

Appendix 1: TfL Climate Change Adaptation Update

SSHR Panel

24 February 2022



Summary and contents

Severe weather events as a result of climate change are a major strategic risk for TfL

This deck:

- summarises TfL's review of the severe surface water flooding events over the summer of 2021
- summarises recent progress on TfL climate change adaptation
- outlines the actions still required to adapt to climate change

Contents

- Slides 3 to 7 – TfL's readiness for current and future severe weather events
- Slides 8 to 10 – Key actions to adapt to future climate change risks
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July 2021 flooding events

TfL performs well in terms of operational resilience, but needs to focus additional effort on adaptation to reduce the impacts we experience in the first place.

- Multiple networks experienced severe disruption during the extreme surface water flooding events on 12 and 25 July 2021. The first pan-TfL review of flooding impacts and response was undertaken.



- Once severe weather alerts were received, TfL reacted quickly. Almost all our services were back to normal the next day.
- As a result of the review, it was highlighted that we must:
 - give higher priority to improving the way climate related risks are considered
 - automate data collection and expand the range of data collected on weather-related impacts to include costs
 - develop more robust measures to tackle the challenges of a constantly changing climate
 - continue to collaborate both within TfL and with external organisations, such as Thames Water, Environment Agency, GLA and London Boroughs

We have been lucky not to be hit by more extreme weather

Recent reports by the Environment Agency highlight that 'it is only a matter of time' until such events happen in the UK. Without action, we will see major H&S, financial, legal and reputational impacts.



The costs in Germany of the one flooding event was £10bn and over 90 lives lost. **93 mm of rain** fell in one day, compared to London's **48 mm on 12th of July**.



In New York, **82 mm** of rain fell in **one hour** and 45 people lost their lives in New York area as a result of storm Ida.



The Stonehaven derailment on 12 Aug 2020 happened when a passenger train hit a **landslip following severe rain**. Three of the nine people onboard died.



On the 4th Oct 2021, Rossiglione on northern Italy experienced **740 mm of rain in 12 hours** leading to widespread impacts including a bridge collapse

Flooding is not the only climate impact on London's transport networks

We need to prepare for all climate hazards and interdependencies that will affect TfL's infrastructure, customers, staff and contractors – not just flooding of our assets.

- Climate hazards also include high temperatures, storms and high winds, drought and water use restrictions. All of these affect London's transport networks:



Harrow-on-the-Hill points failures on 'very hot days', resulting in delays, or even line closure.



Hammersmith Bridge microfractures widened by 2020 heatwave, leading to closure.

Temperatures surpassed 34°C in central London.



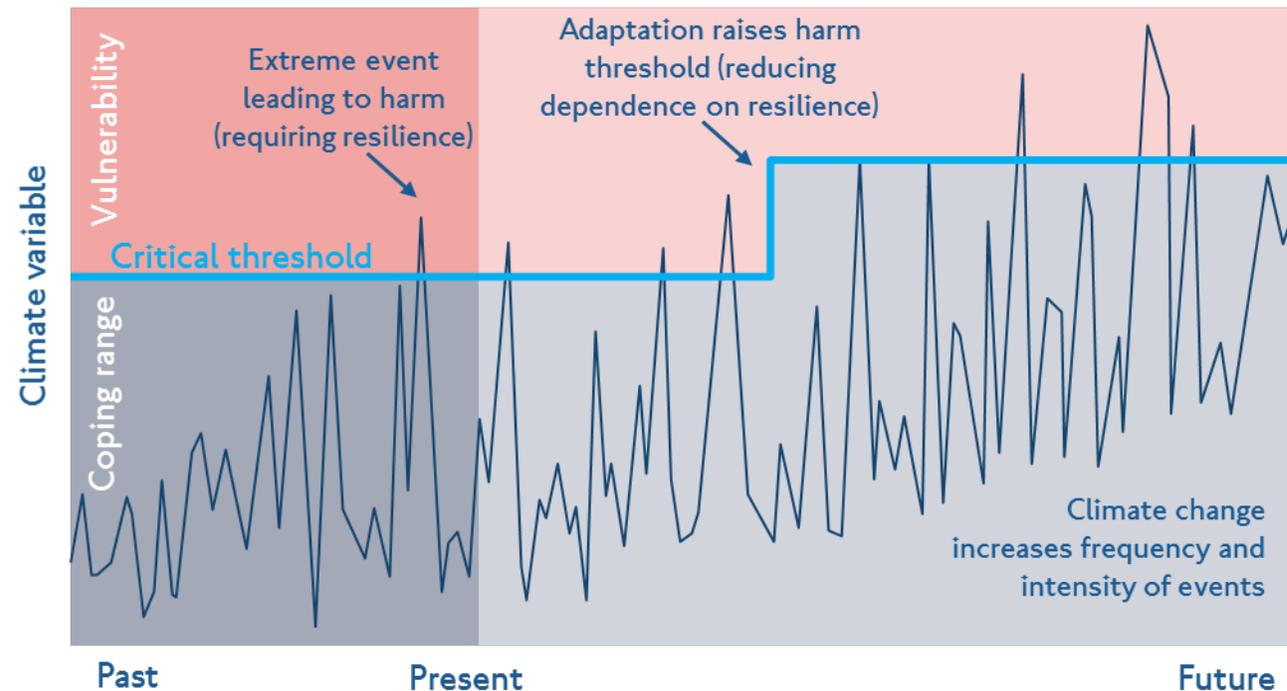
Piccadilly Line wheel flats issue in 2017 was exacerbated by an autumn storm, taking many trains out of service.

- Climate change is a 'threat multiplier', i.e. more than one climate hazard can occur at the same time, and climate hazards can exacerbate other risks. Climate disruption of other key networks, such as power, can cascade to us via interdependencies.

Meeting TfL's long term goals

- Severe weather events will become more frequent and more intense.
- Resilience alone will no longer be sufficient to maintain asset integrity, safety and service reliability, ultimately affecting our mode shift goal.
- Severe weather events will become an increasing drain on our financial resources, affecting our long term sustainability.
- By reducing / avoiding climate impacts, adaptation contributes to, and reduces our dependence on, resilience.

Without adaptation, we will not be able to meet our mode shift or financial sustainability goals.



Adaptation actions to date

We are making progress, but there is more to do to fill the gaps in our knowledge, understand what actions to take based on that, and then implement them.

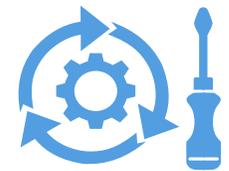
- Existing TfL adaptation actions include:
 - installing green infrastructure and sustainable drainage systems (such as the Elspeth Road raingarden in Wandsworth)
 - managing a research programme to better understand weather impacts
 - collaborating with internal and external stakeholders to better understand, and share knowledge of how best to manage, climate risks
 - working with the Met Office and Network Rail to make their world-leading climate projections data more accessible and usable
- Following the July flooding events, the Mayoral roundtables and associated Task & Finish Group have highlighted London's lack of adaptation to climate change, particularly around:
 - data (TfL's flood review identified this as an issue we need to address)
 - governance (this is complex both in London and TfL, and requires improved internal and external collaboration)
 - funding (TfL's funding situation favours a culture of short-term cost-cutting that jeopardises the realisation of long-term savings)
 - strategy (see slide 9)
 - communications (as per governance)

Our proposed strategic approach

The severity of climate change risk requires the development of a pan-TfL adaptation strategy, covering six main areas of activity.



Research: Using data to understand correlations between weather and impacts, modelling future climate risks, and understanding asset vulnerability



Processes and tools: Embedding improvements to our management system, tools to model risks / benefits, incident / performance reporting and track activity



Reporting: Internal and external reporting on our performance, risks and progress toward improvements informed by our data and research



Communication: Guidance and communication for our customers and colleagues about how to improve their resilience, how to adapt and why adaptation is important



Case making: Informed by our research and data we need to proactively make the case for business area action, funding in the TfL business, communications messaging and funding opportunities



Collaboration & influence: Working with external stakeholders to shape London-wide adaptation activity, and share knowledge and best practice

External scrutiny on TfL's climate risk

There is intense Government scrutiny of organisations' climate risk and adaptation. To maintain investor confidence in TfL, we must demonstrate effective action on climate risk reduction.

Defra's Adaptation Reporting Power (ARP3)

- Submitted ARP3 reports will be publicly available.
- For the first time, a spreadsheet-based asset climate risk assessment is required. This will form the nucleus of the new TfL adaptation strategy.
- We have agreed with Defra that TfL submit:
 - a [preliminary report](#) (without asset climate risk assessment) in Dec 2021
 - a final report (with the asset climate risk assessment) by April 2022



Taskforce for Climate-Related Financial Disclosures (TCFD)

- TCFD is a finance sector initiative designed to improve investor confidence in organisations' understanding of, and work to reduce, climate risks.
- TfL will be captured by the Government's roadmap for mandatory TCFD reporting in 2022/23.
- TCFD was the subject of a paper to the TfL Audit and Assurance Committee on the 1 Dec 2021 and we are beginning to incorporate it into our approach for the 2021/22 Annual Report, ahead of it being required. We already consider climate change risks in our annual report and statement of accounts; TCFD would involve a more comprehensive approach.

Key messages

- Climate change impacts are already affecting our assets, services, staff, contractors and customers, as well as our ability to meet strategic goals, including mode shift and financial sustainability
- Adaptation is likely to be an area of significant government and investor scrutiny and funding in the future
- We have some good work underway, but there is a lot more still to do



Key actions TfL is taking

Short term

- **External collaboration**, e.g. via Mayoral roundtables and associated Task & Finish Group, to improve data sharing and lobby for action / changes
- Continue identifying opportunities to install **green infrastructure and sustainable drainage systems** as part of TfL and borough projects
- Continue efforts to **quantify severe weather and climate impacts**. Identify required funding for key projects that are essential for cost-effective adaptation planning, e.g.:
 - seed funding for expansion of LUCRFR (London Underground Comprehensive Review of Flood Risk) to include key Surface assets
 - upgrades to existing performance reporting systems to allow for weather attribution

Medium term

- Signalling TfL's climate readiness to government and wider investment market through **ARP3 and TCFD reporting**
- Develop, and agree with business areas, a **pan-TfL Adaptation Strategy** by summer 2022 that is informed by the asset climate risk assessment being conducted for ARP3

Longer term

- Implementation of the pan-TfL Adaptation Strategy, incorporation of adaptation into business area decision-making and processes, and monitoring of progress. This will need to be taken into account in future budget discussions



High level programme

Q3 21/22		Q4 21/22			Q1 22/23			Q2 22/23		
Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep

Collaboration & influence



Task and Finish Group

Reporting



Submit preliminary ARP3 report to Defra – COMPLETE

Submit final ARP3 report to Defra, & trial TCFD reporting

SHE Annual Performance Report

MTS Annual Update to TfL board

Case making



Agree Adaptation Strategy

Consider funding requirements in future Budget / Business Plan

Communication



Incorporate benefits of adaptation into Sustainability Comms campaign

Research



Subject to funding, progress future phases of LUCRFR
Continue remaining research programme

Processes and tools



Work with Met Office on UKCP18 tool

Continue to embed adaptation into relevant TfL processes and decision-making

Key

ARP3 – Adaptation Reporting

Power

TCFD – Taskforce for

Climate-Related Financial

Disclosures

UKCP18 – UK climate

projections 2018

