WHY THE GAP?

Disability Action Research Kollective

This zine is a distillation of an Engineering MSc project by Richard Amm and the solutions heavily draw from those proposed by railway Engineer Gareth Dennis.

“It’s absurd that we continue to buy and run trains that embed dependency and risk in their design. Disabled people want to travel independently where possible. Level boarding not only brings that ideal closer but it makes everyone’s journey easier and safer. This is a win for everyone.” – Alan Benson of Transport For All

“The railway industry and the Department for Transport have waited too long to take action to resolve the risks at the platform train interface. Not only does this mean that disabled passengers – or indeed those with buggies or luggage – have a dreadful experience when getting on or off trains, but we are risking people’s lives for the sake of not setting that interface to a set of rules agreed long ago. I don’t think it is unreasonable to aspire to solve that problem.” – Gareth Dennis, Engineer and Campaign for Level Boarding co-founder.

“Removing these barriers will open the doors to greater social and economic independence for disabled people and greater dignity.”, “Stakeholders cited secondary benefits that could be realised as a result of providing more step-free access, such as environmental benefits resulting from a modal shift from car to rail, a reduction in accidents, and an increase in the amount of railway revenue to the benefit of station operators, and benefits to central government through savings on the welfare budget.”

“After digging into the terrible historical reasons for the gap existing, and all the easily disprovable lies commonly used to justify why the work has not started on ever fixing it, my original title was going to be “Cut the Crap, Mend the Gap!”” - Richard Amm of DARK

Why is there a gap?

Disabled people were not a priority and were kept in workhouses and asylums when rail systems were built.

The UK built some of the earliest rail systems, but they were never intended to be joined together and so there were no coherent standards.

To this day different rail companies have monopolies of different areas and each have their own approach.

There is still no enforcement for platform placement standards or of train floor heights.

New trains and platforms are still being built and bought that are not compatible (e.g. Thameslink, Crossrail, Elisabeth Line, HS2 etc.)

Why no level boarding on new stations?

Only 20% of stations are accessible from street to platform and this is usually what is meant when it is said to be accessible. But once disabled people get to the platform they are dependant on staff to get on and off the train. But only 11% of stations are staffed at all times. Less than 2% of stations currently have level boarding, which means that disabled people can get from the platform onto the train without needing help from staff.

The Department of Transport (DoT) incorrectly thinks level boarding is impossible. Level boarding is missing from UK railway accessibility design standards, and there is no long term strategy to achieve it, yet. Not even from the disability committee that specifically exists to recommend accessibility upgrades to public transport.

In 2022, The Department of Transport (DoT) incorrectly says level boarding is impossible in their Inclusive Mobility Document. Even though it has already been achieved in Spain, Swizerland, Germany and the Netherlands as well as within devoled UK areas like Merseyrail.

In 2020, The Office of Rail and Road (ORR) only has guidance for access-to-platform but not for access-to-train, with level boarding completely missing from their accessibility categorisations.

In 2015, level boarding standards are missing from accessibility designs for new stations, while things like tactile paving is included.

In 2022, The Disabled Persons Transport Advisory Committee (DPTAC) recognised he need for level boarding but provided no long term strategy beyond recommending further research.

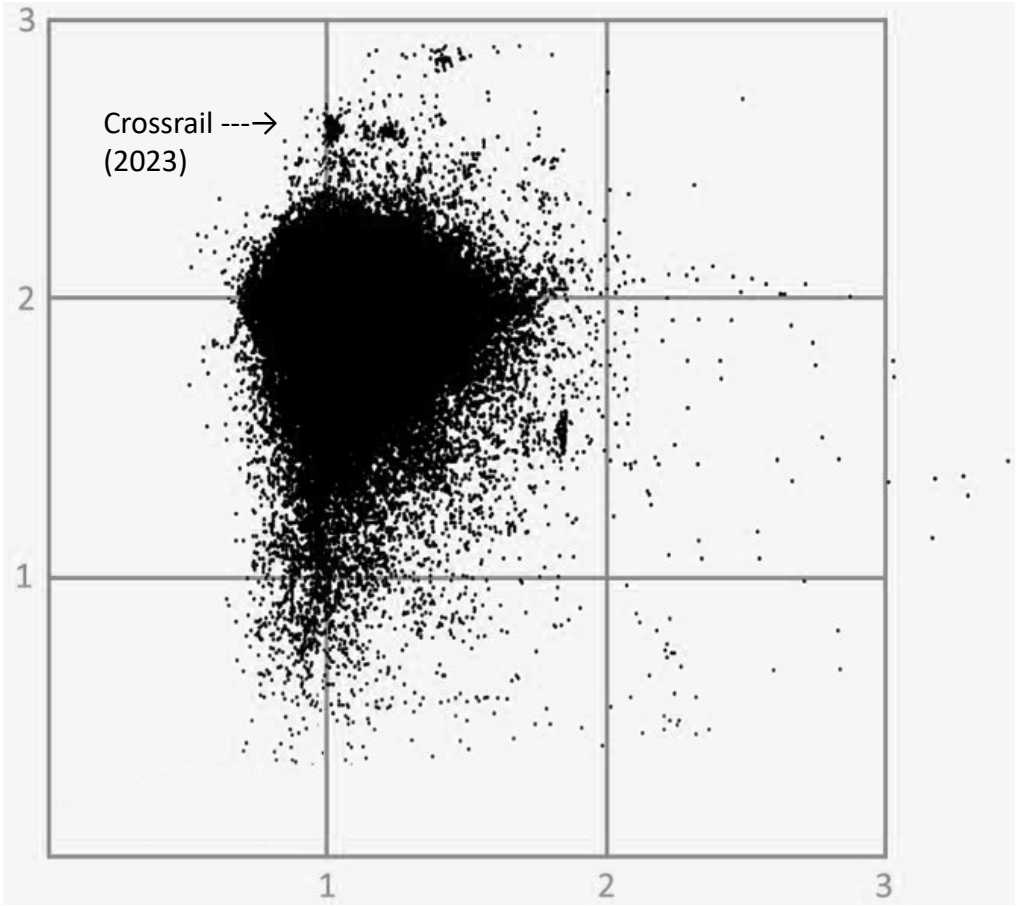
In 2021 The London Underground realised they using a faulty risk model which underestimates the harm done at the gap.

The Rail Safety and Standards Board (RSSB) allows too much variance in platform placement (Souce: Platform Train Interface Strategy Technical Report - Appendix E T866.) (Currently up to three feet in two dimentions)

Platform placement varies by three feet (In two dimentions)

Each black dot represents the placement of a platform edge of a station in England, in reference to the closest rail edge. As you can see there is an enormous amount of allowed variance. Some of the new networks form their own smaller clusters far above the central cluster.

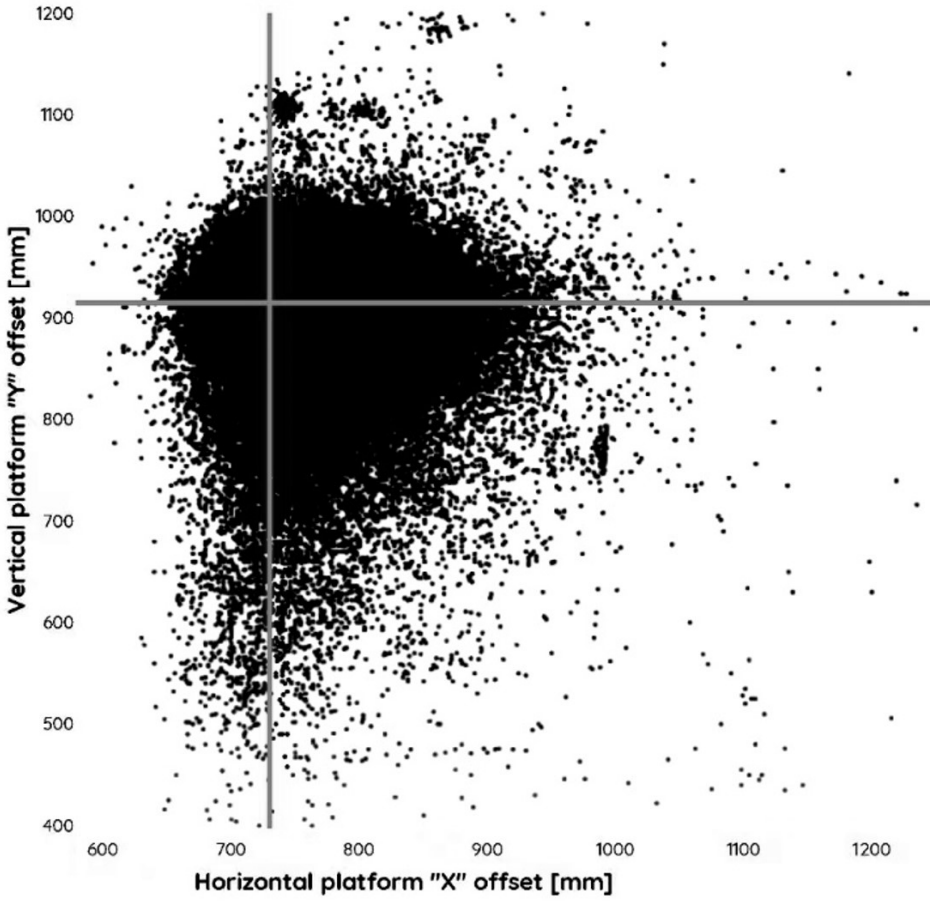
Crossrail didn't want to lower the platform at Heathrow so made all of the central London stations much higher to provide step free access. This made it so freight trains couldnt use those platforms so all the outer stations needed manual boarding with a ramp instead.
It locked in dependance and inaccess for disabled people for decades.



Set this standard for new platform edges

Platforms need to be offset at exactly:
730mm horizontally and **915mm vertically** from the closest rail

When platforms are built or remediated they should be set to this exact placement, which is entirely compatible with freight trains, which is a commonly used inaccurate justification as to why level boarding is impossible. Had Thameslink used this standard it would have step free boarding and have been fully compatable with freight trains. It should have used this standard and then bought trains with low floors to match. It chose higher train floors and two different platform heights instead.



Step free boarding means easier travel

David McQuirk, 49 years old, was forced to crawl onto the train after no staff turned up. He notifies train companies of his journeys 24 hours in advance, as wheelchair users are required to do for most stations so staff will be able to help them and provide ramps for them to get on, but estimates help fails to turn up on around 40% of his trips. It's over 20 years since disabled people's right to access transport was passed into law, but many of us still can't even use our local train stations. Just 1 in 5 stations across the UK are step-free to the platform, and cuts to station improvement funds has meant that progress has now all but ground to a halt. "I've missed trains so many times not being able to find staff"

Step free boarding means fewer accidents

“I once was boarding a train via a ramp in a motorised wheelchair. At the bottom of the ramp, the rail assistant pushed the base of my wheelchair tray without my consent. The tray pushed onto the controller on my wheelchair, which then drove me up the ramp at full speed. I took out two passengers before I hit the door on the other side of the train breaking my foot“ - Michael Grimmett

The gap makes up 21% of total injury risk 48% of the total fatality risk of the entire rail network and it is the source of the most serious accidents. In an average year there are 57 accidents and 11 deaths at the gap.

Step free boarding is independance

Once you are on the train, you can only get off at your pre-booked destination, no matter how long your journey is. Some trains do not have accessible bathrooms, or sometimes the bathroom is non-functional. Without step free boarding you cannot disembark in unsafe situations.

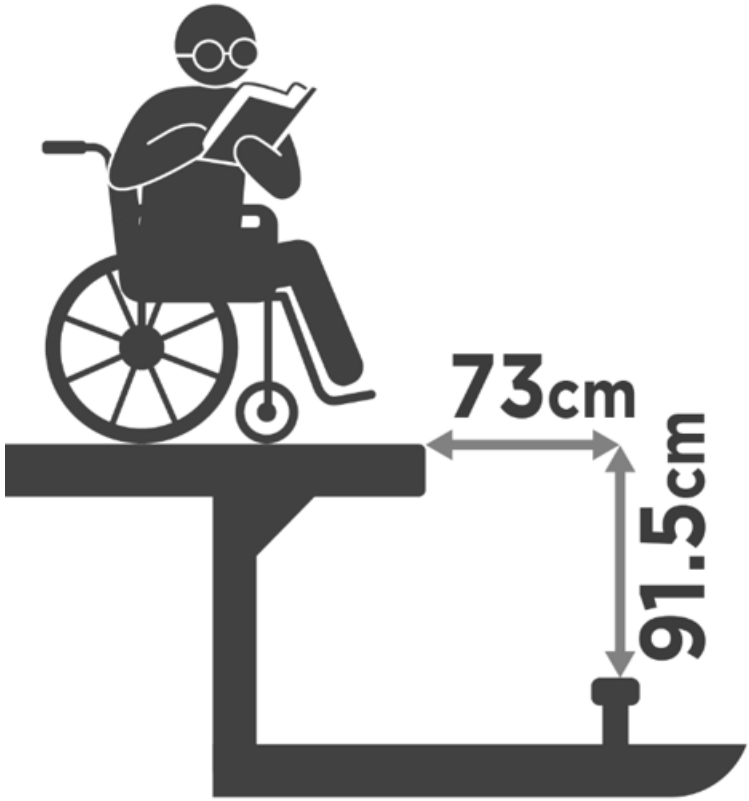
Anne Wafula Strike, a Paralympian, while on a multiple hour train journey was forced to wet herself as there was no accessible toilet. She was unable to disembark because there were no staff on the stations to let her off. “I was completely robbed of my dignity by the train company,” she said. “I would like to ask the train company when will they give me my dignity back? As a disabled person I have worked so hard over the years to build up my confidence and self-belief. “Having access to a toilet, especially in a developed nation like the UK, is one of the most basic rights. I tried to conceal the smell of urine by spraying perfume over myself. When I finally got home after my nightmare journey, I scrubbed myself clean in the shower then flung myself on my bed and sobbed for hours.”

Step free boarding means not missing a stop

If staff do not turn up you are trapped on the train and might miss your destination. 15% of all booked assistance is not delivered or is delivered unsatisfactorily. “I always pick up a free paper to wave out of the door in case there is no arranged ramp at my destination.” - Andrea

Manual boarding ramps cause 7% of the total accidents on rail network and increase dwell time. Currently ramped boarding is associated with £1.5m annually in financial penalties and total delay of 47,000 minutes to trains.It is also associated with a loss of £400k annually for injuries related to this task. Delays of 5 min happen once every 227 ramps

So how do we achieve level boarding? (Step 1)



Enforce precise placement when building or fixing platforms.

Only 1 in 5 platforms currently meet this standard. There should be a rolling national programme of platform corrections to fit this standard. It would be compliant with all train types including freight. The placement standards are known as GI/RT7016 and GI/RT7073 and relate to the platform edge being placed 730mm horizontally and 915mm vertically from the running edge of the closest rail. Curved platforms should use edge fillers or be straightened where possible. Slab tracks should be used to further stabilise rail height.

So how do we achieve level boarding? (Step 2)

Mandate matching low floor heights when buying trains.

When procuring new trains, make compliance with existing standards and infrastructure mandatory, it's particularly important to get trains with low floor heights that match the platform height. This is easier to do with electric trains and as old diesel trains are getting phased out now is a good time to do this. Thameslink and Crossrail are ongoing examples of non-compliant trains. The Merseyrail 777 trains are not only fully compliant but also have automatic edge filling extendable ramps.

So how do we achieve level boarding? (Step 3)

Update policy documents making standards mandatory

Unassisted access (level boarding) standards should be required when doing a retrofit. The policy document that would need to be updated is the Technical Standards for Interoperability (TSIRPM). The Office of Rail and Road would also need to update their station accessibility classification system to include level boarding. The Department of Transport should update their Inclusive Mobility document to include level boarding. Additional technologies should also be considered to improve safety like platform edge gap fillers and “Toblerone” panels.

“Mandate that unassisted access standards are used when doing a retrofit. The Technical Standards for Interoperability (TSIPRM) relate to heavy rail, they list a PTI gap of 75mm wide and 50mm high, this is what is considered “Unassisted access” (Known more generally as Level boarding). Unassisted access is not currently an enforced requirement whereas other inclusive aspects like tactile paving are.

The TSIPRM should be updated to make unassisted access mandatory. This small regulatory change will be critical for preventing access inequalities going forwards. Light rail already has these standards, in the Rail Vehicle Accessibility Regulations (RVAR) but these do not apply to mainline networks. Enforce existing guidelines relating to platform placement whenever building or refurbishing platforms.

Start a rolling national programme of platform corrections to fit current standards. This would need to target areas with specific train families. The standards of platform edge placement are GI/RT7016 and GI RT7073. These recommend that the platform edge be placed 730mm horizontally and 915mm vertically from the closest rail.

Straightening curved platforms should also be done where possible. When procuring new trains, make compliance with existing standards and infrastructure mandatory. It is particularly important to get trains with low floor heights. This should be easy for anything going less than 100mph, especially if the train is electric. As the Diesel trains are phased out this is an excellent time to get this done. Examples of the UK buying non-compliant trains that do not fit the infrastructure are Crossrail and Thameslink.” - The Campaign for level boarding

Economic costs and benefits

According to a 2022 study by Motability, an additional economic benefit of £72.4 billion per year could be generated if the entire transport accessibility gap were closed for disabled people in the UK.

Level boarding will also empower the 14.1 million disabled people to live independent lives and contribute as workers and consumers which should boost economic productivity. A 10% rise in the employment rate amongst disabled adults could contribute an extra £12 billion to the Exchequer by 2030.

The cost of implementing mandatory standards for future work is negligible. Buying new trains and building new platforms would have to be done anyway so it makes sense to start having standards going forward and there is no significant economic justification against that. The expensive part is the additional recommendation of the centrally funded rolling program to remediate old platforms as train families are replaced. This is likely to cost at least £30 000 per platform. Upgrading all stations to have access to the platform would cost a total of £6 billion

According to the Permanent Rail Engineering organisation, if the Department of Transport followed it's 'Common Safety Risk' rules it would be spending £770 million per year on fixing gaps to reduce the risk of accidents. It would also save Network Rail at least £1.5m in fines for delays every year.

Social benefits

Around 5% of rail journeys are made by people with a disability or long-term illness. There are millions of disabled people in the UK and accessible transport dictates where they can live, work and study. Disabled people pay tax, which helps to maintain and build infrastructure that then excludes them, essentially subsidising non-disabled passengers. Level boarding currently only exists on less than 2% of the national rail stations.

There are 14.1 million disabled people in the UK. 5.1 million are pensioners, with that number set to double in coming years. There are 1.2 million wheelchair users in the UK and mobility impairments are the most common type of disability. One of the most common barriers to work for disabled people is difficulty with transport. A 10% rise in the employment rate amongst disabled adults could contribute an extra £12 billion to the Exchequer by 2030.

With universal level boarding, disabled people can live and work anywhere, and not have to worry about being forgotten on the train, you can use even use unstaffed stations.If the toilet is broken, or the train is rerouted, or on fire, they can just get off at the next station. There will be a reduced need to try to find carers with drivers licenses, which has been significantly more difficult since Brexit. Disabled people will be less reliant on personal vehicles. Motability has 630000 cars are used by the Motability. Accessible public transport can help to reduce this number and help fight climate change.

Level boarding is essential for some but beneficial for all. It would make boarding safer and more convenient for prams, children, pensioners, dogs, luggage and bikes, but for disabled people it means a lot more.

Level boarding means faster boarding, reduced dwell time, fewer accidents, fewer delays, less reliance on cars and is good for the planet. It frees up station staff for more imporant work and reduces training costs.

Would you like to know more?

Youtube lectures

#RailNatter Episode 31: Is level boarding on trains really that hard to achieve? - Gareth Dennis

Academic papers

Cepeda, E. P., Galilea, P., & Raveau, S. (2018). How much do we value improvements on the accessibility to public transport for people with reduced mobility or disability?. Research in Transportation Economics, 69, 445-452.

Holloway, C., Thoreau, R., Roan, T. R., Boampong, D., Clarke, T., Watts, D., & Tyler, N. (2016). Effect of vertical step height on boarding and alighting time of train passengers. Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit, 230(4), 1234-1241.

Karekla, X., Fujiyama, T., & Tyler, N. (2011). Evaluating accessibility enhancements to public transport including indirect as well as direct benefits. Research in Transportation Business & Management, 2, 92 -100.

Martens, K. (2018). Ageing, impairments and travel: Priority setting for an inclusive transport system. Transport Policy, 63, 122-130.

Chowdhury, S., & Wilson, D. (2020). Gap between policymakers' priorities and users' needs in planning for accessible public transit system. Journal of Transportation Engineering, Part A: Systems, 146(4),04020020.

Industry papers

Atkins - Significant Steps -Research (2004a)

RSSB - An Assessment of the Cost and Benefits of Adopting a Standard Uniform Platform Height of 1115mm (2007).

RSSB - T866 Investigation of platform edge positions on the GB network

RSSB - T1037 Stepping Distance Study (2014).

RSSB – T1166 Minimising the Impact of'High and Tight'Platforms (2019)

TRL - Qualitative study of platform-train interface incidents (2014)

UCL - Train Dwell time and Passenger Crowd Management (2008)

Organisations

Campaign for Level boarding https://www.levelboarding.org.uk/

SPARK (RSSB research hub)https://www.sparkrail.org/

This zine is produced by the **Disability Action Research Kollective** (DARK), which is a disabled-led group working to make disability perspectives, history, and research more accessible to a general audience. We are always looking for disabled (and non-disabled) volunteers to help write, edit and share their perspectives. Be part of something bigger than yourself, join us in the DARK today!

This zine features work by
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