

The customer has said that Holborn Station is trialing a new escalator system in which customers cannot walk up and down the escalators, and have to remain on the escalators. The customer has said that she objects to this trial, as it is not practical for London commuters. The customer has also said that this makes her commute to work longer

6202974

Having used Holborn to travel to work for the last 3 years I'm very aware of the severe crowding the station experiences.

The 'stand on both sides' initiative is certainly an interesting idea to trial and I'm glad that someone has thought of it and that there is the willingness to see if such ideas help.

That said, if your aim is to move people up the escalators faster then 'walk on both sides' might be a better approach with the added benefit of being good for people's health - an opportunity to work with a health group / charity to promote walking up escalators across the network.

Of course, not everyone is capable of walking up the escalators so you'll want to have at least one where the usual stand-on-the-right applies.

In the same way as not everyone can walk, NOT EVERYONE WANTS TO STAND. You have people at the top of the escalators counting the volume of people moving through. Perhaps also count the number of frustrated faces - a lot of people want to walk up the escalator and looking around I could see a lot of people who were annoyed we weren't able to. So if you are focused on introducing 'stand on both sides' then please leave one escalator where the usual stand/walk rules apply so those of us who want to walk aren't prevented from doing so.

I was getting so antsy standing on the escalator that I was actually contemplating clambering onto the silver central reservation and walking up that ... not so easy in work shoes. Despite how long the escalator is, I would rather walk up stairs than stand on it.

PLEASE DO NOT MAKE ME STAND - LEAVE ON ESCALATOR AS WALKING/STANDING. If you did that I wouldn't be opposed to this scheme - as it is I am.

1017470329

Holborn is the station I use for work. I wholeheartedly support the objective of the current crowd management strategy in encouraging passengers to stand both sides of the escalators. I am doing my best to help you, I really am but there has not been sufficient change in crowd behaviour for me to believe the strategies employed by TfL are effective. With all due respect to those employed to implement a change, might I also suggest employing a behavioural psychologist to assist with these changes. I am sure you are aware of the difficulty in implementing widespread behavioural changes in people with ingrained habits, in this case standing on the right side of the escalators. Unfortunately the research does not support behaviour change resulting from merely being told to engage in another behaviour. I thus do not think the current strategy of shouting at people to stand both sides will induce any long term effect. It is also unlikely to be sustainable in the long term. Behaviour change can however be induced in human participants in much the same way as it can in animals. In the absence of employing a psychologist to assist you with this I respectfully suggest you employ a number of university students who can infiltrate the crowd as normal passengers and model the correct behaviour (standing on the left). Others will follow suit quickly enough. As a secondary measure it would also be beneficial if those who did stand on the left were rewarded for doing so. In this case, quicker exit through the barriers for left hand side standees would be sufficient. For now I will continue to assist by standing on the left but this is not a battle one person can win, please send reinforcements.

6215631

Please stop the madness at Holborn station. The idea is completely ridiculous. Here are a few pieces of food for thought. As an aside, I can't believe you this idea made it through the approval stage. I sincerely hope that a review will be taking place to determine who was at fault and was incompetent enough to allow such insanity to effect thousands of people.

SAFETY

It is insanely busy near the ticket barriers as more people get off the top at once. If one gate breaks then the lobby just keeps getting fuller. There is not space for this many people.

LAZIES

There seems to be a misconception that everyone who stands is either disabled or elderly. Do you really think more than half of the people on the tube at rush hour fall into these two categories? The people waiting to stand on the escalator are not in a rush. They do not mind waiting 20 extra seconds to get on when they have already sacrificed two minutes by making the CHOICE not to walk.

KNOCK ON EFFECT

There are already enough idiot tourists on the tube who try to stand on the left. By introducing such a ridiculous system, all of the tourists who have used Holborn will assume this is standard practice across the whole network and cause even more incidents as people push them out of the way.

KNOCK ON EFFECT 2

There are people like me who hate this system so cannot get off at Holborn anymore. Instead, I change from the Piccadilly line to get the central line to Chancery Lane where I can exit as normal. In doing this, I am INCREASING the number of people in the tunnels – exactly the opposite of what you are trying to achieve.

COMMON SENSE

Tons of people are ignoring the notices and are continuing to walk. Doesn't this show that standing on both sides is NOT what people want? I am absolutely flabbergasted that you haven't even reserved one escalator for walking during this outrageous trial.

THIS ISN'T AMERICA

Please stop trying to encourage laziness, the obesity problem is bad enough as it is.

To conclude, the tube used to be a beautiful thing. Unfortunately, the people who designed and made it are deceased and their legacy has been destroyed by those who run it these days.

Email complaint:

As a commuter to Holborn station everyday I have been subject to the barking orders and obvious frustration of staff in their vain attempts to get the population to change a habit of a life time. Could I suggest that this can easily be avoided by a member of staff wearing HiVi jacket stepping on at the bottom of escalator and blocking the way. Another member of staff should be ready to step on at the bottom when his colleague has reached the top. This could be accompanied by some calm announcements reassuring the public that all is well and the purpose of the exercise.

Appendix D - Twitter

Tweets

People who stand on the left of the escalators 🤪🤪🤪 #TfL #UndonUnderground

I'm curious; what is the `test` at #Holborn all about? We're only allowed to stand on the right exit elevator @TfL

@TfL filming #holborntubestation so this morning.. Shouting stand both sides so people walk through the middle...#special #confused

TfL staff at Holborn asking people to stand on both sides of escalator
<https://t.co/qO6cGa5xZ8>

Nooo...I don't like this idea at all #tfl #holborn #escalatoretiquette
<https://t.co/bPQEzm3IDM>

This is the end of civilisation as we know it. @TfL have introduced a `stand on the left` policy at Holborn tube. <https://t.co/whJOSS9lKN>

██████████ A `standing only` escalator is a slow lift, not an escalator. Classic TfL non-solution to a (cough) escalating problem.

If anyone tries this TFL standing-only escalator thing on airport travelators, someone's gonna lose their face.

██████████ I'm totally with you on this. I never stand on escalators! @TfL don't encourage laziness, at least give people a choice!

TfL are trialling `standing only` escalators at Holborn. Is this an April fool's?!
<https://t.co/UrCLqetQ8H> <https://t.co/LVQWlvms4c>

@TfL you need to make it clearer which escalator you are testing `stand only` at covent garden. I got abused by people trying to walk up.

@TfL Sorry, I meant Holborn not covent garden.

Standing on the left at Holborn? Sacrilege @TfL

If TFL force us to stand on the left on escalators I'm moving to Guam.

Are TFL going to trial handing out medals to people who walk on the escalator but stop at the top next? IT IS POLITICAL CORRECTNESS GONE MAD

#Are #TFL #going #to #trial #handing #out #medals #to #people #who #walk #on #the #escalator #but #stop #at #the #top #next? #IT #IS...

TfL has abandoned one of the oldest Tube rules during a pilot scheme meant to ease congestion on the Underground <https://t.co/mWr5UvCkKh>

How will this help ease congestion on the tube? @TfL Londoners being made to stand on the LEFT side of escalators <https://t.co/NttVZvy0Yg>

Interesting to see @TfL pilot standing only escalators during peak hours as apposed to 2% of fit or late Londoners that walk on left

So why has TfL introduced standing-only escalators at Holborn tube?
<https://t.co/e6mRepc9YG> <https://t.co/IQHrW3ALdB>

`Stand on the right AND left`: Why has TfL introduced standing-only escalators? <https://t.co/j9kIBMmHvf> AAAH!

Apaz @TfL will employ people to stand at top and bottom of stairs to stop would-be-movers. A fine way to spend London`s council tax #WTF

London Blog: Holborn Tube Station Trials Standing-Only (No Walking) Escalators as TfL Tries to Speed Up Exit - <https://t.co/9b7gcHkccE>

Tube station abandons `stand on the right` escalator rule at Holborn @TfL @Telegraph
<https://t.co/mZDvUicUgi> #tutor #travel #London

@TfL get your head out your a@*e in regard to your new escalator plan.....

London #underground station trial abandons `stand on the right` escalator rule @TfL
<https://t.co/4xrm8lz3Ux>

This is just wrong! @TfL #Sacrilige Tube station abandons `stand on the right` escalator rule | @Telegraph <https://t.co/986H0zla8u>

Londoners are being made to stand on the LEFT side of the escalators at Holborn
<https://t.co/heugEVgpoP> #TfL #LU #London #Underground

I've literally never seen anyone stand on the f<BLEEP>king right at #HolbornStation anyway so go on @TfL

#Holborn @TfL myl enjoyable thing when travelling in Ldn is berating innocent tourists if theyre stood on the left. Don`t take this from me

How can the #TfL people @ Holborn station be telling commuters to stand on the LEFT!!! Don`t they know that`ll just cause RAGEEEEE!!!! ☹️☹️

What! `at Holborn, TfL is currently trialling a new system - where commuters stand on BOTH sides of the escalator` <https://t.co/N7uE97kqw4>

I can`t abide standing on the escalator. Behave yourselves TFL <https://t.co/6lxLI2FMXO>

Londoners confused by new rules about where to stand on Tube escalators. It`s utter bulls<BLEEP>t. GB #TfL #London #tube <https://t.co/yR5wWuNwKz>

@TfL who decided the new rule of standing on the LHS of the escalator at Holborn Stn? What a load of rubbish! #Holborn

What about one escalator where you walk up on both sides, next to one where you stand?
[@standardnews @TfL https://t.co/fAFEC0af4T](https://t.co/fAFEC0af4T)

What???? @TfL You can`t just change the tube escalator rules??? #outrageous
<https://t.co/gHVDIQEumH>

What are the new #Holborn rules @TfL? #mystified <https://t.co/zSC8AYji62>

People are being asked to stand on the left side of the `up` escalator in Holborn to cut queues. <https://t.co/UVfjme3Bzu> #TfL #London

[@TfL - stupid, confusing escalator `policy` at Holborn.](#)

The Escalator Dilemma we know well in Bp, now starts @TfL too: stand on the right or both sides? What do u think? <https://t.co/TUNlzvtWls>

`Stand on both side` wtf @TfL <https://t.co/BZ3hUDJBeE>

#Holborn we stand both sides #Underground #Vodanile #London @TfL

Business as usual at Holborn this morning, it takes more than a few @TfL posters to change the habits of Londoners! <https://t.co/lengcizl9Q>

██████████ TfL said it had no plans to roll the trial out across all of the Underground's 430 escalators. `beter!!

[@TfL wants us to stand on BOTH sides of the escalator? THE END IS NIGH!!](#)
<https://t.co/GGaA5XYyT9>

TfL Wants London Commuters to Stand on Both Sides of the Escalator, Because Walking is Bad <https://t.co/gidNvK2Mcy>

TfL wants commuters to stand on both sides of the escalator, to reduce congestion
<https://t.co/G40BcPRux4> <https://t.co/SQ80w4lNMp>

TfL Wants London Commuters to Stand on Both Sides of the Escalator, Because Walking is Bad <https://t.co/fMwjGf9Yos>

TfL Wants London Commuters to Stand on Both Sides of the Escalator, Because Walking is Bad Has the world gone mad?

TfL Wants London Commuters to Stand on Both Sides of the Escalator, Because Walking is Bad <https://t.co/wpexMpxGA6...> <https://t.co/XlilovTw9d>

[Abandoning `stand on the right` is ridiculous. @TfL don't you want to be standing on the right side of history? #puntastic #bring<BLEEP>tback](#)

[Abandoning `stand on the right` is ridiculous. @TfL don't you want to be standing on the right side of history? #puntastic #bring<BLEEP>tback](#)

[@TfL The @MayorofLondon shows his support of @jeremycorbyn by getting commuters using an escalator `to stand on the left` @CCHQpress #Labour](#)

[Noooo! Stand on the right - and dogs must be carried \(took me ages to find a dog last time I used TfL escalators\) <https://t.co/247TjyJ6x5>](#)

[Stand on both sides? That's stupid! If anything we should encourage walking up the escalators. @TfL #VivaLaStandOnTheRight.](#)

██████████ La TfL pense que le flux de personnes sera mieux régulé si les gens tiennent la droite ET la gauche de l'escalator.

This is why TfL has introduced standing-only escalators at Holborn tube station
<https://t.co/e6mRepc9YG> <https://t.co/IQHrW3ALdB>

@tfl want us to stand on BOTH sides of the escalators?!?! This is total idiocy and it will not work <https://t.co/NUe0NK4PQ5>

Anyone that travels on the #tube will know you stand on the right and walk on the left...@TfL what is this standing madness at #Holborn ?

Not allowing people to walk up the escalators at Holborn is a joke, right? @centralline

TfL Wants London Commuters to Stand on Both Sides of the Escalator, Because Walking is Bad | Gizmodo UK <https://t.co/BSgdXuibAO>

██████████ @nfmusic @TfL Also, bombing up the escalator is a great cardiovascular workout for the desk bound.

AS IF London commuters will `stand` for this *sn<BLEEP>r* No but seriously, behave TFL.
<https://t.co/Wlnud4gFW8> #tfl #holborn

Glad to see man with megaphone at Holborn is mostly ignored. Many of us want to walk up escalator. #holborn #underground #tfl #stupididea

New TFL test. All safe here. <https://t.co/ljJIs3YL9b>

Madness! TfL Wants London Commuters to Stand on Both Sides of the Escalator, Because Walking is Bad <https://t.co/lzX62HjoNh>

The futility of TfL's new `stand on both sides` policy in 14 seconds - British people find it impossible to comply <https://t.co/WgzozOxUxq>

`Stand on the right AND left`: Why has TfL introduced standing-only escalators?
<https://t.co/My0xZ5wAMR>

██████████ Yes @TfL, we all like to wait 5 mins at the bottom of the escalator, to save the 30 seconds walking up! #kneejerkreaction

Stand on the right on escalators #London #TfL #tube <https://t.co/qeBYfEGXwl>

TFL has now said that you can stand on the left and this is completely unacceptable. Someone throw a coup with me.

All this stand on both sides test bs doesn't work, you know what would? having ALL gates open during rush hour. Dumb asses @TfL

@TfL Standing only on the escalators at Holborn station now? How ridiculous can things get?

TfL wants commuters to stand on both sides of the escalator, to reduce congestion
<https://t.co/G40BcPRux4> <https://t.co/yKhbpvNIUh>

"NO NO @TfL NO NO FRIGGIN NO!Tourists on the RIGHT, Londoners on the LEFT#Holborn#BrokenBritain#tube <https://t.co/oorKl6bxw6>"

@TfL have I really read that you are trialling a `stand on both sides of the escalator`
unbelievable madness have you lost your minds?

Stand on BOTH sides of the escalator?! What are you playing at @TfL! All hell is going to
break loose

OMG APPARENTLY TFL ARE Sc<BLEEP>pPING STAND ON THE RIGHT/WALK ON THE
LEFT. SOMEONE STOP THEM!!!!!!

@centralline where can I give my feedback on the #Holborn standing only escalators?
#madness

I've written for @IndyVoices about the abomination of TfL allowing standing on both sides
of Holborn escalators <https://t.co/tewfuNgPGm>

██████████: @itvnews @TfL seriously?!? Standing on the left on the escalator! Its just
not on. Noooooo!!! #tubeetiquette #tube #london

@itvnews @TfL seriously?!? Standing on the left on the escalator! Its just not on.
Noooooo!!! #tubeetiquette #tube #london

What a silly idea from TFL about only standing on escalator. It will never catch on

@TfL stand on the left?! I look forward to #TubeStation #exercise #britishheartfoundation
#keepfit #exit

Where`s are escalator etiquette gone? This is madness. I don`t think I`m being dramatic
when I say, the end of days are upon us. @TfL

Where is our escalator etiquette Holborn? This is madness. I don`t think it`s too dramatic to
say that the end of the world is nigh. @TfL

@TfL What the d<BLEEP>kens do you believe you are doing at Holborn? In a more civilised
age such heresy would result in burning.

██████████ @TfL Holborn has two up escalators, they should
make one a standing only one and one a walking only one.

Why do we stand on the right on Tube escalators? Full story: <https://t.co/KkvcUrEQx>
#LondonUnderground #TFL #stand

██████████ @TfL they`re trialling standing on both sides of the escalator at some stations,
no walking allowed

Entire train bellowed at by angry driver & then prevented from walking up escalator at
#Holborn - another morning on @centralline @TfL

People walking on the except those blocked by the TfL guy #Holborn
<https://t.co/oe9SaSZLnE>

People walking on the left in #Holborn except those blocked by the stationary TfL guy
<https://t.co/oe9SaSZLnE>

Dear @TfL stop making me stand on the escalators at Holborn, it's not quicker and it is just bloody annoying

This is not cool: TfL Wants Londoners to Stand on Both Sides of the Escalator, Because Walking is Bad <https://t.co/WqI7PBRzTv>

Surely 2 up escalators at Holborn? [REDACTED] could make 1 all standing & 1 all walking - slow walkers left lane fast on right #tfl

I just managed to catch a train that everybody else missed because I don't stand still on escalators. Keep that in mind, TfL. :-)

[REDACTED] @TfL Apparently its a good idea because no one ever walks up holborn, its to long. Will confuse a lot of people.

[REDACTED] @TfL Holborn has 2 escalators. What they should do is have one standing only, one walking only.

@TfLTravelAlerts @victorialine @standardnews saw a geeza standing on the left hand side of the escalator. #notholborn

The whole standing on the left side of an escalator (via tfl) is a stupid idea!

@TfL not an improvement at Holborn though? What manager came up with this ridiculous all stand on escalator? He should be sacked

@TfL without the management speak, can you explain the ludicrous Holborn station situation please?

@TfL unhappy with the changes to escalator etiquette. Standing on the left + the right is slowing my journey. Bring back walking on the left

Is #Holborn tube `stand in the right` experiment still in place @TfL? If so for how long?<https://t.co/GxTa0dtfK5>

[REDACTED] UberUK @TfL yes u ight have to stand but u know the price wont surge x3 <https://t.co/LO2dvlk4kp> #ubered

Blasphemy! At Holborn station, @TfL #London actively encouraging people to stand on both sides of the escalators! <https://t.co/PQZbBQqwhm>

Officially a Londoner, complaining about TFL and tutting at people not adhering to `stand on the right.`

Take a stand do t stand walk its better for you @TfL #p<BLEEP>ks #Holborn

@standardnews this is hilarious. TFL are issuing officers to stand at junctions to try and ease the congestion that TFL are causing.

Literally no one is `standing on both sides of the escalator` as instructed in #holborn - what a hilarious fail for @TfL

Holborn Stn bizarre. TfL staff shouting `stand on both sides of the escalator` & people wilfully defying them. Tube etiquette will never die

So everyone`s taking notice of @TfL new `stand on both sides of the escalator` rule at #Holborn NOT!

Dear @TfL: you can`t just make standing on the left okay at Holborn. YOU CAN`T MAKE IT OKAY. *freaks out and cries*

The @TfL Holborn Escalator Experiment - Just when you thought they couldn`t irritate you any further

No @TfL I will not stand on both sides of the escalator at Holborn. Pointless exercise.

@Independent [REDACTED] As a commuter who uses Holborn station 4 times a week at rush hour, well done TFL for trying something different.

.@tfl spent years educating `stand on the right` now they`re trialing `stand both sides of the escalator` & confusing everyone. #sigh #tfl

@TfL why do you have 3 `up` escalators and only 1 non-operating escalator to walk down at #Holborn?! Accessible - much?! #Nonsensical

@TfL Clearly the both standing policy at Holborn station is still having effect when people are walking up the left side this morning...

.@tfl are still valiantly attempting to overturn decades of ingrained behaviour with `Stand on both sides of the escalators` at Holborn. 1/2

.@TfL have now resorted to sending their staff up and down the escalators at Holborn standing on the left, else everyone ignores them. 1/2

.@TfL Stop trying to make `stand on the left` happen! It`s not going to happen!

Armageddon begins with people being allowed to stand on the left, where will it end @TfL !? #tfl #holborn

TfL encouraging people to do less physical activity with new escalator idea ☹️
<https://t.co/wlv3wV9Q87> #physicalactivity #exercisefsafe

Walking up the escalators at #Holborn station is my favourite form of civil disobedience
#AnarchyInTheUK #tfl <https://t.co/xr6DRkewjQ>

So in reality, nothing criminal. Doubt it would pass the test for criminality. [REDACTED]
[REDACTED] @BTP @TfL @VagendaMagazine

Congratulations @tfl keeping London fat with your ridiculous new experiment in Holborn.

Sympathies to the TfL staff in Holborn: commuters utterly uninterested in testing the `stand on both sides of escalator` approach #tube

@piccadillyline with slow London escalator speeds and growing obesity, do you think it`s best to stop people walking up #escalators #Holborn

@piccadillyline is there going to be a consultation? Where can I leave feedback about #Holborn

Jan 2015, @TfL shares calories burned data when walking up escalator (👉👉) December 2015 @TfL stops letting you walk up escalator (👉👉) ??

Bad, bad, bad idea @TfL: Why Londoners won't stand for Holborn station's new escalator policy <https://t.co/COrCPAjhnX>

Stand on both sides of the escalator rule at Holborn. I don't like it! @TfL #holborn

@thebuttononline @centralline you should have just pushed them off the escalator. 🖐👉

@tfl- opposing standing on the left side of escalator at Holborn. Asking for escalator rage. I love walking!

@tfl how about encouraging more people to walk up the escalator on the left at Holborn

@tfl for 2 years I was unable to walk up an escalator due to poor health. Now I can and you want to deny me this at Holborn

@tfl standing on the left at Holborn- I get it you want the walkers to lose the plot and get off at Chancery Lane

Argh! @TfL the left was not made for standing! I won't do it! I can't! Not in Holborn, not anywhere! #EscalatorEtiquette

Love all the commuters rejecting the suggestion to stand on the left at Holborn @TfL - that's not how we do it!

Never hated @tfl more than for the bats<BLEEP>t insanity they've created at Holborn.

New escalator rules at #Holborn but everyone is too scared to stand on the left!! @SkyNews @TfL #britishproblems

Just spotted a TfL press officer ignoring instructions to stand on the right at Holborn. Even their own staff won't do it

"I don't bloody think so.

#London #TfL #Holborn #walkontheleft <https://t.co/xRAGz6bfCg>"

Ldnrs cant walk on the escalator anymore. Big brother is back & wants commuters to get fat. #london #tfl #escalator #iwontstandforstanding

██████████ completely agree!! #escalatorsandal #Holborn @TimeOutLondon #brilliant @TfL

Prepare your world to be rocked... @TfL now want you to stand on both sides of the escalator on the tube!! #InShock <https://t.co/5kEnlfWxHl>

I know TfL is s<BLEEP>t but so are 50% of the people travelling at rush hour. You'd rather stand on top of each other than move down? Ok then. 👉

So the `no walking on the escalators` at Holborn test is getting the 👉 from commuters. #tfl #dowhattheywant

@centralline What's all that `stand on both sides` about on escalators please??

Why are staff at #Holborn station trying to make people `stand on both sides`? @TfL if it ain't broke don't fix it! #pointless

#TfL is trialing `stand on both sides of the escalator` to try & reduce congestion. I get it, but it doesn't work. #standRightWalkLeft

Watching @TfL trying to implement standing on both sides of escalator at Holborn. Passengers then getting abuse in doing so. Hilarious.

As if commuting into central London wasn't bad enough. Holborn's standing on the left idea is an absolute joke. @TfL

Bless them. They're trying so hard and it makes so much sense but @TfL's standing only escalator is such a failure. <https://t.co/Jj29UkirYP>

@TfL staff standing by the escalators telling people to stand on the right and walk on the left. Modern day hero. #youtellem!

"Going to miss my little walk from Holborn to Tottenham Court Road.Naaaart!

#TottenhamCourtRoad #TfL"

. @TfL making people stand on both sides of the escalators at Holborn. Madness - give people 60 seconds of exercise

Pleas let me know the outcome of your `trial` getting people @ #Holborn to stand on both sides of the escalators. Surely it cannot work #tfl

@centralline Seriously now, who's responsible for the `standing on both sides of the escalators test? It's causing problems and fights too!?

Dear @TfL - I really hope the experiment you're conducting at Holborn stn fails, because it's annoying.

Dear @TfL - also, I think trying this out in December when there are far less crowds in Holborn will not be representative of the real issue

Dear @TfL - also, just think of the hapless tourists when they face a different standing pattern in Holborn without staff to help them.

@piccadillyline stop making the service being even more unbearable by forcing passengers to stand on both sides at Holborn

TfL foiled at Holborn in test of standng both sides of escalators. Unusually quiet and people walking up anyhow despite pleading of 5 staff

Just joined the @TfL revolution. Standing on the Left @holborn tube station. #feellikeatourist #sowrong<BLEEP>tmightberight

@TfL your test of stopping people walking up the escalator at Holborn and having them stand still on both sides to eases congestion? #FAIL

After years of angry tutting at people standing on the left, you now want us to stand on both sides of the escalator?! Good luck @TfL 😊

After years of angry tutting at people standing on the right, you now want us to stand on both sides of the escalator?! Good luck @TfL 😊

I stood on the left on an escalator at Holborn station as part of a trial. It was quite thrilling. can i get a t-shirt? @TfL

@TfL Stop with the stupid stand on both sides experiment at Holborn, Tottenham Court Road is open again! Hence, less people!

There are so many angry commuters hating the fact they are being told to stand on the escalators #Holborn #madness #tfl

Good to see @TfL doing some A/B testing on moving crowds up escalators at Holborn! #geek

Thanks @TfL the standing on both sides of the escalator thing at #holbornstation could well be the #stupidestideaever #pointless

@piccadillyline why are they taking one escalator out of service at Holborn this morning and not making an announcement?

Super rude #tfl staff at #holborn with loudspeakers shouting at paying customers `you can't beat the system`. Customer service at its worst

@tfl #holborn station. It's not fair to make everyone stand on both sides. What if you're late/in a rush. Have I walk up escalator @ least!

Which idiot decided to make people stand on both sides of the escalator at Holborn @TfL? I 5 minutes to get out the station. #commonsense

No @TfL I will not stand on the left at Holburn. That way madness lies.

The standing on both sides of the escalator experiment at Holborn is not going well. Mainly because no one wants to do it.. #tfl

@TfL what are you doing to Holborn station! Stop with this double escalator madness! @centralline centralline #holborn

@tfl doing `stand on both sides` escalator test at Holborn today. Hilariously British reaction: wide-eyed shock, mortified smiles, silence

Ngl feel like a guinea pig rn.. Tfl making people stand on both sides of escalators for a trial at holborn

Holborn is so quiet today but the staff are still shouting like no tomorrow .@TfL <https://t.co/Fel8i3iUck>

@TfL clearly the trials to ease congestion at #Holborn station are working! Great effort by all the staff

Stand on both sides of the escalator to ease congestion? You can't change London etiquette #TFL

Yo @TfL - your Holborn experiment is daft

The Holborn escalator experiment is causing arguments as people trying to walk up can't get past people who are insisting on standing. #tfl

Dear @TfL when are you going to finish this failed experiment of trying to make people stand on both sides at Holborn

"`Stand on the right`

Even #FlatTim obeys the laws of the London Underground @TfL

<https://t.co/gSHq6ZodA>

@TfLTPH what if TFL stopped creating congestion `in a new trial aimed at cutting congestion

@TfL How long before your preposterous and infuriating #Holborn escalator prank ends? Standing on the left is an abomination.

on #BBCinsidescience this week: floods, models and the science of escalator behaviour. thanks @TfL 4.30pm Radio 4.

Right laugh at #Holborn tube last day of silly stand on left rule! Much whooping from us on the escalators!! @TfL

Regardless of supposed efficiency, Holborn escalator experiment is just a good way to make people despise total strangers #tfl

Safe to say this is the collective feeling of Londoners` on @TfL`s `standing only` trial... <https://t.co/pRipW9K73M>

Safe to say this is the collective feeling of Londoners on @TfL`s `standing only` trial... <https://t.co/qEZn4lBJXv>

Appendix E – Daily De-Briefs

Holborn Escalator Tests – 23/11/15 to 11/12/15

Customer Reactions/Comments from De-Brief

23rd November 2015

Test cancelled as escalator 7 was taken out of service because of a handrail problem.

24th November 2015

Feedback had three customer complaints: a woman said that she would be upset if she could not walk; another woman said that customers are creatures of habit and she did not like the idea; a man said he wanted to run up the escalators as it was his daily routine and maybe we could have an escalator for running only.

A man said he understood what we were trying to do; that he had read the posters displayed the previous week and that we needed to communicate from platform level, not just at the mid-circulating area.

It was observed that using both sides of escalator 7 cleared the mid-circulating area much more quickly. SRT were asking customers to volunteer to stand which influenced other customers to comply.

There was a change in customer behaviour from 09:00 – customers became less compliant.

PAs were noted to be too quiet.

Megaphones were recommended for use by SRT the following day.

15 x Piccadilly Line trains were cancelled.

It was raining.

Some blocking back from the High Holborn exit happened, but this was attributed to the rain causing people to halt while they put on coats and put up umbrellas.

25th November 2015

Feedback had three customer complaints: one customer did not like what we were doing; two customers asked if this was a joke.

Two customers are questions about why we were doing this and said they thought it would not work.

SRT said megaphones helped.

12 x Piccadilly Line trains cancelled.

Dry, cold weather.

No blocking back on the High Holborn exit.

26th November 2015

Feedback had one customer complaint and three customers being positive: one man said it would not work and that everything would be different when Tottenham Court Road Station re-opened (so this would not be valid); one woman had noticed a difference in the flows from the Central Line in the passages and requested that PAs be made in that area; two customers said it was a really good idea.

SRT commented that customers had been easier to manage, particularly when it was really busy.

Station staff observed two female customers arguing on the escalator because one wanted to walk.

Two journalists were filming/taking photos with their mobiles. One was invasive. Neither had permission and they were reported to the Press Office, who identified one of them. There was increasing media interest and requests for more information and to film. Press release sent out by Press Office.

Piccadilly line had 58 minutes suspension because of smoke from a train at Kings Cross commencing 06:45. Resumed 07:43 to severe delays.

Dry weather.

No blocking back onto either gate line.

27th November 2015

Feedback had two complaints and two positive comments: One customer recommended using escalator 5 instead of escalator 7 (5 takes more Piccadilly Line customers, while 7 takes Central Line customers, in general).

One customer was overheard to comment that they had noticed less congestion downstairs.

One megaphone stopped working, so the wall PA for the mid-circulating area was used instead.

Further attempts to film and ask questions by journalists without permission.

8 x Piccadilly Line trains cancelled.

Dry weather.

No blocking back onto either gate line.

30th November 2015

"This is a charter for the lame and lazy"

There were a lot more complaints than the previous week, but the general tone was more "I don't like this" and "I don't want to do this" and less "This won't work". This is interesting as it implies an understanding and acceptance of the standing on both sides of the escalators, but a continuing dislike of it (and change).

Noted that customers on escalator 7 were more compliant and more customers used this escalator (comes off Central Line and had been part of tests the previous week).

1st December 2015

"So annoying"

"This is working much better today"

"I know how to use a bloody escalator"

There were almost no complaints compared to yesterday (see above), but there were lots of non-verbal communications in the form of head shaking and muttering. One man asked PS for the maths behind what we are doing and a lively discussion ensued as PS explained.

A conversation was overheard where one person commented that if the staff weren't doing this, they would be in the ticket office. The other person who was with them replied "Oh, no, there are no tickets offices".

It was observed that the mid-circulating area cleared very well and it went much better than yesterday.

Most customers were asking for directions rather than making comments or complaints.

Two gates were not functioning – this might affect customer numbers, although most were using Oyster/contactless.

PS: time taken from E/B C/L to gate line at 08:45 was 2 minutes 45 seconds; time taken from W/B C/L to gate line at 08:50 was two minutes 50 seconds.

2nd December 2015

Most feedback were words/phrases whilst walking past – "ridiculous", "this system is terrible", "it's not going to work".

Another customer got the wrong end of the stick and thought it was a mistake that people were standing on the left due to bad advertising (until I explained to him that we want people to stand on the left).

Another customer explained his theory of people getting out quicker if they can walk up.

Several customers were intrigued with what we were doing and asking questions about it.
(Received positive recognition for this)

Again Escalator 7 was busier and more compliant; a few periods where there weren't any customers '9:00 and 9:16'

Comments from SRT and station staff were that congestion downstairs is being eased but a potential blockage if one customer stops at the top of the escalator. They suggested having a yellow junction box at the top to make it clear.

Dry weather

7x Piccadilly Line trains cancelled.

3rd December 2015

A much quieter day with fewer customers.

Feedback was more enquiries about what is being done and how it works than negative. There were comments that this is not going to work and that it is "annoying". There were two complaints that a customer was standing on the left and was abused for standing still by customers behind her.

SS commented that the PAs being made in the mid-circulating area were audible in the lower-circulating area and were causing confusion as customers thought they should stand on both sides on escalators coming from the lower-circulating area to the mid-circulating area. (Action to change script/language for tomorrow).

SRT staff commented that using humour helps customers accept the tests.

New York Time journalist asked questions as a customer without identifying herself as a journalist until challenged.

Customer flows appeared good.

3 x Central Line trains cancelled. 6 x Piccadilly Line trains cancelled.

Dry weather.

4th December 2015

Again, a quiet day.

Feedback mostly brief, saying variations on "not working", or "they're not listening". (Maybe 6 people in total). There were two queries about what we are going which DB answered and said that the customers seemed satisfied with what they were told. One US student was intrigued to see what was happening, having just learned to stand on the right. She filmed a little of the test to show to her lecturer. She also mentioned that she had had a slip on an escalator previously and thought that standing on both sides was safer.

M from SRT suggested for next week that we put each SRT member of staff by the newell post of each test escalator as it works better for encouraging customers (previously, one SRT had been making PAs from the back wall of the mid-circulating area).

There were some gaps on the Central Line, although no notification from Service Control or LUCC.

There were 3 x Central Line trains cancelled and 10 x Piccadilly Line trains cancelled.

The weather was cold and dry – a bit breezy.

7th December 2015

A great deal more complaints today, such as: “awful idea”, “loopy”, “stupid”, “Ridiculous to do all three escalators at once”, “this is how we get our exercise”, “we’re fat enough”. There were some queries about what is being done and some humour. SRT said a couple of customers swore at them. There was a large amount of non-verbal communication in the form of head-shaking.

PAs were done by SS AE and were humorous. After about 30 minutes he began to use humour, referring to the “revolution” that customers were participating in – this resulted in many customers smiling and actually meeting eyes with staff and each other, but also coincided with more verbal complaints. Customers did appear more grumpy today.

Tottenham Court Road re-opened yesterday.

There appears to be gaps in the service on the Central Line.

5 x Central Line trains cancelled and 5 x Piccadilly Lines cancelled.

The weather was dry and mild.

8th December 2015

AM feedback:

Please note the trapped bag strap incident on No 5 between 0900 and 0905 has affected the counts. PS’s count for that 5 min period is incomplete and I have not recorded a figure. We stopped No 5 on the diamond, freed the bag strap and re-started the machine when indicated safe to do so.

The count was restarted at the next 5 minute block.

TA (lower observer) feedback:

With Esc 5, 6 & 7 stand both sides

Passenger feedback:

1. Lady said she felt 'hemmed in' with standing both sides; walking felt freer
2. Lady said with all three escs like this it gives no option for those who want to walk
3. Gent said that with all three, felt was being slowed down unnecessarily
4. American gent said that 'don't think this is a good idea at all'
5. Lady said it would be better if just some of the escs were stand only there would be more choice
6. Australian gent said it was a good idea but should do just one esc
7. Gent said 'it is probably a good idea'
8. Gent said he found it annoying if he can't walk
9. Gent enquired angrily 'what do I do if I'm late for work?'
10. Gent shouted 'it won't work'
11. Lady said 'it is much better like this'
12. Spanish gent said it is confusing because signs say 'stand on right' – but it is alright

Directions asked (for the record):

- Chancery Lane stn
- Canary Wharf stn
- Kingsway (x3)
- North Greenwich stn
- Kings Cross stn
- Tower Hill stn
- Bloomsbury
- Southampton Row

Esc 5 OOS 9.02-9.05 due to bag strap caught in comb

Comments from customers repeated during de-brief:

"This feels weird"

"Stupid" x18 as per PS

"It's not quicker"

"Please, please don't do this"

"I like to walk"

"It's the only exercise I get"

"What do you do if you are late for work?"

11 x smiles as per PS

"This is crap"

A few grumbles, lots of head shaking

Customer commented that she had observed customers responded better to being told to "stand only" rather than "stand on both sides".

4 x Central Line trains cancelled and 7x Piccadilly Line trains cancelled.

Weather was damp and drizzly.

9th December 2015

Comments from customers repeated during de-brief:

How long is this going on/When is this ending?

More customer smiles and generally happier.

Female SRT was given middle finger by male customer when she asked him to stand still.

An upset female customer said that this will lead to obesity in London

Another female customer said she was going to be late.

A male customer said he was being made late.

A male customer recommended using humour and providing staff to "block" escalators so that people had to stand.

Two young men in a rush with back packs complained of not being able to walk.

Four customers asked GD how they could leave feedback and were told to contact TfL CCC – queries were neutral (not angry).

GD had long conversations with three customers explaining why we were doing what we are doing and all three were interested to see results.

There were two frustrated customers and one who asked for the thinking behind the tests: once explained and understood, the customer said he thought it was a good idea.

Plain clothes staff (plants) said that there was some grumbling; some customers wanted to pass; there was a comment on the number of staff it took to do these tests ("no wonder tickets cost so much"); generally those who could not see the benefits were angry; humour helped; some wanted at least one escalator to walk up; some felt that where there were three escalators in the same direction one should permanently be stand on both sides.

PS: feedback from customers:

Bad Idea:	9
Tuts:	3
Head Shakes:	10
Smiles	36 [band and I was looking so cold a smile was permanently attached to my face]
Good Idea:	1
Why, Why?	2

“Can’t you let us walk if we want to – this isn’t Russia”

There were some gaps at various times on the escalators – check service.

5x Central Line trains cancelled and 5 x Piccadilly Line trains cancelled.

Weather cold and dry.

10th December 2015

Customer feedback:

“Ridiculous”

“We are forced to stand, but people can walk”

GD was the observer at the top of the escalators and had 2x enquiries, 2 x angry complainers and 3 x requests to have one escalator to walk on.

It was noted that many of those complaining were people who also complained on previous days.

Plain clothes staff (plants) commented that customers were better behaved today and more compliant. Several customers commented that this had made them late.

SRT noted that customers were more compliant and said that explaining what the purpose of the tests were helped customers to accept what was happening. One SRT encouraged couples to stand together and hold hands – humour has been noted as being very helpful. It was noted that, in spite of the highest customer numbers of the week, the mid-circulating area cleared rapidly. Some “regular” customers said good morning and made a point of standing on the left to “enforce” it. One SRT commented that the PAs made by the SS (C) were different and explained the purpose of the tests and that this helped to get customers to comply. It was observed that those customers who really wanted to walk found a way to do so. One man pushed a child aside so that he could walk – SRT told him he should be ashamed of himself, which he then appeared to be.

PS had one woman comment that she was late and wanted to walk up the escalators for exercise and asked for an escalator to be made walking only.

PS noted that after 9am customer behaviour changes and becomes “uber-grumpy”.

AM noted that there was much less head-shaking today. Several people asked when the tests will end.

Observer in mid-circulating area said that a man called Steve who was a Surface Rail Director came to see how the tests were going.

The weather was cold, windy and dry.

Comments that some trains were held on the Central Line – service to be checked.

1 x Central Line train cancelled and 3 x Piccadilly Line trains cancelled

11th December 2015

Comments

What was the experiment actually doing?

This is a very bad idea

This just doesn't make sense

Stupid idea.

Nb if the trial was explained then the individual traveller got the concept and understood.

Signage was poor and misleading.

Physical pushing on the escalator. 5 people, 2 people all about 09:10 (the late ones).

Significant compliance;

If we can't walk we will all get fat

To get more compliance the encourager needs to have fun, be jolly etc etc If nobody talks people will push past on the esc.

Carol singers helped the grumpiness.

Why can't we have 2 standing and one walking only? (Merit in this comment but legally sticky ground).

1 x Central Line train cancelled and 3 x Piccadilly Line trains cancelled

Appendix F – Media Links

Media – links to some articles about the escalator tests at Holborn

Metro <http://metro.co.uk/2015/11/25/the-decades-old-etiquette-of-keeping-right-on-tube-station-escalators-could-soon-be-over-5525856/>

ITV <http://www.itv.com/news/london/2015-11-25/stand-on-the-left-golden-rule-of-tube-travel-abandoned-in-bold-new-experiment/>

Independent <http://www.independent.co.uk/voices/standing-on-both-sides-of-the-escalators-at-holborn-this-is-the-beginning-of-the-end-for-london-a6750521.html>

Evening Standard <http://www.independent.co.uk/voices/standing-on-both-sides-of-the-escalators-at-holborn-this-is-the-beginning-of-the-end-for-london-a6750521.html>

Intranet page <http://luintranet.tfl/news/17072.html>

BBC Science programme <http://www.bbc.co.uk/programmes/p03bqfjv>

CityAM <http://www.cityam.com/229526/holborn-tube-station-trials-standing-only-no-walking-escalators-as-transport-for-london-tries-to-speed-up-exit-with-rule-breaking-experiment>

Yahoo news <https://uk.news.yahoo.com/underground-wants-commuters-stand-both-112439960.html#zTWgnGL>

Evening Standard (first reaction) <http://www.standard.co.uk/news/transport/tube-rulebook-torn-up-with-trial-of-standing-only-escalator-at-holborn-a3122511.html>

Independent <http://www.independent.co.uk/news/science/archaeology/features/standing-only-escalators-scientifically-those-who-zip-down-fast-lanes-slow-everyone-else-down-a6750661.html>

Danish press <http://politiken.dk/rejser/storbyogkultur/ECE2949535/ny-regel-i-londons-undergrund-lad-vaere-med-at-gaa-paa-rulletrapperne/>

(Translation: If you want to be exposed as an ignorant tourist in London, you just have to stand still on the left side of the escalators in the city's Metro system. For almost 100 years it has been a clear rule that you stand on the right of the escalators and walk up on the left.

But now Transport for London is testing the concept of standing on both sides; it should paradoxically ease congestion during rush hour traffic.

The trial will run for three weeks on the big Holborn station. Here the escalators down to the platforms are longer than at most other stations, approximately 24 meters (not sure about this fact!!!), which means that there are not many who have the energy to climb the many steps; so they remain on the right. This means that during peak occurs queue of people forms because all want to stand on the right on the escalator, which mean the escalator is not fully utilized because the left lane is almost unused.

According to the online newspaper Mail and Evening Standard it came as something of a shock to London commuters as they at the start of the week were ordered to stand both right and left. The operation was controlled by the transport company's staff, which was equipped with megaphones.)

The station in Holborn is used by 56 million passengers a year. The Independent writes that about 25 percent of the travelers on the London Underground is walking on escalators - the rest remains standing while the escalator going up or down.

New Zealand press <http://beta.iol.co.za/travel/world/europe/an-experiment-in-madness-1952398>

Dutch press <http://www.nrc.nl/next/2015/11/28/ongehoord-links-stilstaan-op-roltrap-1559901>

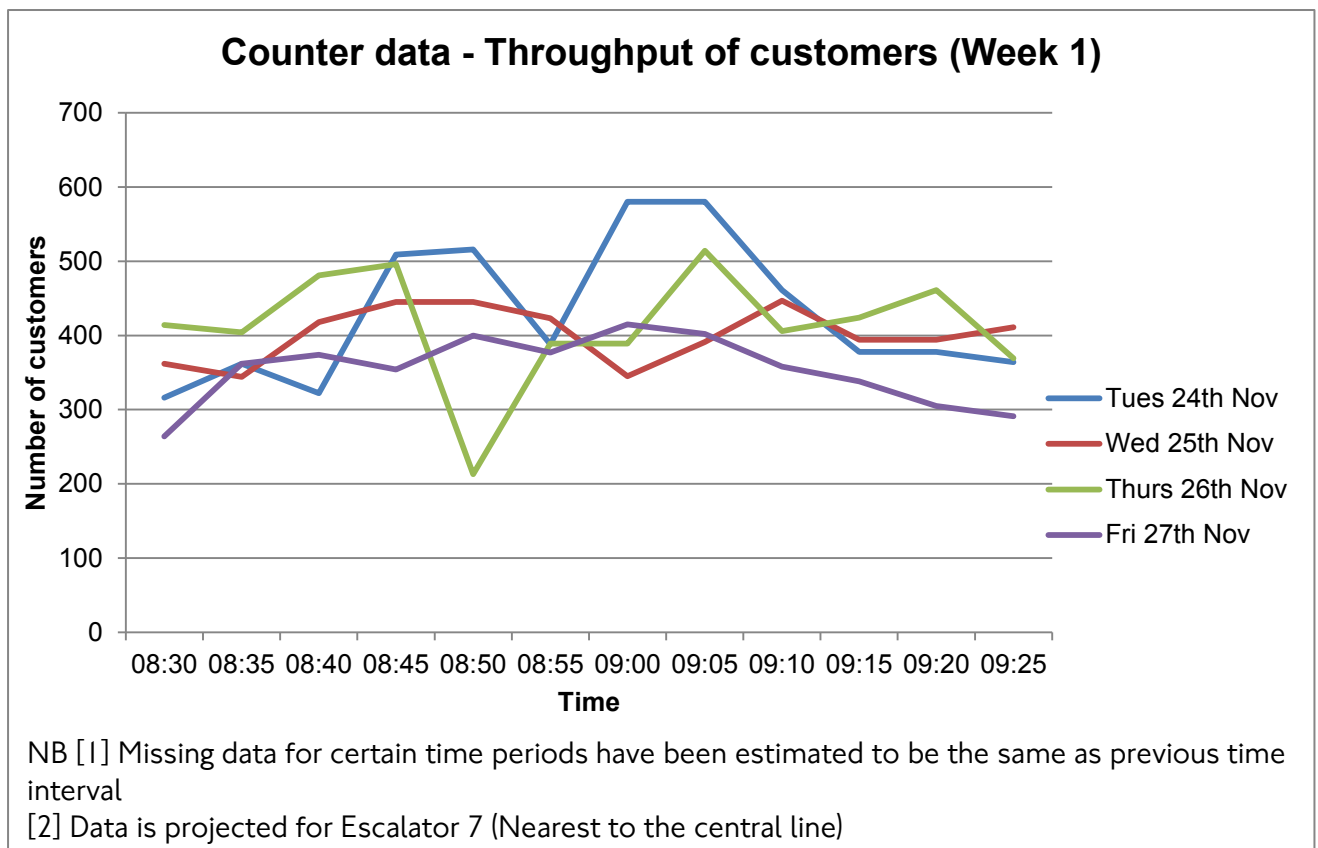
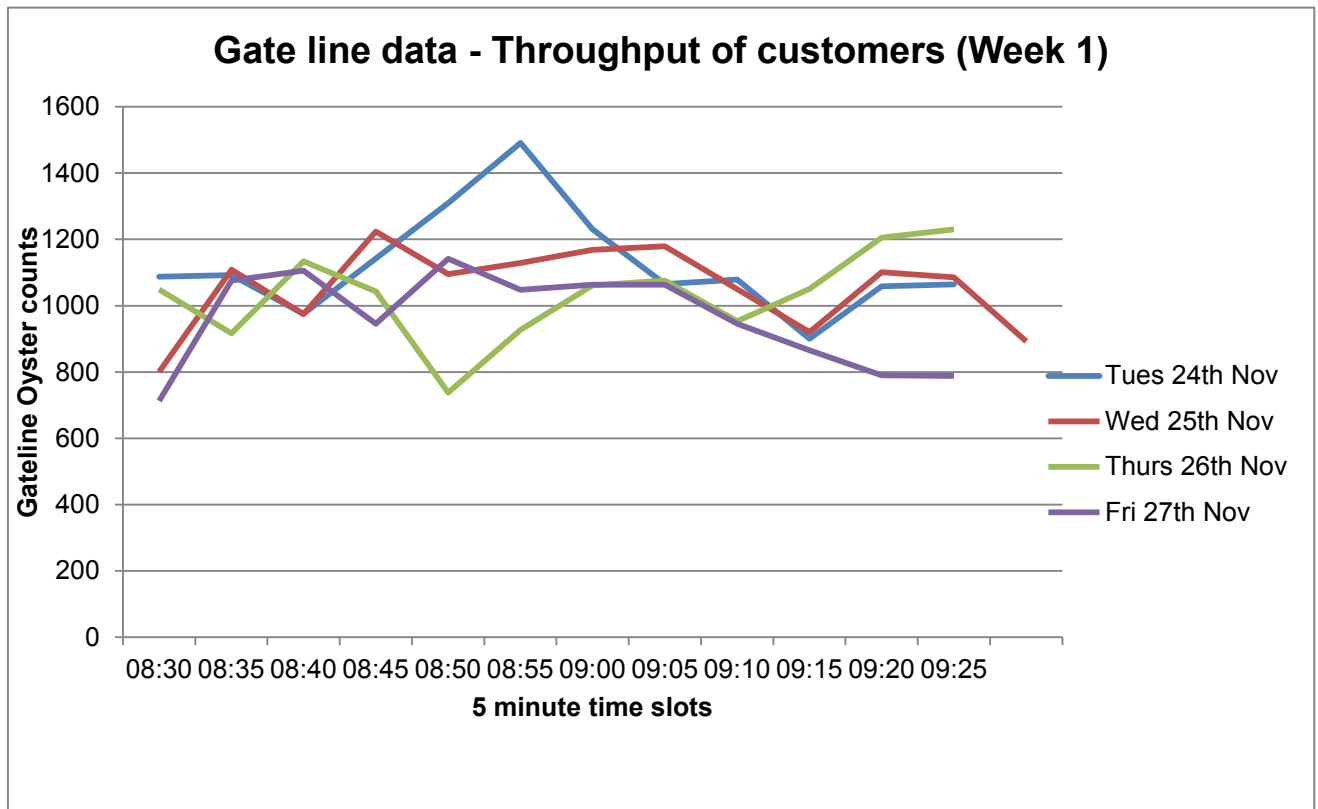
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Belgian press

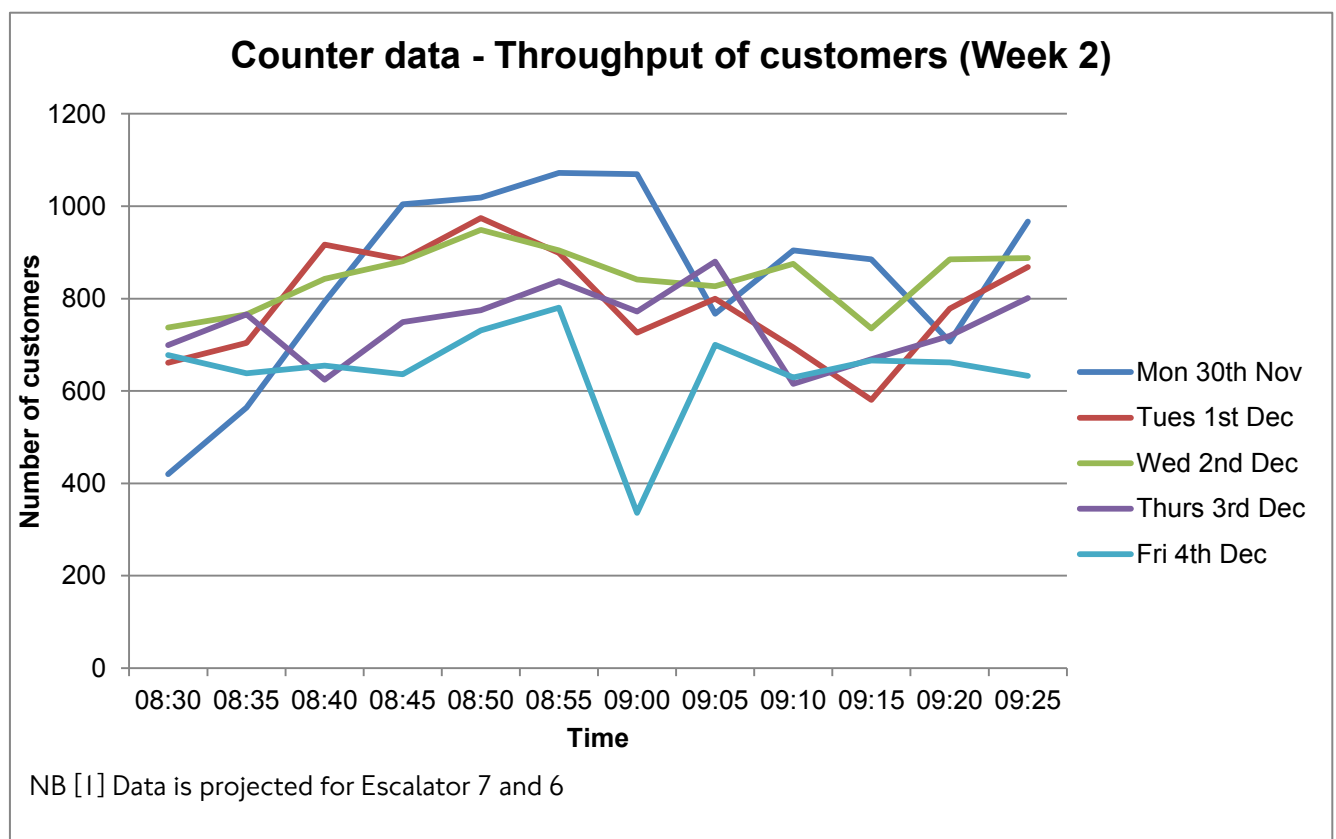
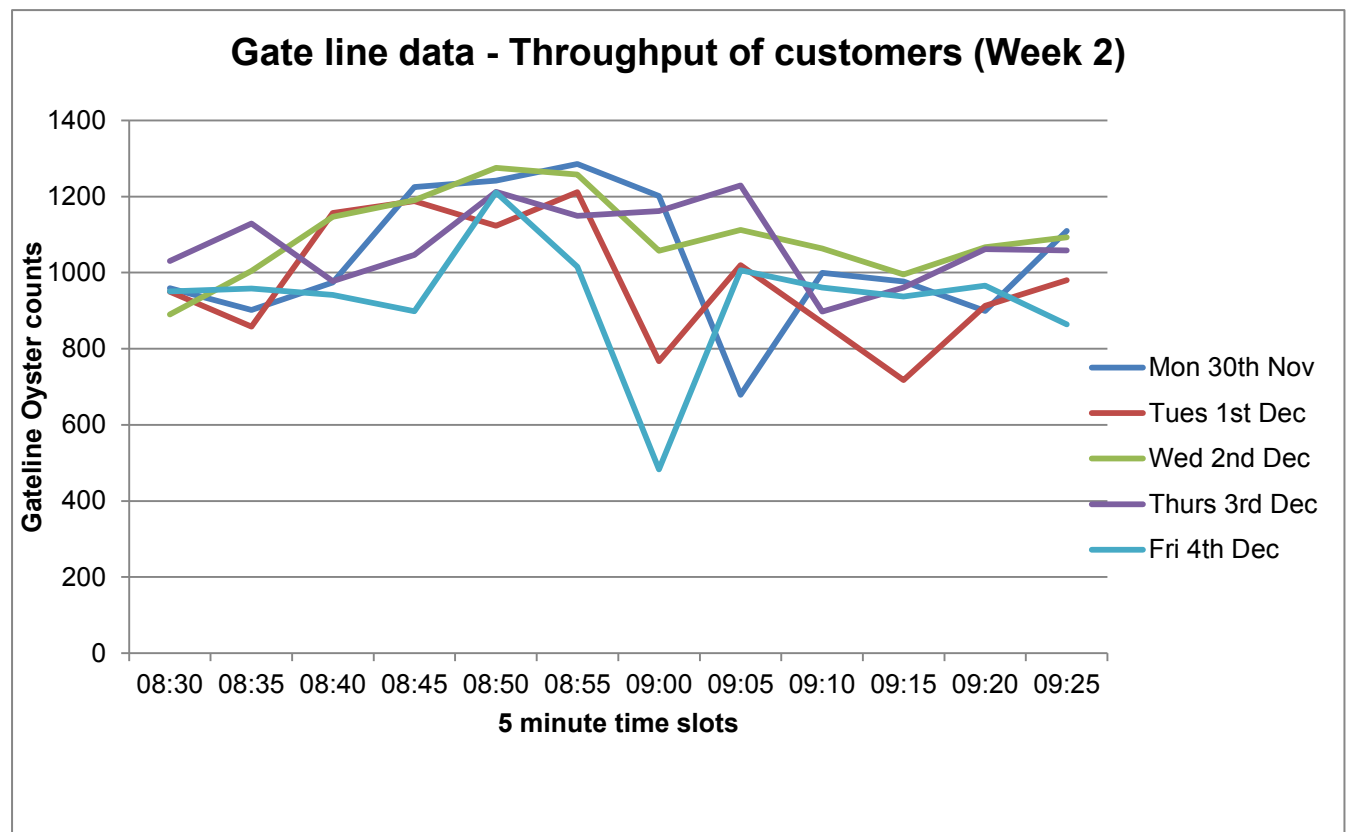
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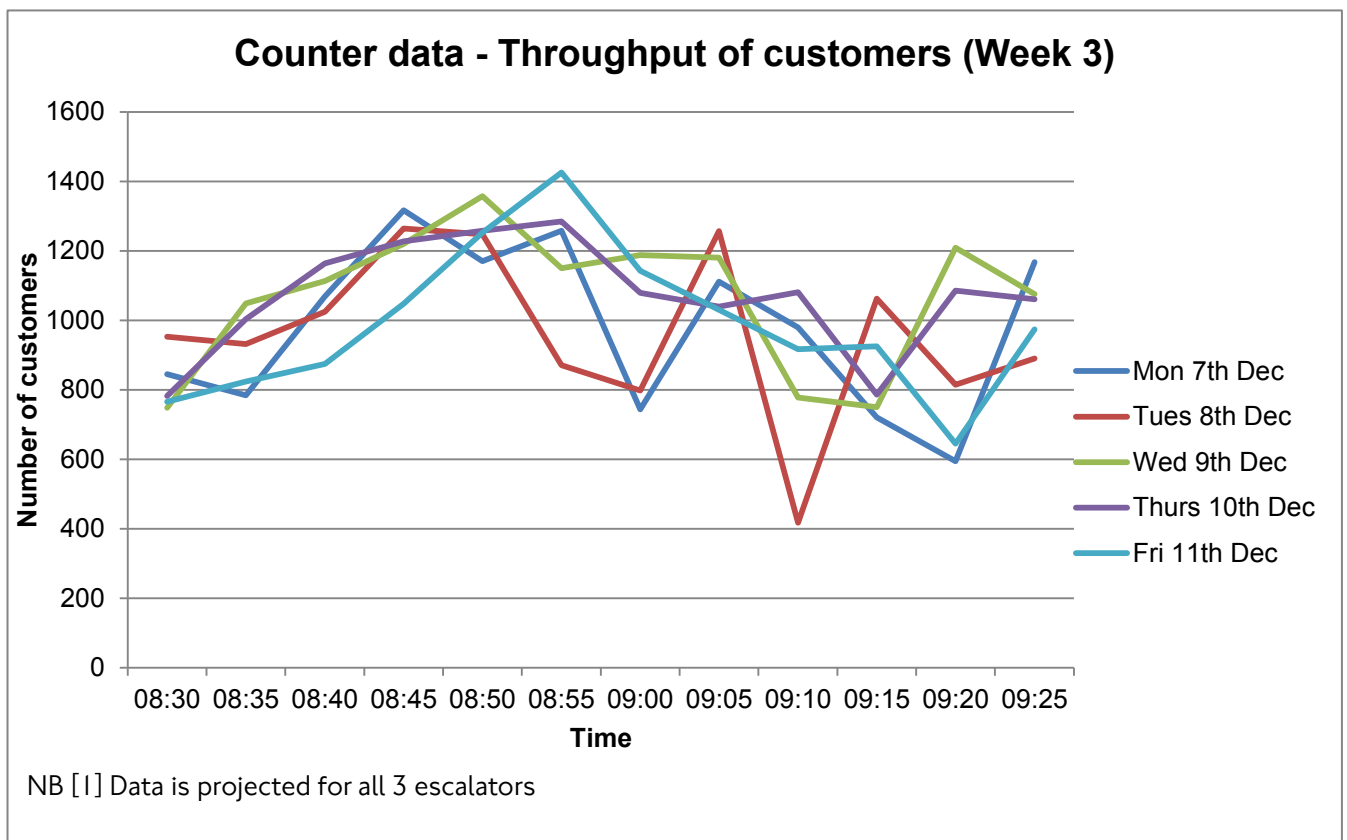
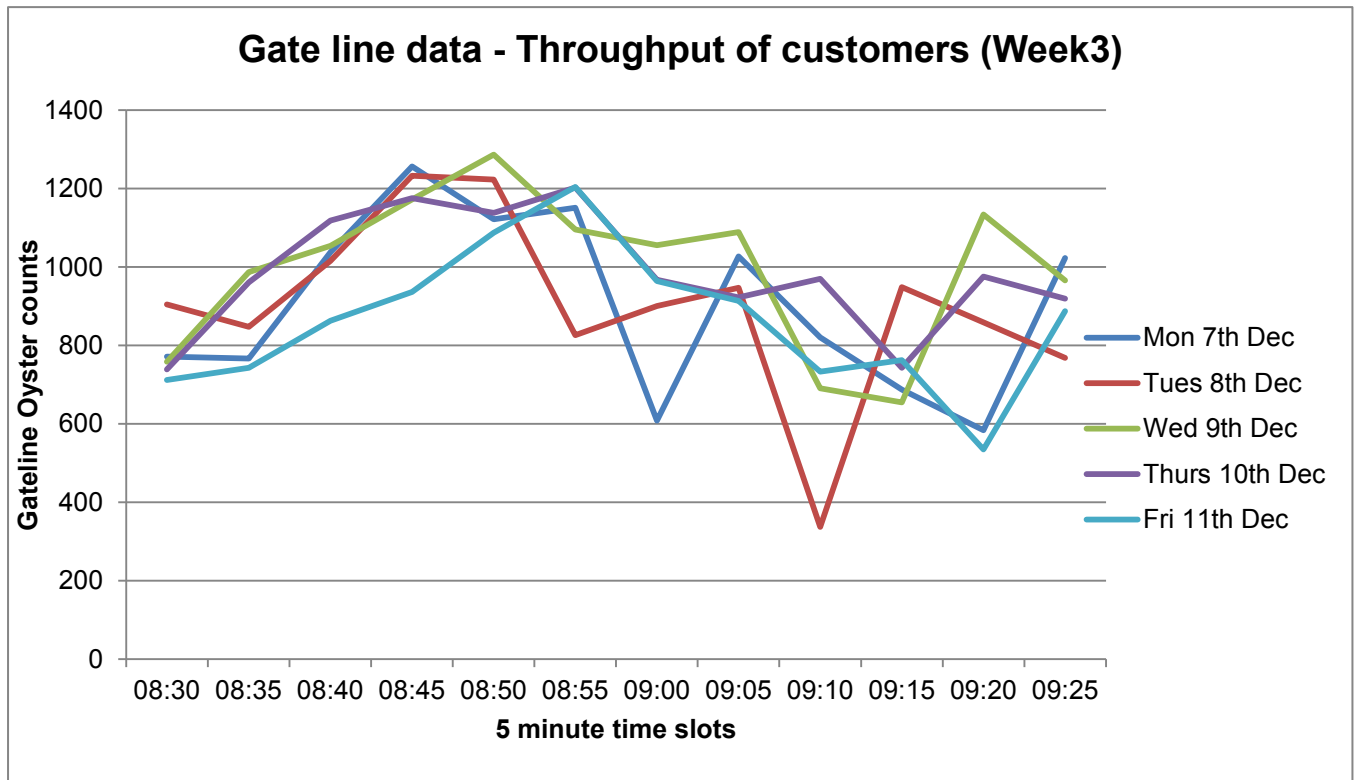
Appendix G – Comparison of week 1 data



Appendix H – Comparison of week 2 data



Appendix I – Comparison of week 3 data



Appendix J – Counter data Week 1 (Escalator 7)

Time	Tuesday	Wednesday	Thursday	Friday
	24 November 2015	25 November 2015	26 November 2015	27 November 2015
08:30	316	362	414	264
08:35	362	344	404	362
08:40	322	418	481	374
08:45	509	445	496	354
08:50	516	445	213	400
08:55	388	423	389	377
09:00	580	345	389	415
09:05	580	391	514	402
09:10	461	447	406	358
09:15	378	394	424	338
09:20	378	394	461	305
09:25	364	411	369	291

Appendix K – Counter data week 2 (Escalators 6 and 7)

Time	Monday 30 November 2015	Tuesday 01 December 2015	Wednesday 02 December 2015	Thursday 03 December 2015	Friday 04 December 2015
08:30	420	302	400	395	358
08:35	564	346	431	390	312
08:40	403	495	423	354	370
08:45	540	456	475	388	351
08:50	530	557	503	461	419
08:55	575	433	478	439	420
09:00	578	455	412	392	152
09:05	441	370	441	444	386
09:10	472	382	493	279	380
09:15	461	288	397	380	359
09:20	332	407	450	389	354
09:25	539	453	476	457	338
Time	Monday 30 November 2015	Tuesday 01 December 2015	Wednesday 02 December 2015	Thursday 03 December 2015	Friday 04 December 2015
08:30	0	359	337	304	320
08:35	0	358	335	376	326
08:40	390	422	420	270	285
08:45	464	428	406	361	285
08:50	489	417	446	314	312
08:55	497	466	426	399	360
09:00	491	271	429	380	184
09:05	326	430	386	436	314
09:10	432	312	382	336	249
09:15	424	293	338	289	307
09:20	375	371	435	330	308
09:25	428	415	412	344	295

Appendix L – Counter data week 3 (Escalators 7, 6 and 5)

Time	Monday 07 December 2015	Tuesday 08 December 2015	Wednesday 09 December 2015	Thursday 10 December 2015	Friday 11 December 2015
08:30	295	347	255	303	259
08:35	298	346	364	341	297
08:40	354	349	398	431	284
08:45	467	450	436	434	322
08:50	392	416	482	454	364
08:55	426	320	382	447	440
09:00	257	402	424	384	402
09:05	381	403	407	392	303
09:10	331	97	299	386	302
09:15	240	392	285	282	300
09:20	193	320	435	393	197
09:25	407	322	354	353	324
Time	Monday 07 December 2015	Tuesday 08 December 2015	Wednesday 09 December 2015	Thursday 10 December 2015	Friday 11 December 2015
08:30	258	310	206	259	243
08:35	244	291	320	301	292
08:40	342	312	359	362	300
08:45	408	390	390	401	351
08:50	360	411	441	385	453
08:55	394	252	391	412	522
09:00	246	0	374	325	411
09:05	335	385	370	299	403
09:10	302	80	234	309	321
09:15	214	347	220	223	292
09:20	163	267	375	332	229
09:25	394	289	356	330	358
Time	Monday 07 December 2015	Tuesday 08 December 2015	Wednesday 09 December 2015	Thursday 10 December 2015	Friday 11 December 2015
08:30	292	296	287	220	264
08:35	242	295	365	362	235
08:40	373	364	356	371	291
08:45	442	425	394	393	375
08:50	419	421	435	419	436
08:55	438	299	377	426	464
09:00	241	144	390	370	330
09:05	396	469	404	349	324
09:10	347	240	245	386	294
09:15	267	324	245	281	333
09:20	238	228	399	361	219
09:25	367	279	366	378	292