

LONDON UNDERGROUND IN A DAY

A RIDE OVER THE WHOLE NETWORK IN APRIL 2023

by William R. Lynch

BACKGROUND

You may be aware that one of the entries in *Guinness World Records* is the London Underground all-stations challenge: the fastest time in which to visit all stations on the network. As is soon obvious when you think about it, you don't need to travel the entire network to visit all the stations, so travelling over the entire LU network takes longer than to visit all the stations, and it has been claimed to be impossible in a day. It used to be possible until about the 1960s, but having to string the several peaks-only stretches into only two peaks led to inefficiency, and there were generally lower frequencies at the extremities, so that the addition of the Victoria Line made it indeed impossible until the early 2000s. By then frequencies were mostly doubled and most of the peaks-only stretches had either been closed or acquired all-day service.

My first successful all-lines bash was on Tuesday 7 March 2006 and, as far as I know, was the first this century. The stunt was described in some detail in *Underground News* number 534, dated June 2006. As with all such claims, its truth depended crucially on definitions, but the aim was to get as close in spirit as I could to the rules of the *Guinness World Records* all-stations challenge. My only "cheat" was to take a folding bicycle with me for much of the day, as without that I could not make by-other-means transfers between certain extremities quickly enough to fit it all into one traffic day.

By 2019 the East London Line had left the Underground network, and enough else had changed to spur me to repeat the attempt without the bicycle. On Friday 15 March 2019 I succeeded, so now fully complying with *Guinness World Records* rules on inter-station transfers by other means: they allow scheduled public transport and running, but no wheels in any other form. What made it easier to plan was that, whereas I previously worked from published frequencies combined with laborious enquiries of the on-line journey planner, working timetables were now readily available on the TfL website.

In 2022 the extension to Battersea Power Station opened, adding theoretically 12 minutes to the time required. Was the all-lines bash still possible? Well, the feeling had been nagging that my starting point involved inefficiency and that a better start would probably make it possible. After much spreadsheet scheming, I succeeded at the fifth attempt on Monday 3 April 2023, as described below.

In this article I sometimes abbreviate Line names to their initial letters, e.g. H for Hammersmith & City, except that O means Circle Line. LO means London Overground. P can also mean platform number.

WHEN TO DO IT

Saturdays and Sundays are out for two reasons. Firstly, nearly every weekend involves the planned closure of some part of the network. Secondly, the existence of Night Tube services blurs the challenge. Sundays are also impracticable because the traffic day is shorter. Monday mornings carry a slight risk from over-running engineering work, and, depending on finishing point, Fridays may run into the "cheating" territory of Night Tube, so Tuesdays to Thursdays are preferable.

The tourist season is less attractive in that hotel rooms are more expensive and more difficult to find, and also because jogging in hot weather with a rucksack can be uncomfortable. Inflated run times over some lines make the leaf-fall season less attractive. However, any extreme bad weather can also be uncomfortable and can disrupt the very trains you need! The choice of day can therefore be made only at short notice, increasing the full-hotels danger. This year brought the added hazard of trade union strikes affecting feasibility directly and indirectly.

HOW MUCH TO DO

What constitutes the network? It must be admitted that my definition is necessarily substantially shaped by what is possible. Naturally, the starting point is the widely displayed LU system map.

However, the traffic day is too short to allow a literal interpretation of even that, never mind riding both directions at diving and flying junctions, so something has to give. It's as well that the Watford North curve isn't shown on the system map, since it is available only at the start and finish of traffic in a way that precludes exploiting traffic time elsewhere, so that can be dropped. It turns out that if you count as one line those stretches where actual tracks are shared it begins to look possible, and trains of other operators over the same tracks can be allowed to count. Unlike my previous bashes, this time I was

even able to count Lines separately where their tracks run alongside. Happily, a pleasing balance between challenge and achievability is the result.

By my reckoning the sections of shared track are:

| | |
|--|-----------------------------------|
| Barking – Aldgate East: | H shares D; |
| Aldgate – Great Portland Street: | M shares O; |
| Liverpool Street – Hammersmith: | H shares O; |
| Edgware Road – High Street Kensington: | D shares O; |
| Tower Hill – Gloucester Road: | D shares O; |
| Acton Town – Ealing Common: | P shares D; |
| Gunnersbury – Richmond: | LO shares D, but to no advantage; |
| Queen’s Park – Harrow & Wealdstone: | LO shares B; |
| Wembley Park – Rickmansworth: | M can count as just one line; |
| Harrow-on-the-Hill – Amersham: | Chiltern Railways shares M; |
| Rayners Lane – Uxbridge: | P shares M. |

However, I regard the following as distinct:

| | |
|-------|---------------------------------------|
| B | Baker Street – Paddington; |
| H(=O) | Edgware Road – Paddington; |
| M | Great Portland Street – Wembley Park; |
| N | Waterloo – Charing Cross; |
| N | King’s Cross St Pancras – Euston; |
| O | Liverpool Street – Tower Hill; |
| P | South Kensington – Acton Town. |

I also count both arms of the Northern separately both sides of the Camden Town junctions.

THE MAIN CONSTRAINTS

1. **Kensington Olympia.** A handful of start-of-service departures (coming from Lillie Bridge) plus one mid-evening round trip. Tactically, the evening working is unattractive in that it offers a narrow target after many hours of accumulated unpredictability in timekeeping. Unlike previous attempts, there were buses available from Hammersmith for the morning departures, sparing me the pressured jog from Barons Court.

2. **Chesham.** Of the all-day segments, this is the one with the lowest frequency: 2 tph. Since last time the bus service between Amersham and Chesham has become usefully frequent, and usually saves time, but I didn’t discover that until after the 4th attempt. You obviously want to fit Amersham and Watford around Chesham in whichever order is quickest overall, so it’s worth deriving an “outer-Met circuits” timetable to show all the Amersham + Chesham + Watford combinations in chronological order of departure from Harrow-on-the-Hill. Not only does that help planning by showing when the fastest circuits are on offer, it also helps on the day by immediately showing the least bad alternative should you miss the intended one at Harrow-on-the-Hill. Watford is hazardous: for most of the day every 15 min a train is scheduled into one side of the island platform half a minute before a departure from the other, which sounds ideal but in practice all too often arrival is too late. However, the penalty then is only 15 min because WAC and WCA circuits conveniently alternate to form a 15-min series.

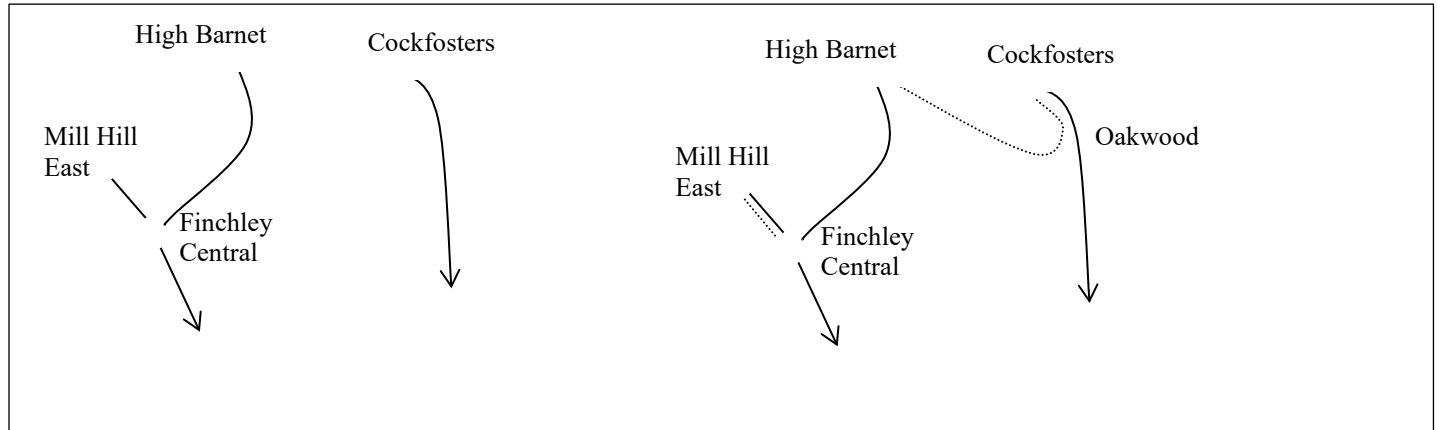
3. **Woodford – Hainault.** This has the next lowest frequency: 3 tph. Again, it’s worth deriving a “Hainault circuits” timetable to show all the Hainault loop + Epping circuits in chronological order of departure from Stratford; I also fleshed it out with Bank and Liverpool Street times to aid planning. Unfortunately the circuits tend to clump in pairs, a Hainault-first circuit starting immediately after an Epping-first one, so the overall result is hardly better than 3 tph.

MANAGING DUPLICATION

The diagram (opposite) illustrates a basic point of topology which is worth explaining. Except at the start and finish, wherever you arrive you must then depart, so “odd” stations (those with an odd number of lines converging at them, including termini, shown in italics in the diagram) have to be paired off (by dotted lines in the diagram) in such a way as to minimise the time spent in duplicate travel between them. The duplicates can be by LU or wholly or partly by other permitted means. Pairing by other means is strongly suggested between Amersham and Chesham; High Barnet and either Cockfosters or Oakwood; Edgware and either Stanmore or Canons Park; Hammersmith and Olympia; Wimbledon and either Morden or South Wimbledon; West Ruislip and either Ickenham or Hillingdon or Uxbridge;

and Kenton and Northwick Park. I found that the remaining “odd” stations pair themselves off fairly obviously except Walthamstow Central, whose least awkward “buddy” is Great Portland Street.

There are delay scenarios in which, if I were younger and fitter, Watford Junction to Harrow & Wealdstone (notwithstanding the risk from accumulated delay on the Up AC lines) after a daunting 2.1 km jog across Watford might just beat the 0.6 km jog from Northwick Park to Kenton. However, buses between Harrow-on-the-Hill and Harrow & Wealdstone do not appear to save enough time to justify the road traffic risks. The 384 bus between High Barnet and Cockfosters is circuitous and less frequent than the 307 High Barnet to Oakwood.



DEVISING THE ROUTE

It's a tight fit, however you do it. You need therefore to start as early as possible and finish as late as possible. The earliest scheduled passenger departure anywhere on the system is the 04:38½ Circle Line Hammersmith to Aldgate; I used this to Edgware Road on previous bashes but it doesn't lead smoothly on to other services as the system starts up. The next earliest starters (Ealing Common to Ealing Broadway and Loughton to Epping) can be discounted because each then turns round and duplicates the stretch it's just done! I eventually plumped for the 04:49¼ Osterley to Heathrow T4, which repays the later start by reducing the overall duplication, squeezing out the usual 5 min layover at T4, feeding neatly on to T5, not reaching Acton Town until services generally have started up, then leading sweetly into Olympia departures. What's more, it provides a choice of five boarding points up to Hatton Cross 04:59¾, and a bit more sleep!

The latest scheduled arrival is at Upminster at 01:36; the runner-up arrives Uxbridge at 01:33, but Upminster has the further advantage that finishing there avoids an otherwise lengthy duplication (back to beyond West Ham), so Upminster wins. Working back from the last Upminster arrival, it starts from Richmond and connects efficiently enough out of trains from a decent choice of directions.

For the rest of the day, every time you change trains you add to the time you expect to spend waiting, so try to keep the number of trains down. Also, cross-platform interchanges are obviously quickest.

LEADING UP

My first attempt was on 28 February. On each of the first four attempts, failure became recognisably inevitable early enough for me at least to abort and get home to bed the same day. I was defeated by stupidly catching the wrong bus at Wimbledon; a faulty train disrupting the Epping line; disruption on the Bakerloo (on two occasions); ignorance of Chesham buses; and on one attempt (would you believe?) slack running robbing me of the very first connection at Heathrow T123!

Approaching Easter, hotel rates were already beginning to hurt, but I decided to have one more go before giving up for the summer. There was no relevant planned engineering work for the Sunday, so the Monday appeared safe enough. I printed tailored updated running sheets as before, designed to be the only papers I would need to hand on the day, so including space for noting actual times, running numbers and platform numbers.

The priority on the previous day was to find overnight accommodation: the day would be exhausting enough even with a good night's sleep! Being near Heathrow Airport, Hounslow offers a reasonable selection of hotels to choose from, particularly near Hounslow Central station. On failure here I would still have had time to head home for bed, but I succeeded, so I bought enough food to last the morrow (there would be no time on the day for shopping) and got a seriously early night.

THE DAY

I don't have an Oyster card, so the first task of the day was to buy a Zones 1-9 Peak Day Travelcard, which Hounslow Central's machine delivered without fuss. At £27.20 it covers it all except the Chesham buses (and includes buses through the following night — well worth it for my purpose!).

The tour went remarkably well for a long time. The bus from Hammersmith dropped me at the temporary replacement for stop K, which because of major reconstruction at Olympia was right by the south end of Olympia Way, so shortening the dash down to the station. The pressured dash across the bridge at Edgware Road (scheduled 1¾ min) succeeded (10 min penalty at stake). For the first time I managed to catch the theoretically earliest possible train off Morden, and remained on the earliest possible path until High Barnet. As on all previous attempts, the eastern end of the Piccadilly seemed to be on the drag, but not by enough to threaten this attempt. At Tower Hill I just missed a tight turnback; the following District should have led to an impossible ¼ min turnback at Aldgate East or 10 min penalty, but as it happened it gave a negative connection into a late runner on to Liverpool Street and (as on every previous attempt!) straight into a West Acton gap! Or, more precisely, into the one that gives no step-up at Ealing. But, bizarrely, I did make a cross-platform step-up there by dint of a 10 s early arrival and obligingly 221 s late departure! Fortune smiled again at Ickenham as my laboured jog up the hill from the bus stop was rewarded by another negative connection departing exactly a minute late and putting me back on to the earliest path I reckoned possible. By Watford, nature was pressing for what the industry euphemistically calls a Physical Needs Break, so the fact that the step-up was well and truly missed was exploited, sparing me a more rushed break elsewhere.

The potential tight 5 min dash from Northwick Park to Kenton was scuppered by 253 s late arrival, costing scheduled 15 min at Harrow & Wealdstone. However, this time the Bakerloo did seem to be running well — not quite well enough for a ½ min cross-platform dash at Elephant, but the time penalty was small and there was a decent margin into the next Hainault circuit, keeping me ahead of schedule until the Woodford change. Hooray — further than I'd got yet!

There were many frustrating crawls into termini: Edgware Road 58 s late (cost: N), Wimbledon 58 (?), Morden 32 (N), Battersea Power Station 22 (N), Cockfosters 309! (Y), Watford 330! (Y), Bank (W&C) 99 (N), Epping nearly a minute (N), Hainault 157 s (Y).

You'd expect 4 min at Stanmore to be enough to step up even from P3 to P2, but the long trudge around the buffers combined with a late rush-hour crowd and (I suspect) a slightly early P2 departure proved otherwise. It was frustrating to get unexpectedly trapped in a queue of buses waiting to turn into the bus station at Edgware, which cost 6 min on the departure time. Never mind; my spirits rose as I discovered that I still had 3 trains in hand and with the evening peak over and most of the fiddly stuff done there was less scope for disruption. The famously intensively worked Victoria Line was running impressively punctually and I left King's Cross with 2 trains in hand, then from Rayners Lane to Upminster I was on the penultimate possible train, the reductions being due to scheduled frequencies winding down for the evening rather than unpunctuality.

Emerging rejoicing at Upminster, I headed straight for the commendably still-open loo on P1 before embarking on a gentle but bitterly cold 3.2 km trudge with an increasingly painful leg muscle towards the nearest night bus stop at Abbs Cross, from where a 365 took me to Romford for trains home to Suffolk. Well, even if there were hotels in Upminster, the uncertainty of success and the ungodly hour would make them impractical, and an expensive night taxi to Romford wouldn't get me home any sooner, so what else is there to do? A sting in the tail came from a road closure, preventing buses from serving my local stop, 200 m from home, and instead hitting me with a seemingly endless 780 m hobble home from the diversionary route. Nevertheless, after nearly 29 hours on the go I did crawl into bed and blissful oblivion.

THE LOG

Times are in hh:mm:ss format by my wristwatch, which I'm confident was within 2 s of British Summer Time throughout. Arrival and departure platform numbers or bus stop letters are given after the station names. TRN = train running number. Apologies to any employee whose unpunctuality I may be exposing!

| Station | Arr | Dep | Line | TRN | Remarks |
|------------------------------|----------|----------|------|-----|--|
| Hounslow Central 1 | | 04:54:41 | P | 221 | Via T4. Choice of 5 starting points Osterley to Hatton Cross inclusive. |
| Heathrow Terminals 2 & 3 2,1 | 05:08:30 | 05:10:07 | P | 222 | |
| Heathrow Terminal 5 5, 6 | 05:13:19 | 05:23:10 | P | 222 | |
| Hammersmith 3, F | 05:56:58 | 06:00:58 | 9 | – | Bus. |

| | | | | | |
|------------------------------|----------|----------|----|-----|------------------------------|
| Kensington (Olympia) temp, 1 | 06:04:09 | 06:10:31 | D | 064 | Scheduled platforms swapped. |
| Earl's Court 2, 1 | 06:13:50 | 06:16:15 | D | 027 | |
| Gloucester Road 3, 2 | 06:17:56 | 06:22:57 | O | 206 | |
| Edgware Road 3, 2 | 06:33:58 | 06:34:57 | D | 071 | |
| Wimbledon 2, D | 07:06:28 | 07:10:22 | 57 | – | |

| Station | Arr | Dep | Line | TRN | Remarks |
|------------------------------|----------|----------|------|-----|---|
| South Wimbledon SZ, 2 | 07:14:25 | 07:17:37 | N | 012 | Via Charing Cross. |
| Morden 5, 3 | 07:20:02 | 07:20:21 | N | 112 | |
| Kennington 3, 2 | 07:40:41 | 07:43:52 | N | 124 | |
| Battersea Power Station 1, 2 | 07:48:33 | 07:48:55 | N | 202 | |
| Finchley Central 2, 1 | 08:24:05 | 08:28:11 | N | 100 | |
| Mill Hill East 1, 1 | 08:30:03 | 08:37:53 | N | 100 | |
| Finchley Central 3, 2 | 08:40:43 | 08:43:35 | N | 125 | |
| High Barnet 3, R | 08:53:44 | 09:02:16 | 307 | – | Bus. |
| Oakwood 1 | 09:16:51 | 09:21:07 | P | 307 | Train 5½ min late! |
| Cockfosters 3, 4 | 09:23:24 | 09:24:24 | P | 250 | Departure nearly 1 min late. |
| Hammersmith 2, 2 | 10:24:14 | 10:31:12 | O | 205 | Arrival 6 min late. |
| Tower Hill 1, 3 | 11:08:21 | 11:15:37 | D | 046 | 11:09¼ departure left early. |
| Aldgate East 2, 1 | 11:17:15 | 11:19:39 | H | 262 | 262 running 13 min late! |
| Liverpool Street 2, 5 | 11:21:44 | 11:26:23 | C | 065 | 3¾ min late dep allowed negative connection, saving 10 min! |
| Ealing Broadway 5, 6 | 12:01:50 | 12:02:41 | C | 055 | |
| North Acton 3, 1 | 12:07:40 | 12:09:59 | C | 017 | Arrival punctual to the second! Onward bus. |
| West Ruislip 2, S | 12:27:00 | 12:29:48 | 278 | – | |
| Ickenham C, 1 | 12:31:54 | 12:35:30 | M | 436 | 5¼ min late arrival. |
| Uxbridge 4, 3 | 12:40:34 | 12:43:09 | M | 435 | |
| Harrow-on-the-Hill 5, 3 | 13:00:08 | 13:04:45 | M | 427 | |
| Watford 2, 2 | 13:27:45 | 13:38:05 | M | 427 | |
| Moor Park 4, 3 | 13:44:42 | 13:53:41 | M | 413 | |
| Chesham 2, A | 14:16:37 | 14:36:09 | 1 | – | |
| Amersham 1 | 14:44:06 | 14:53:13 | M | 401 | Alighted one stop too soon. Unusual departure platform. Half-time 15:10:12, around Northwood. No rush; walked 0.6 km. |
| Northwick Park 2 | 15:26:43 | | - | | |
| Kenton 2 | | 15:40:41 | B | 242 | Arr 3 min late, dep ½ min early. |
| Harrow & Wealdstone 1, 2 | 15:42:56 | 15:46:56 | LO | | |
| Queen's Park 1, 2 | 16:09:53 | 16:12:08 | B | 226 | |
| Elephant & Castle 3, 3 | 16:39:03 | 16:43:21 | B | 226 | |
| Waterloo 3, 25 | 16:47:10 | 16:50:38 | W | 203 | Theoretical cross-platform dash thwarted by 1 min late arrival; inflated to 4¾ late departure. |
| Bank 7, 6 | 16:54:54 | 16:58:47 | C | 140 | |
| Epping 1, 1 | 17:37:?? | 17:44:24 | C | 140 | |
| Woodford 2, 3 | 17:59:43 | 18:16:21 | C | 172 | |
| Hainault 1, 3 | 18:25:07 | 18:33:01 | C | 106 | |
| Stratford 3A, 14 | 18:55:57 | 18:58:40 | J | 320 | 2½ min late arrival, so missed onward connection. |
| West Hampstead 1, 1 | 19:33:40 | 19:36:42 | J | 344 | Short working, but might be North Greenwich starter behind. |
| Stanmore 3, 3 | 19:58:27 | 20:05:44 | J | 344 | No, there wasn't, but no loss! |
| Canons Park 2, A | 20:07:25 | 20:11:42 | 340 | – | Step-up thwarted by crowd. |
| Edgware 2 | 20:18:39 | 20:24:41 | N | 141 | Bus. |
| Stockwell 3, 4 | 21:10:57 | 21:12:23 | V | 271 | Via Bank. |
| Brixton 2, 1 | 21:14:36 | 21:15:04 | V | 242 | Successful quick dash. |
| Walthamstow Central 1, 1 | 21:45:?? | 21:48:20 | V | 242 | |
| King's Cross St Pancras 4, 1 | 22:03:22 | 22:07:59 | M | 436 | No cross-platform opportunity. Departure punctual to the second! |
| Rayners Lane 1, 2 | 22:41:25 | 22:45:55 | P | 300 | |
| Ealing Common 2, 1 | 23:05:32 | 23:13:50 | D | 055 | |
| Ealing Broadway 7, 8 | 23:17:06 | 23:18:52 | D | 054 | |
| Turnham Green 4, 1 | 23:29:12 | 23:32:45 | D | 021 | |
| Richmond 7, 7 | 23:43:35 | 23:52:04 | D | 021 | |
| Upminster 3 | 01:25:43 | | | | |

REFLECTIONS

Some statistics: 49 LU trains plus 1 LO. 7 buses including Abbs Cross. Lots of stairs but only 5 escalators. Ticket needed at 20 gates, but Upminster's gates were open and access to W&C at Waterloo is ungated. 511.93 km by LU + 12.42 km by LO = 524.35 km on the Travelcard, which is impressively 5.187 p/km even ignoring buses.

Careful construction and tailoring of running sheets paid off. Intelligent bag and pocket management, familiarity with walking routes, knowing which door to alight from at each interchange, and knowing where enough loos were, all contributed to success on the day.

There was also an army of people driving, rostering, controlling, dispatching, and keeping complex infrastructure and trains working all day long to an enormously impressive standard – although let's face it, they weren't doing it just for me! But still it has to be accepted that it doesn't take much disruption for success to be snatched away, so patience and a philosophical attitude are called for.

I'm not interested in providing any proof beyond what evidence you find above; I recruited no witnesses and took no photographs. It's enough for me to have demonstrated that the all-lines bash is still possible, despite occasional claims to the contrary. I'm content therefore for you to be sceptical of my claim if you wish. I'm also happy for you to attempt the same daft exploit to whatever standard of proof you like, or whatever variant of it you fancy. If you're fitter than me you could win a bit of luck by sprinting where I could only intermittently jog. Access to real-time information through modern technology might give you another slight edge, although I managed well enough without. Good luck!