West Midlands Regional Adaptation Network (RAN)

Wednesday 30th April 2025

West Midlands Combined Authority | Greener Together

Welcome and Introduction

Purpose of the Regional Adaptation Network (RAN)

To connect and build the skills and knowledge of people who have a role in preparing the region for climate change. The Network is part of the new, wider West Midlands Adapt project.

Mentimeter poll

- What sector do you represent?
- How familiar are you with climate adaptation?

Mentimeter QR code
Join at menti.com

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Key terms

Climate hazards	Climate-related physical events or trends that may cause the loss of life or injury, damage and loss to property, infrastructure, livelihoods and ecosystems.
Climate impacts	The effects or consequences of hazardous events on lives, health and wellbeing, ecosystems, the economy, assets, services and infrastructure.
Climate adaptation	The adjustments made to ensure that we are better prepared for increasing and intensifying climate hazards.
Climate resilience	The goal of adaptation, where communities, infrastructure and the natural environment can withstand, cope with, bounce back and benefit from hazardous events.


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Coventry City Council


UK Health
Security
Agency


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University


ASSOCIATION OF DIRECTORS OF PUBLIC HEALTH


COMMUNITY
RESILIENCE
TEAM


WEST MIDLANDS FIRE SERVICE


British
RedCross


Transport for
West Midlands


NHS
The Royal Wolverhampton
NHS Trust


CITY OF
WOLVERHAMPTON
COUNCIL


Department
for Transport


SEVERN
TRENT
WATER


NATURAL
ENGLAND


manor farm
COMMUNITY ASSOCIATION


NHS
England
Midlands


Dudley
Metropolitan Borough Council

Met Office


KIER


Walsall
Council


RICS


WEST MIDLANDS POLICE


HEALTHY
SANDWELL
We find the support you need


Birmingham and Solihull
Integrated Care System
Caring about healthier lives


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WEST MIDLANDS
resilienceforum


sustainability
west midlands


NetworkRail


Birmingham
City Council


Sandwell
Metropolitan Borough Council


ea
Education
Authority


gia
CHARTERED SURVEYORS


nationalgrid
Electricity
Distribution


ENERGY CAPITAL

Agenda

Time	Item	Speaker
10:00-10:10	Welcome and high-level introduction to WM-ADAPT and the RAN • Mentimeter: Range of expertise in the room – role/sector	Beth Haskins & James Hodgson
10:10-10:45	What do we know about climate impacts facing the West Midlands? • Health impacts of heat – Dudley MBC • Transport impacts of Storm Darragh – TfWM • Extreme weather and West Midlands Fire Service	Beth Haskins & Sarah Greenham Paul Quigley Adam Holland Hannah Spencer
10:40-11:20	What do we know about adaptation delivery in the region? Need for strategic adaptation planning/delivery and dedicated resourcing. Discussion: Roundtable on RAN members role in climate adaptation delivery and responding to impacts.	Jackie Homan
11:20-11:45	What is WM-Adapt and why is it needed? Introduction to workstreams: • Workstream 3: building adaptation knowledge, skills and the Regional Adaptation Network • Workstream 1: community-scale climate adaptation planning • Workstream 2: data enhancements	Emma Ferranti & workstream leads
11:45-12:00	AOB and wrap up • Terms of Reference review for next time • Ask to circulate invitation wider • Forward Plan – what's coming up • Menti metre – what do you want from this Network?	Beth Haskins & James Hodgson

Examples of impacts already being felt …

Flooding and a stranded resident in Alum Rock, East Birmingham (2019)

NEWS

Infrastructure investments worth £650bn at risk if climate resilience neglected

By Daniel Gayne | 5 July 2022

Environment Agency chair calls for Treasury review on issue

Nearly £650bn of public and private infrastructure investment planned by 2030 are at ris unless climate impacts are factored into planning and delivery.

Drought in Edgbaston Reservoir (2018)

THE INSURER
Insurance Insight Intelligence

GuyCarpenter 100 YEARS

The Insurer TV ESG Insurer Program Manager E&S Insu

Articles News Analysis Comment Viewpoint Interview About us

Published: Tue 21 Mar 2023

CLIMATE

UK insurers set to pick up £219mn subsidence claims bill from 2022 heatwave

Flooding in Catherine de Barnes, Solihull, from Storm Dennis (2020)

An urban area unprepared for extreme weather

Heavy rainfall and storms leading to...

1. Surface water flooding obstructs roads and pavements.
2. Contaminated water pools on poorly managed derelict site.
3. Surface water floods housing where drains struggle with heavy rainfall.
4. Increased emergency service demand in response to flooding.
5. High river levels flood roads and houses.

High and extreme temperatures leading to….

6. Poor ventilation and sun exposure lead high-rise flats to overheat.
7. Heat stress of staff lead shops to close due to poor ventilation and no air conditioning.
8. Tightly packed, densely populated housing, with poor energy efficiency and ventilation, experience heat stress with emergency services supporting vulnerable residents.
9. Communal carparking has limited public green space and natural shading for respite and shelter.

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An urban area ready for extreme weather

Adaptation to rainfall changes and increasing storms can look like …

1. Pond and park space drains surface water.
2. Biodiverse sustainable drainage drains rainfall from hard surfaces.
3. Vegetation, water butts and reduction of paved surfaces drain rainfall and prevent flooding.
4. Re-naturalised (re-shaped) river, flood defence and raised highways reduce flood risk and improves nature.

Adaptation to high and extreme temperatures can look like …

5. Urban cooling as derelict site is repurposed as a public park that offers cool recreational space.
6. Shops install awnings to shade shop fronts and pavements.
7. High-rise flats cooled by window shutters and solar-powered air conditioning. Green roof intercepts rainfall.
8. Terraced houses retrofitted with wall insulation, window shutters, solar panels, heat pumps, and improved ventilation, improving indoor air quality, reducing overheating risk and reducing energy demand for cooling buildings.
9. Car parks include green space, trees and shaded seats for respite in hot weather.

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West Midlands Climate Risk & Vulnerability Assessment (CRVAs)

1. Data collection

Combining many different datasets representing climate risk. These include:

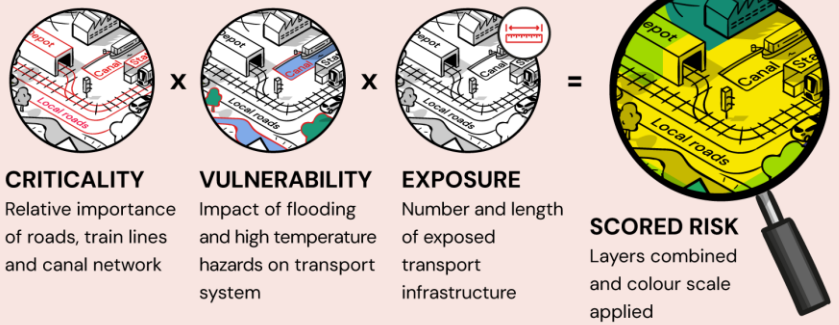
Datasets that represent climate HAZARDS, or could worsen a climate hazard, e.g.
- Flood Zones
- Landsat Surface Temperature
- LiDAR derived tree cover
- Topographical data
- Geological information
- Location of water courses.

Datasets that represent the CRITICALITY AND VULNERABILITY of different transport types, e.g.
- Key route network
- Strategic road network
- Agree diversion routes
- Traffic census information
- Bus routes / frequency
- Station patronage
- Car park spaces
- Accessibility indicators
- Cycle routes.

Datasets to map the transport EXPOSURE to climate change, e.g.
- Networks: road, rail, tram, cycle and bus
- Airports, depots, bridges, park & ride, stops.

2. Scoring the data

We have taken a section of the map to explain how we score the data. We combine a number of factors to arrive at a scored risk at each location.



CRITICALITY
Relative importance of roads, train lines and canal network

VULNERABILITY
Impact of flooding and high temperature hazards on transport system

EXPOSURE
Number and length of exposed transport infrastructure

SCORED RISK
Layers combined and colour scale applied

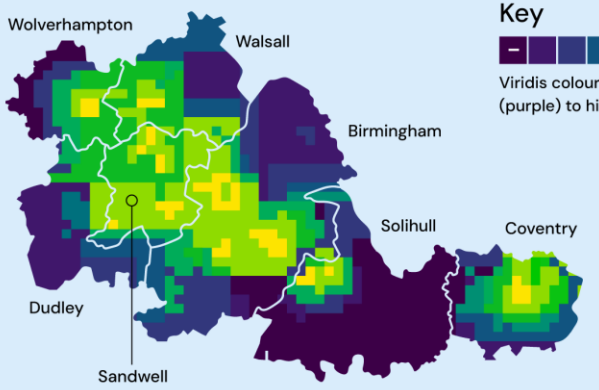
5. Datasets are updated and published over time

4. Adaptation engagement

Maps are used to inform stakeholders of climate risks relating to places in the West Midlands.

They are used to prioritise adaptation actions, influence policy and allocate resources and funding.

3. Publish the map



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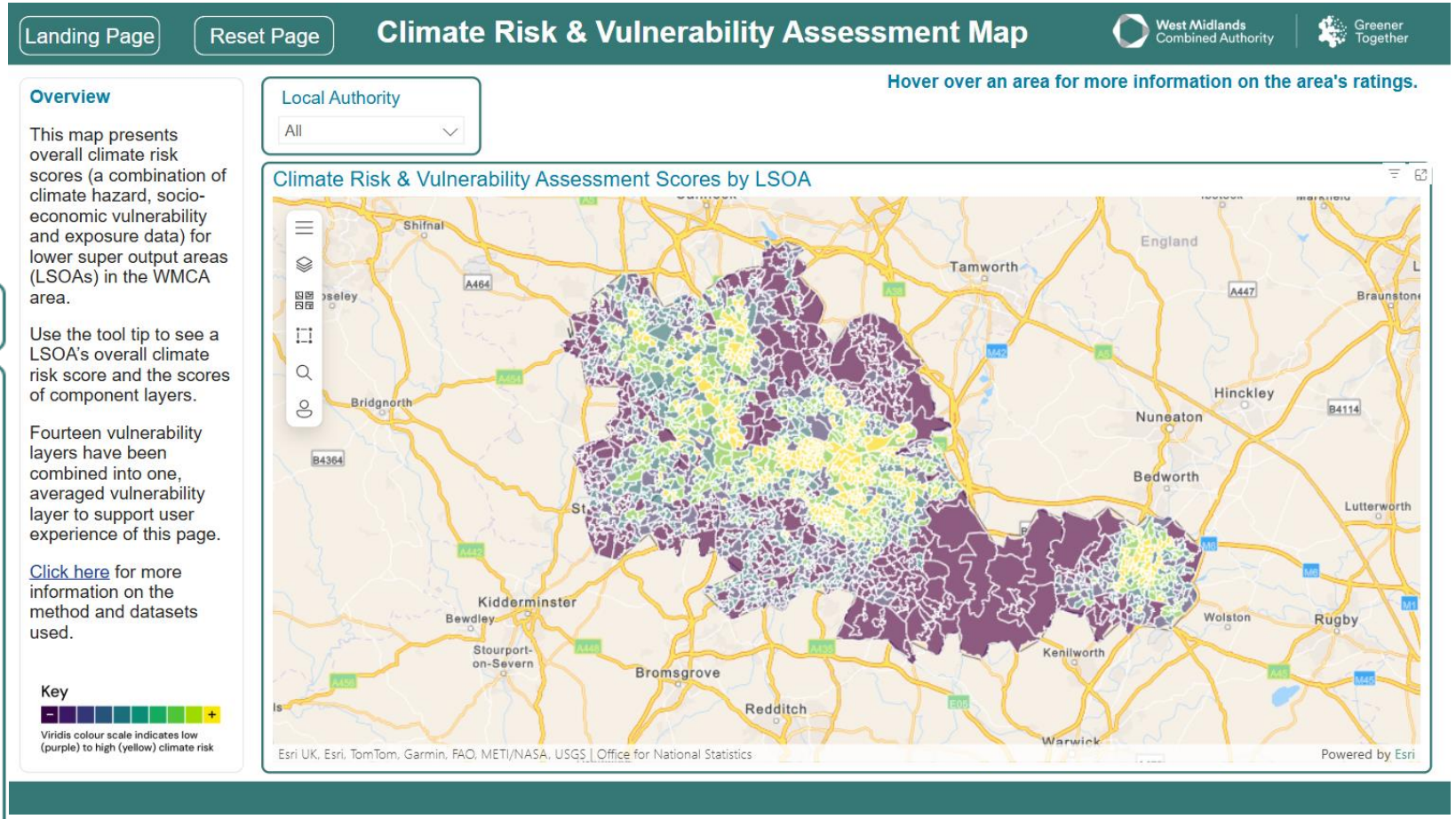
West Midlands CRVA

The overall CRVA score for an LSOA/Ward is broken down by the contributing layer scores

Birmingham 074B

Metric Group	Metric	Category
Overall CRVA score	CRVA Total Risk	Low
Vulnerability score	Socio-economic vulnerability score	Low
Exposure score	Population density	Low
Hazard score	Waterway (fluvial) flood risk	Lowest
Hazard score	Surface water (pluvial) flood risk	High
Hazard score	Average summer air temperature	Lowest
Hazard score	Air pollutant concentration (nitrogen dioxide)	Highest
Hazard score	Air pollutant concentration (fine particulate matter)	Low
Hazard score	Building form, height and density (Local Climate Zones)	Highest
Hazard score	Lack of large, open green spaces	High
Hazard score	Lack of other green spaces (e.g. gardens)	High
Hazard score	Lack of cover and shading from the tree canopy	Lowest



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The Importance of Climate Adaptation:

The Impact of Heatwaves on Mortality in Dudley

30 April 2025

Dudley Metropolitan Borough Council

Working as One Council in the historic capital of the Black Country

Inspiration!

Podcast:
Chicago when it sizzles
https://timharford.com/2022/07/cautionary-tales-chicago-when-it-sizzles/

Keller, R.C. **Fatal isolation**: the devastating Paris heat wave of 2003. Chicago: University of Chicago Press, 2015

Klinenberg, Eric. **Heat Wave**: A Social Autopsy of Disaster in Chicago. Chicago: University of Chicago Press, 2002

This presentation:

1. **UKHSA national reports**
2. **Dudley experience**

   Monitoring temperature & health impacts

   Emergency planning

1. UKHSA national reports

Annual heat mortality monitoring reports

UK Health Security Agency


GOV.UK

UK Health Security Agency

Official Statistics

Heat mortality monitoring report, England: 2024

Published 3 April 2025

Applies to England

Contents

Main points

User feedback

Heat episodes

Observed heat-associated mortality

Observed heat-associated years of life lost

Comparison with modelled mortality

Further insights and contextual information

Glossary

Data sources and methodology

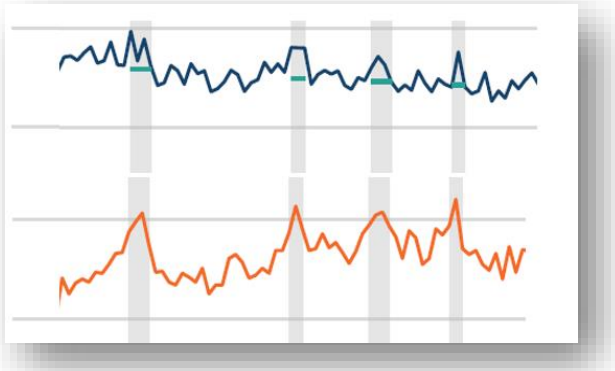
Background information

Further information and contact details

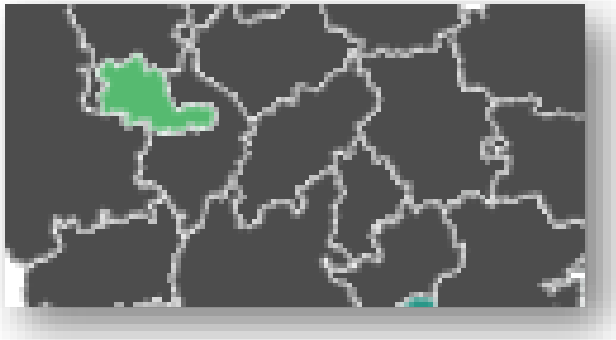
https://www.gov.uk/government/statistics/heat-mortality-monitoring-report-england-2024/heat-mortality-monitoring-report-england-2024

Two useful data visualisations

Comparison of mortality and temperature over the year



Heatwave deaths by sub-national geographies



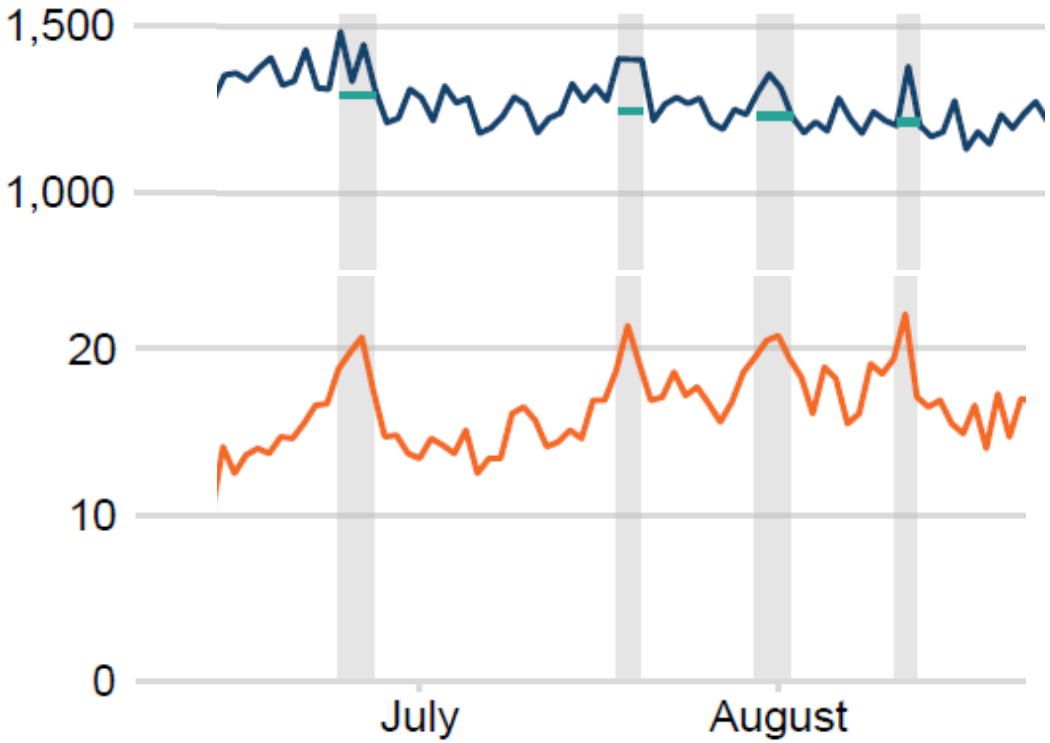
Temperature & mortality 2024

Daily deaths

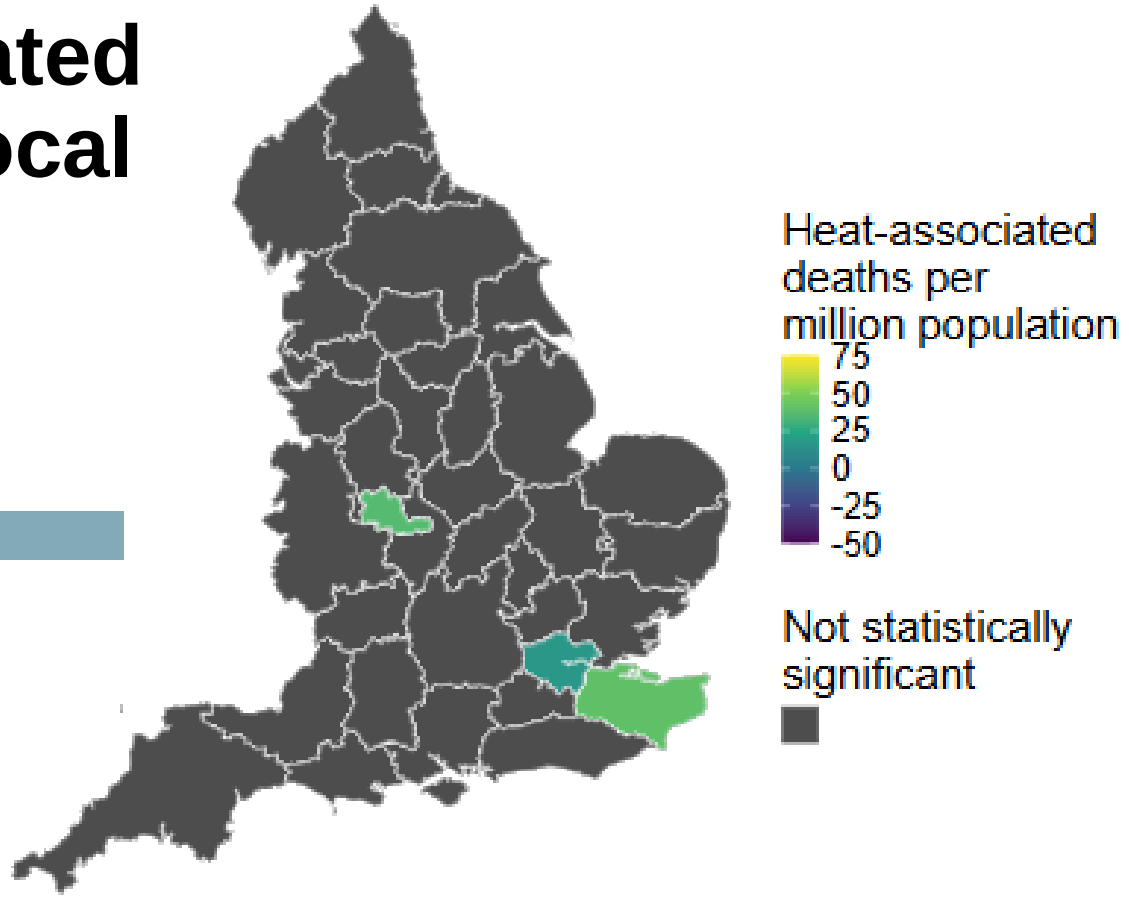
[excluding COVID-19 deaths]

Daily mean Central England Temperature

[degrees Celsius]



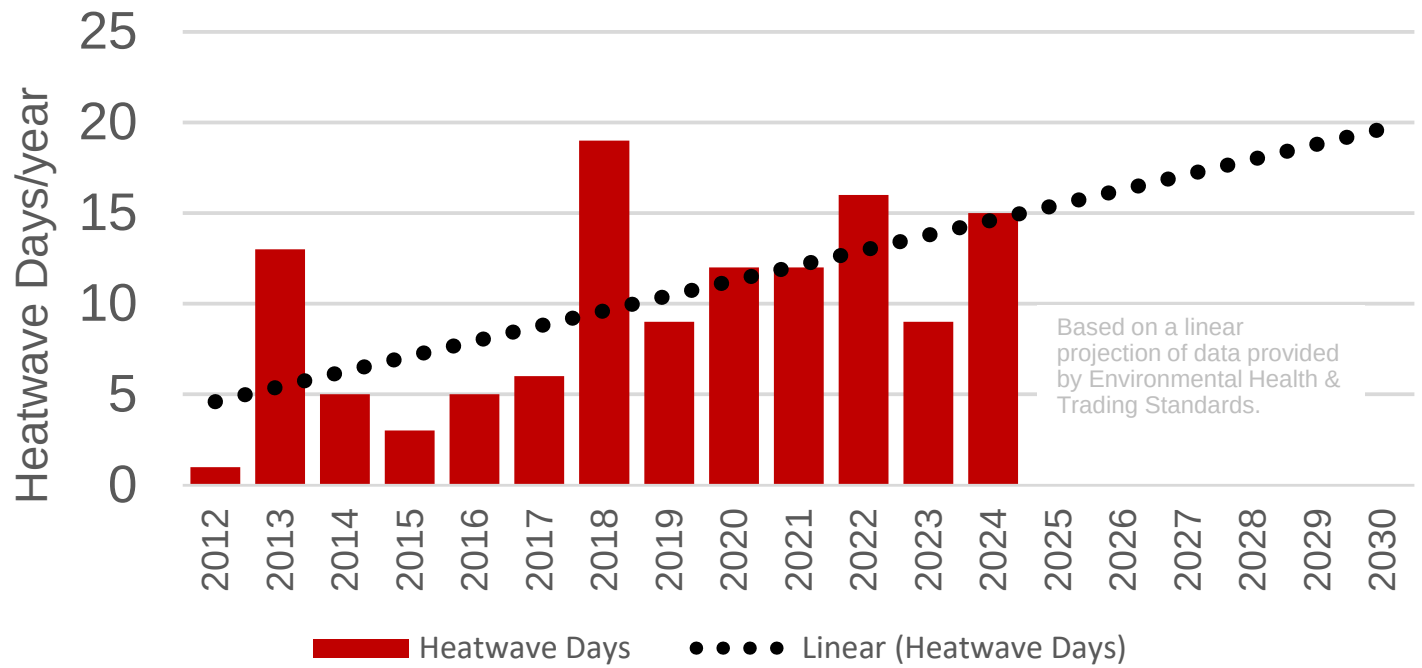
Heat-associated deaths by Local Resilience Forum area, 2024)



2. Dudley Experience

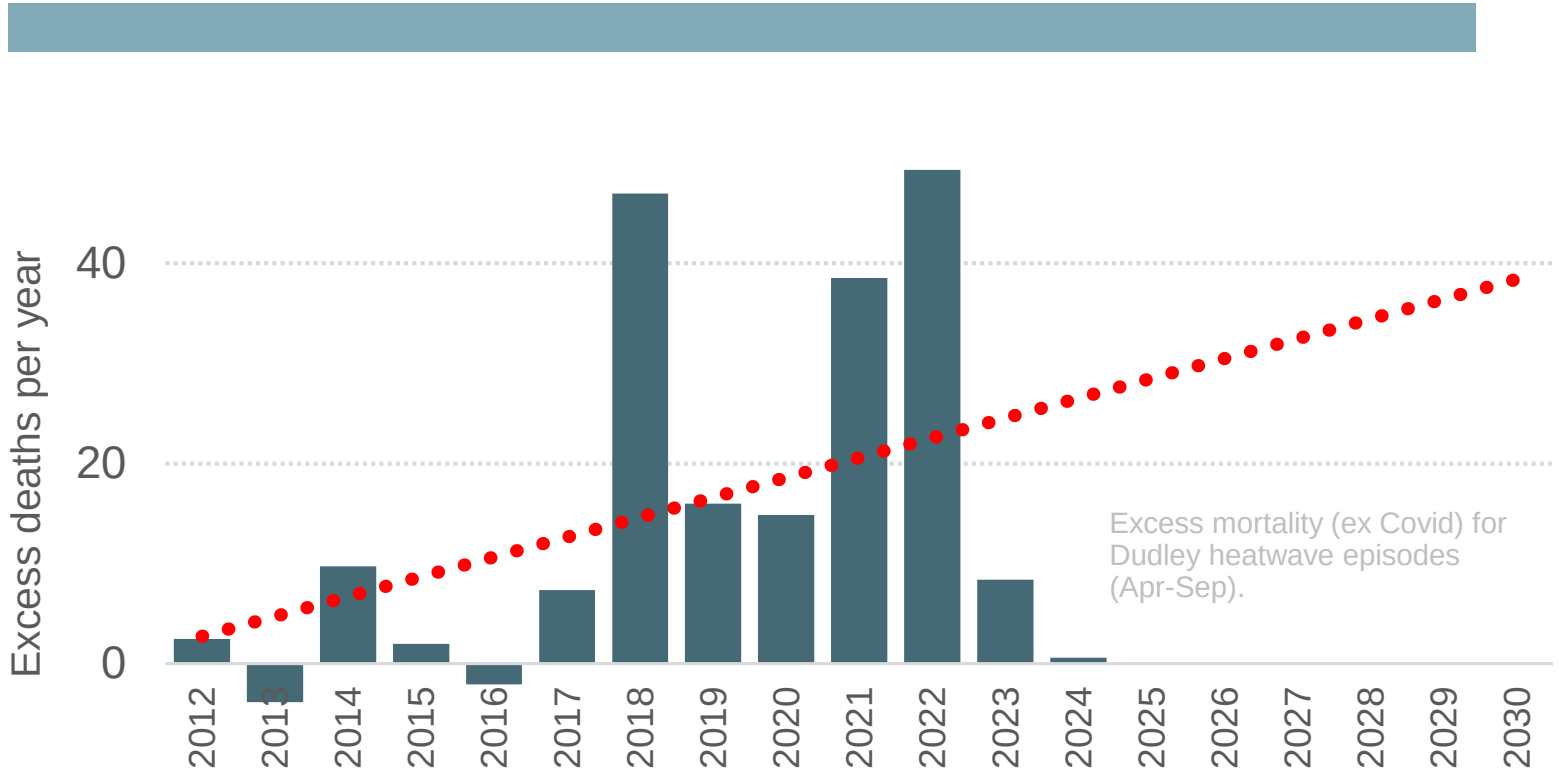
i) Monitoring temperature and health impacts

Heatwave days are becoming more common in the Borough



More background available from: https://www.allaboutdudley.info/news/heatwave-briefing/

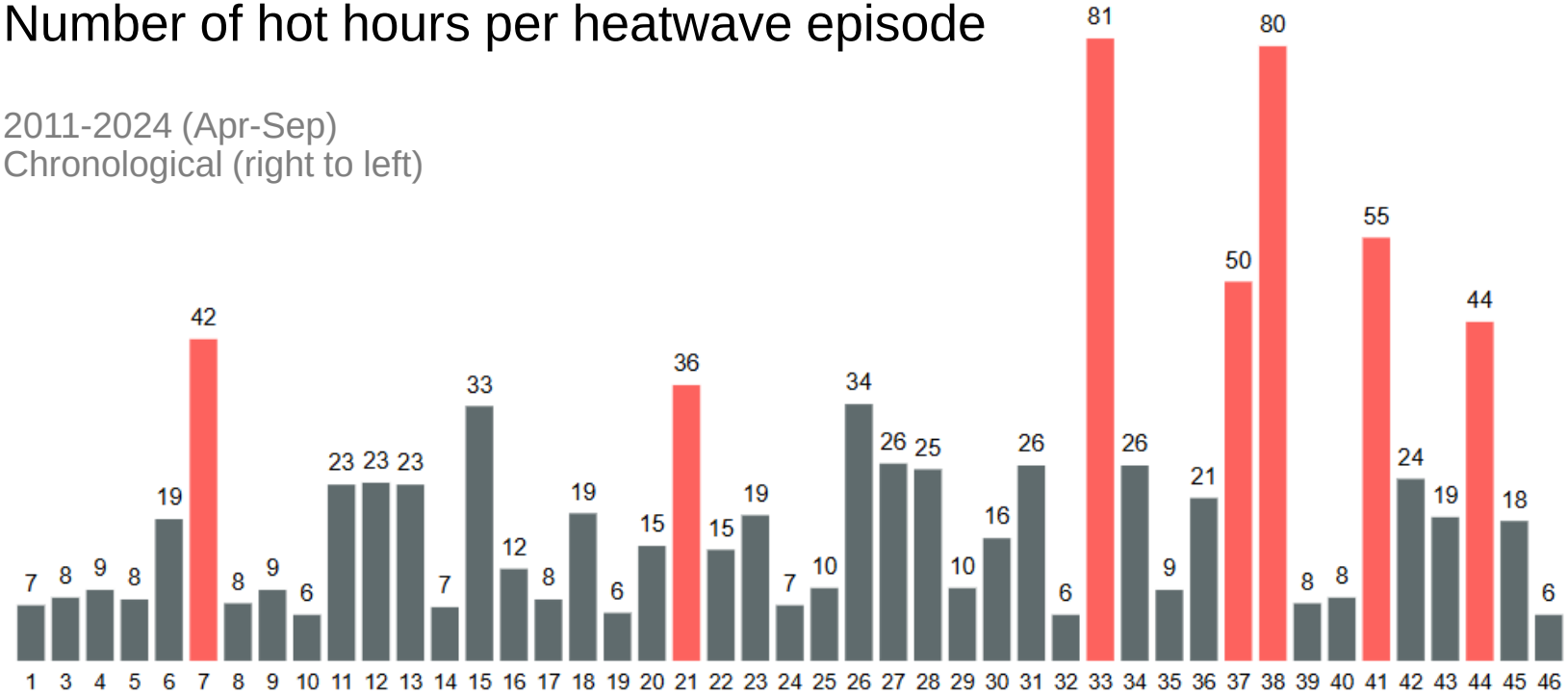
Excess heatwave deaths are more common in the Borough



How are heatwaves changing?

Number of hot hours per heatwave episode

2011-2024 (Apr-Sep)
Chronological (right to left)



‘The silent killer’ - common causes of death on heatwave days

Deaths caused by excessive heat are not usually tagged as such

Common causes are often connected to stress on the **circulatory** or **respiratory** systems, **dementia**, or to **dehydration**.

i) Emergency Planning

- a week-long heatwave in late July
- daily maximums > 30°c
- some days peaking in high 30s

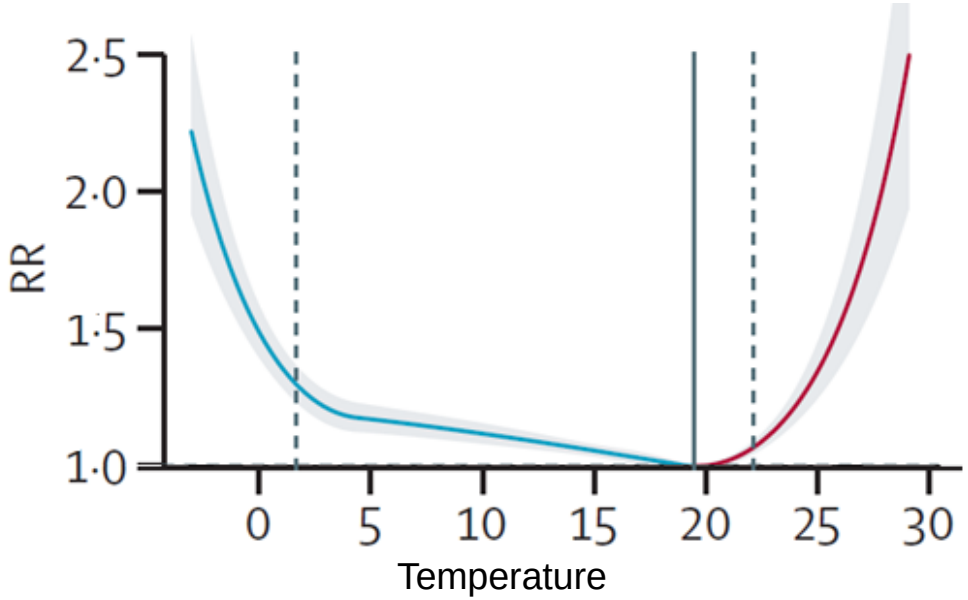
Predicted health impacts

Such a heatwave could produce a daily death rate of **three times the normal level**

The only recent experience we have of mortality rates approaching this was **at the peak of the first impact of the COVID pandemic**

Mortality Risk

The relationship between relative risk (RR) and temperature in London



Source: ‘Mortality risk attributable to high and low ambient temperature: a multicountry observational study’

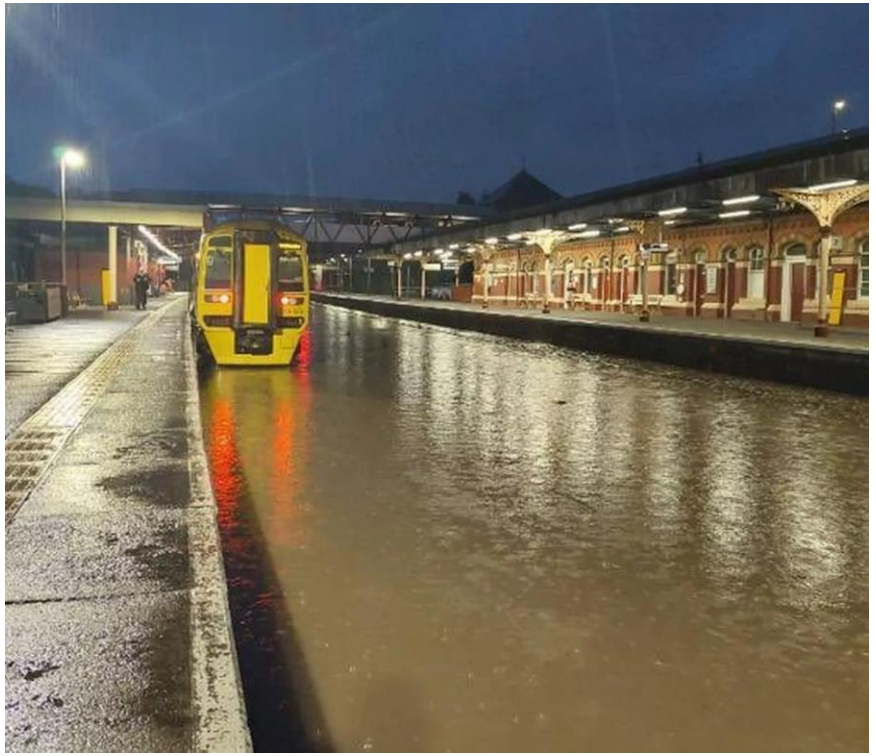
phintelligence@dudley.gov.uk

RAN Member Case Study: Transport for West Midlands

Adam Holland, TfWM, Regional Transport Coordination Centre (RTCC) Manager

Impacts of Storm Darragh on:

- Bus services
- Rail services
- Metro services
- Response demand
- Work to better understand weather-related incidences on WM transport?



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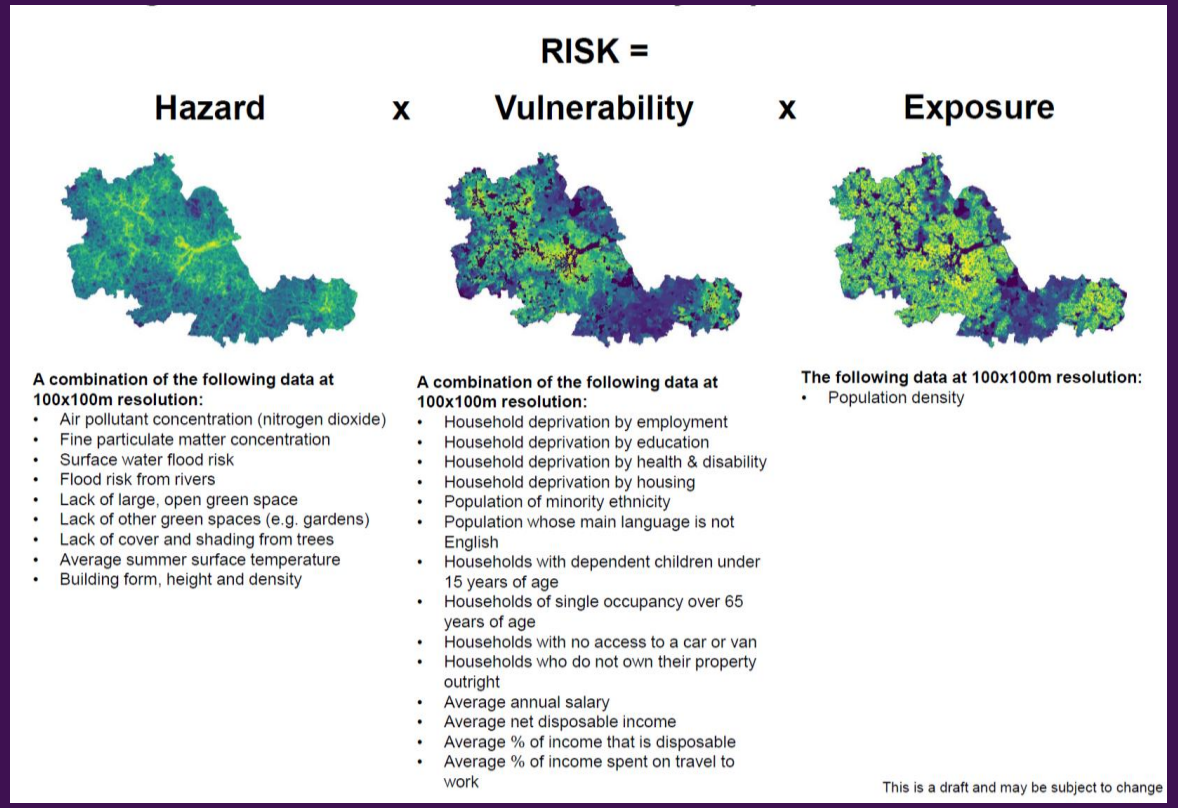
Transport for West Midlands

Storm Darragh

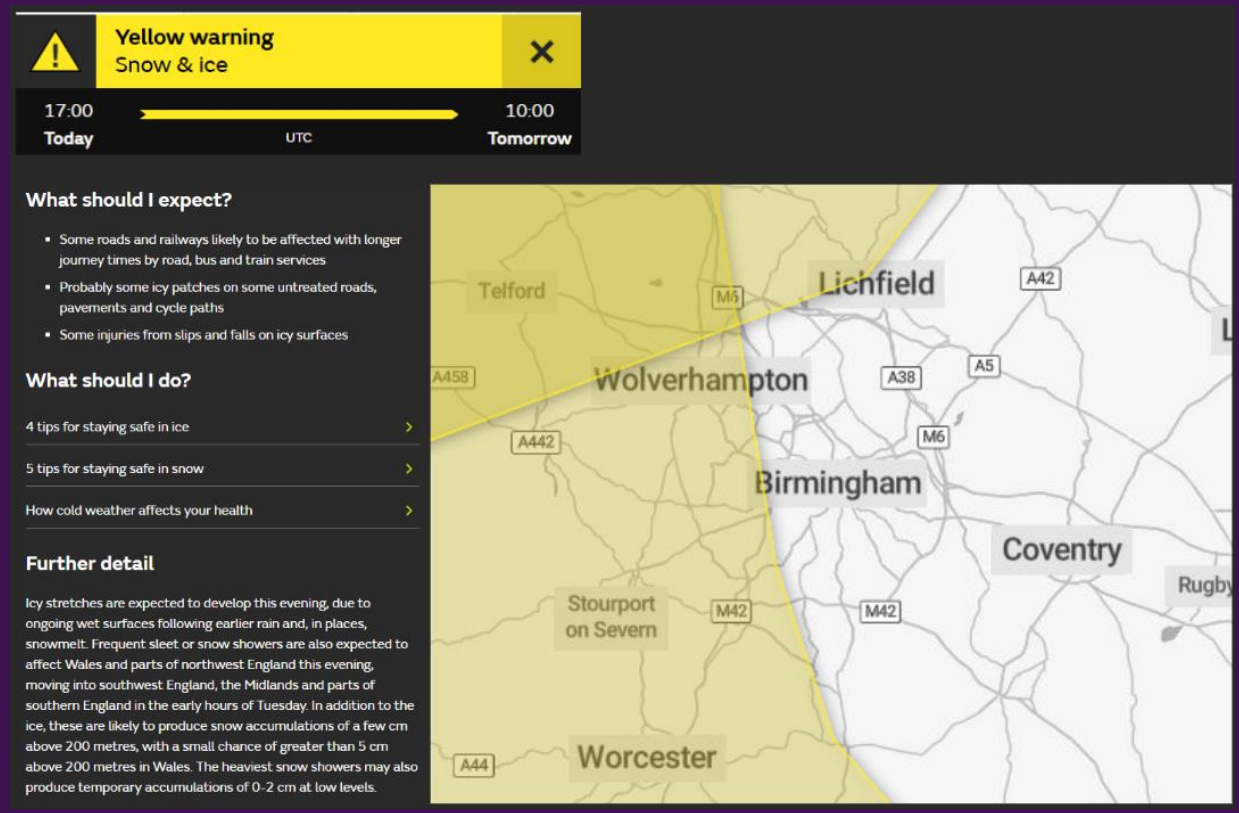
Friday 6th – Saturday 7th December 2024

Climate Adaptation (Transport)

- Working with SENZ as part of Climate Adaptation (Transport) workstream
- Sector convening – gathering evidence, sharing information, influencing decision making
- WMCA Adaptation Reporting Power 4 (including the WMCA Adaptation Plan) was submitted to DEFRA in December 2024 which included transport actions
- Climate Risk and Vulnerability Assessment tool



Background



Storm Darragh was the 4th named storm of the year. The Met Office issued a red warning for wind covering West Wales and both coasts of the Bristol Channel, with winds gusting at 60 to 70Kt (69 to 81mph) or higher in these areas. A yellow warning was issued for part West Midlands region, the lowest warning category, with impacts expected to be less severe. As per this guidance and RTCC severe weather procedures, a met office weather alert email was issued to the RTCC's stakeholder network.

Impact Headlines

- Friday 6th December did not see any significant impacts, with the weather warning not commencing until 17:00.
- Overnight into Saturday 7th saw severe weather, with rail impacted at the start of RTCC operations
- Into Saturday afternoon impacts to the local road and bus network commences with RED RAG ratings for both
- Main impact from severe weather was from fallen trees making networks impassable. 2 fatalities reported because of trees falling on cars.
- Rail the most impacted mode with impacts into midweek
- Majority of bus impact contained to the weekend in terms of RAG changes, however diversions in place for several days due to localised fallen trees across the network
- Metro only saw 1 Amber RAG, again due to a fallen tree
- National Highways the only mode to not see a RAG rating change, although a fallen tree requiring lane closures on the M42 reported.
- Unconfirmed anecdotal evidence of over 400 trees down in Birmingham alone, with 250 down in Sandwell

Rail Impact

- Saturday 1 Amber RAG and 5 Red – Significant disruption on the rail network throughout Saturday caused by Storm Darragh. Service was lost on at least 4 lines at the same time during the day. With passengers having to be evacuated from some services. WMT reported that almost all lines were seeing impacts. Ticket acceptance was in place on all NX services all day Saturday and Sunday. 31 weather related(flooding / wind) logs registered on WMT reporting. West Midlands region significantly impacted lines were:

- Cross City South – No service through to end of play Tuesday 10th December. This was to allow Network Rail to repair the infrastructure and further trees on the OLE being located. Rail replacement operated instead.

- Cross City North was suspended until the end of the day Saturday due to damage to overhead lines.

- Services suspended between Walsall and Wolverhampton due to multiple obstructions along the line.

- A tree on the line between Shirley & Whitlocks End resulted in no service from Snow Hill to Dorridge / Whitlocks End / Stratford.

- Chiltern Railway operated a reduced timetable of one train per hour on all routes all day Saturday.

- WMRE are making enquiries into the financial loss attributed to the storm

Metro Impact

- Only 1 AMBER RAG on Saturday due to a tree on the overhead line at Loxdale trams were unable to operate between Wolverhampton Station and Wednesbury Parkway. Trams ran between Wednesbury Parkway and Edgbaston Village only. Ticket acceptance was arranged via the RTCC on the NX 79 service.

Bus Impact

- 3 RED RAG ratings to end Saturday 7th due to fallen trees across the region causing a large amount of SND's across the network, with impacts to service punctuality.
- 42 NX weather related diversions (full list available), impacting 96 services, with several services diverted at multiple points of their routes. Birmingham the most impacted local authority area.
- Rail ticket acceptance from 05:30 between Wolverhampton and Coventry, from 11:50 between Birmingham New St and Longbridge (Cross City South), from 12:59 between Birmingham and Solihull, and finally, acceptance expanded from 15:09 to include all services until the end of the day.

National Highways Impact

- A fallen tree on the M42 Northbound J5-6 closed 3 (of 4) lanes during Saturday PM, tree surgeons attended the scene to deal. Impact seen for approximately 2 hours 40 minutes. Outside of RTCC operational hours some SRN off slips were closed, again due to fallen trees

Local Road Impact

- 3 RED RAG (50%) ratings through Saturday due to a significant number of trees down across the entire region causing delays and multi-modal impacts. Local authority partners prioritized and removed trees as quickly as possible, however it took several days to remove all meaning some localised bus diversions continued well into the following week.

E-scooter / Cycle Hire Impact

- Serco called their staff back to the depot slightly earlier than planned on the 6th. Usually managing the network until 9pm the decision was taken based on staff welfare to allow them to head back a couple of hours early
- No reported damage or issues to fleet or infrastructure

Park and Ride

- Park and rides continued to operate
- Excel enforcement signs were damaged by the storm. This was a national issue but was rectified quickly
- Small fallen tree at Dorridge site
- Fallen tree at Cradley Heath
- Tree down and fence damaged at Rowley Regis
- Incidents caused no issues re capacity / operations

Location	Cause	Service
Wake Green Road	Fallen tree - service diverted	1
The Rock, Wolverhampton	Fallen tree - service diverted	1
Wrens Nest – Laurel Road	Fallen tree - service diverted	2
YW Road	Fallen tree - service diverted	2 3
Probert Road	Fallen tree - service diverted	4
YW Road	Fallen tree - service diverted	5
Yardley Wood – Scribers Lane	Fallen tree - service diverted	5
Blossomfield Road	Fallen tree - service diverted	6 49 76
Walsall Wood – Walsall Road	Fallen tree - service diverted	10
Parkway	Fallen tree - service diverted	10
Powis Avenue	Fallen tree - service diverted	11
Kings Heath – Brook Lane	Fallen tree - services diverted	11A/C
Linden Rd Selly Oak	Fallen tree - service diverted	11A/C
Winson Green – Dudley Road (from city)	Police incident - Services diverted	11A
Leabrook Road	Fallen tree - service diverted	11/A
Dudley Park Road	Fallen tree - service diverted	11A/C
Oakham Road	Fallen tree - service diverted	12 12A
Mitchell street	Fallen tree - service diverted	14
Penn Road	Fallen tree - service diverted	15, 16
Hob Moor Road	Fallen tree - service diverted	17
Cotteridge – Northfield Road	Fallen tree - service diverted	18
Romsley Road	Fallen tree - service diverted	18
Grovelly Lane	Fallen tree - service diverted	20A
Romsley Road	Fallen tree - service diverted	23 X21 X22
Suffolk St Queensway	Unsafe scaffolding - service diverted	23 24
Quinton – Dwelling Lane	Flooding - service diverted	24
Millfields Road	Fallen tree - service diverted	25
Cotteridge – Woodlands Park Road	Fallen tree - passable with caution	27
Umberslade Road	Fallen tree - service diverted	27
Erdington – Sutton Road	Fallen tree - service diverted	28
Coleshill Road	Fallen tree - service diverted	28
Sutton Road, Erdington	Fallen tree - service diverted	28 X3 X4 X5
Northwood Park Road	Fallen tree - service diverted	32 33
Kings Heath – High Street	Windows blown out of shop on High Street- service diverted	35 50
Willenhall Street	Fallen tree - service diverted	39
Lower High St, Wednesbury	Fallen tree - service diverted	40 47
Kings Heath – Alcester Road near Albert Road	Fallen tree - passable with caution	50
Alcester Road/ Broad Lane	Fallen tree - service diverted	50
Lode Lane	Fallen tree - service diverted	72 73
Bilston - Wellington Road	Fallen tree - service diverted	79
Edgbaston – Wood Street	Fallen tree - Service diverted	80
Winson Green – Dudley Road (from city)	Police incident - Services diverted	82, 87
Suffolk St Queensway	Unsafe scaffolding - service diverted	82 87
Coleshill Road	Fallen tree - service diverted	94
Handsworth – The Leveretts	Fallen tree - service terminated at Sandwell Road	101
Lode Lane	Fallen tree - service diverted	X2 X12
Birmingham Road, Sutton Coldfield	Fallen tree - service diverted	X3 X4 X5
Shenstone – Birmingham Road	Tree down - service terminated at Hill Hook	X3
Damson Lane	Fallen tree - service diverted	X12

Transport for West Midlands

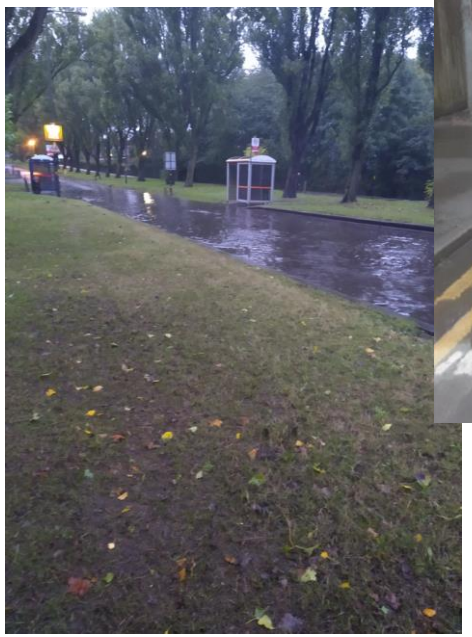
		CLEARED	
Linden Rd	Fallen tree - service diverted	13:20 09/12	11A/C
Northfield Road,	Fallen tree - service diverted	13:25 09/12	18 76
The Leveretts	Fallen tree - service diverted	10:45 11/12	101
Merritts Brook Lane	Fallen tree - service diverted – first report 09/12	16:34 12/12	18
Romsley Road	Fallen tree - service diverted	10:55 13/12	X22

This is just one event.

In 2024 the wider regions transport network was also affected by:

Transport for West Midlands

Flooding



Trittiford Road 26/09/24

Bournville Lane
26/09 – 30/09/24

Landslips

Wellington to Wolverhampton 2024

We now need to think about how we can work with our partners to:

- adapt our existing networks for future climate scenarios
- identify mitigations such as enhanced maintenance regimes and response levels to ensure impacts on public transport are minimised

RAN Member Case Study: West Midlands Fire Service

Hannah Spencer, WMFS, Community Risk Management Plan Coordinator

- Impacts of storms, flooding and heatwaves on fire service demand

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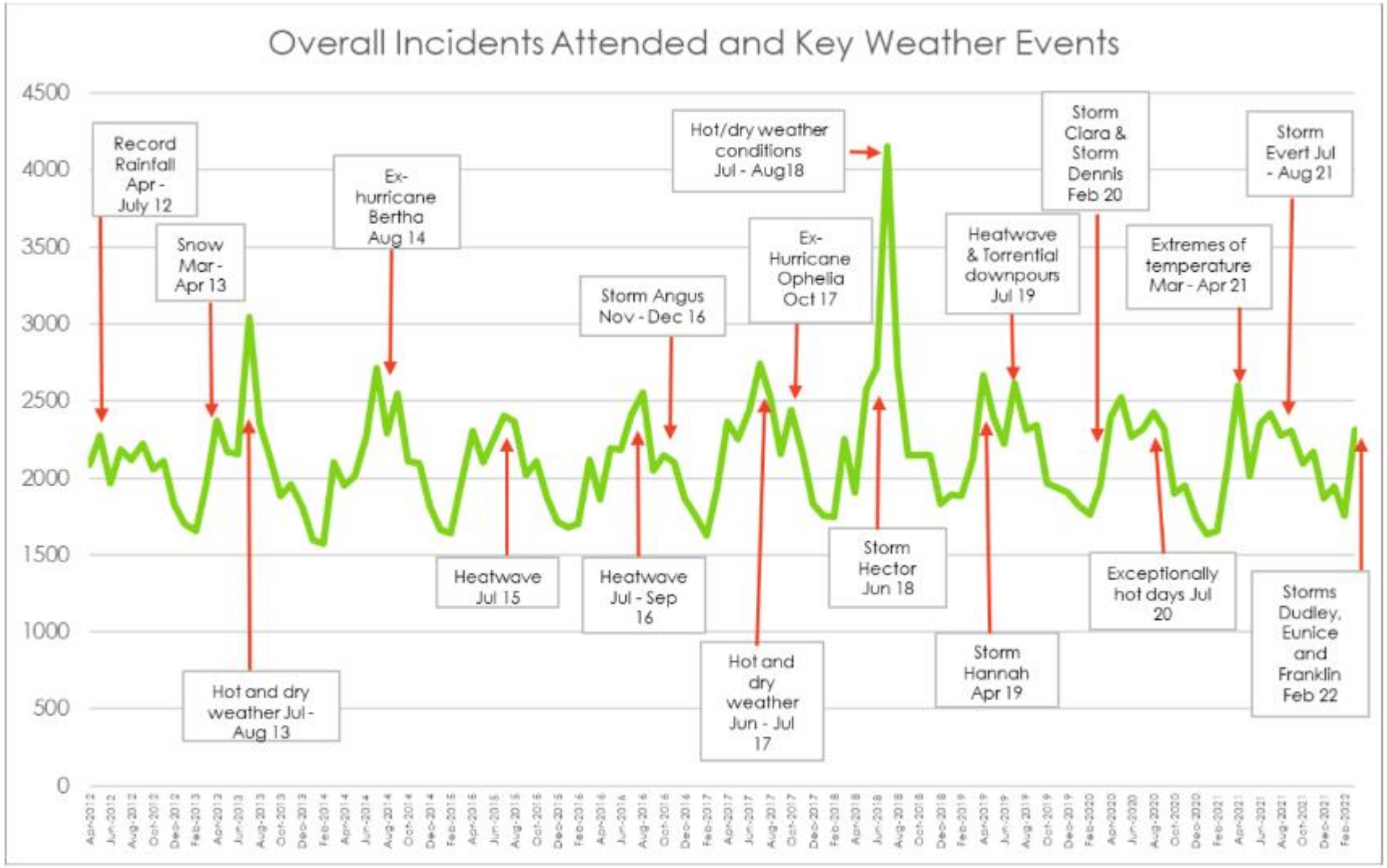
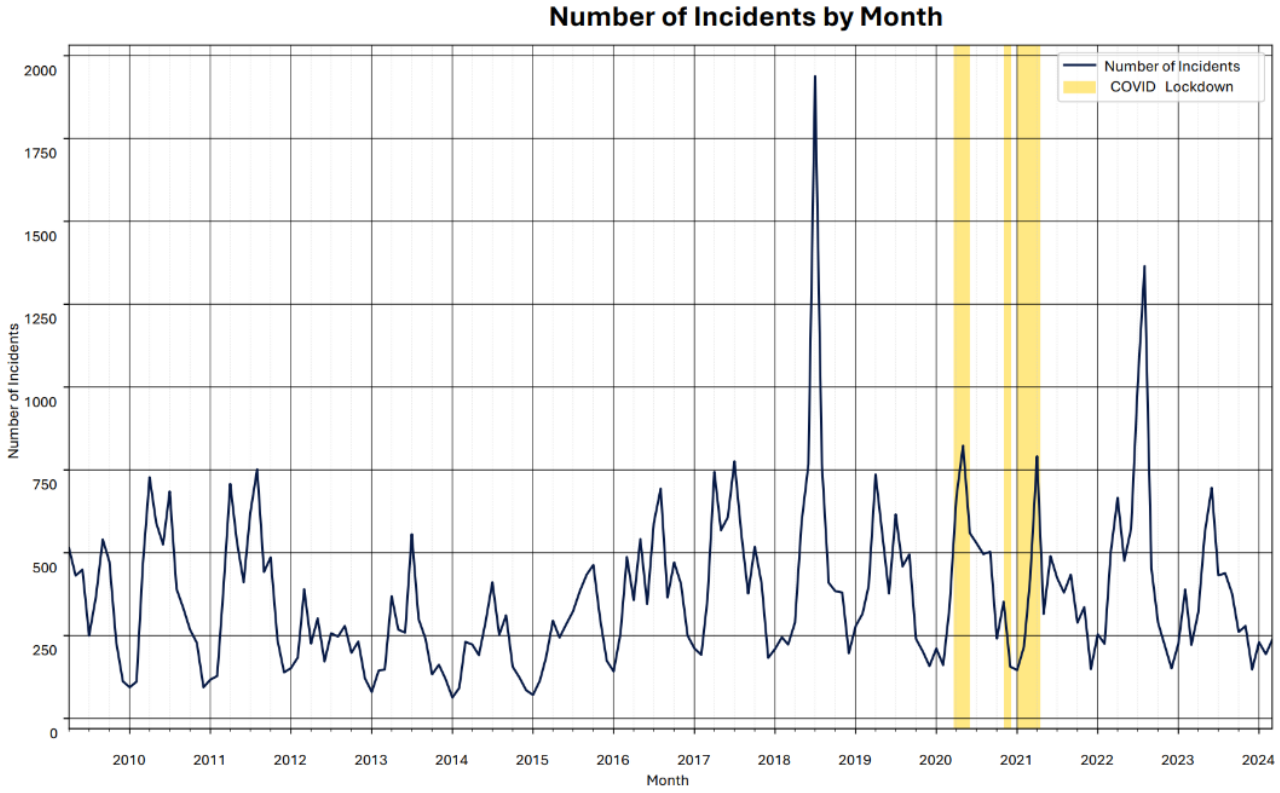
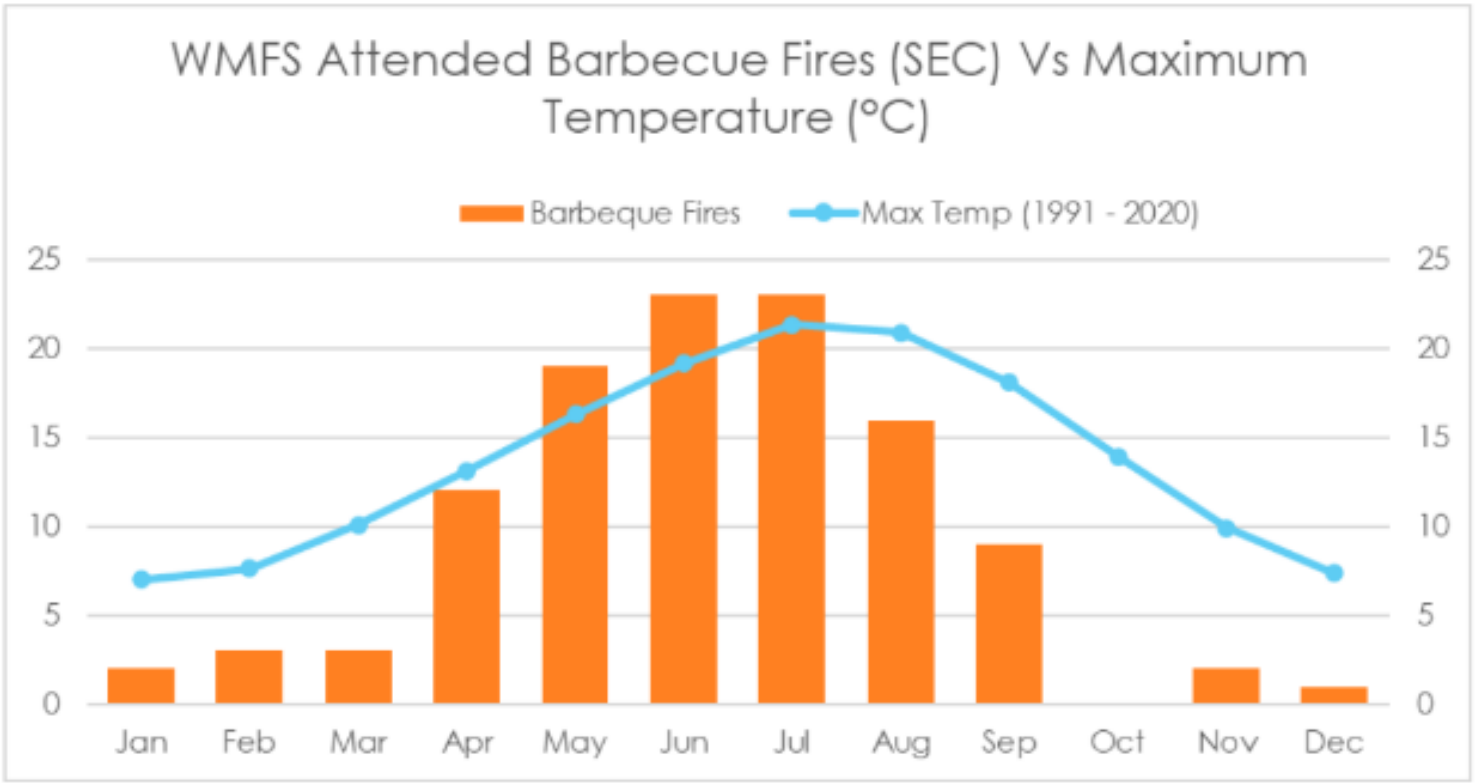


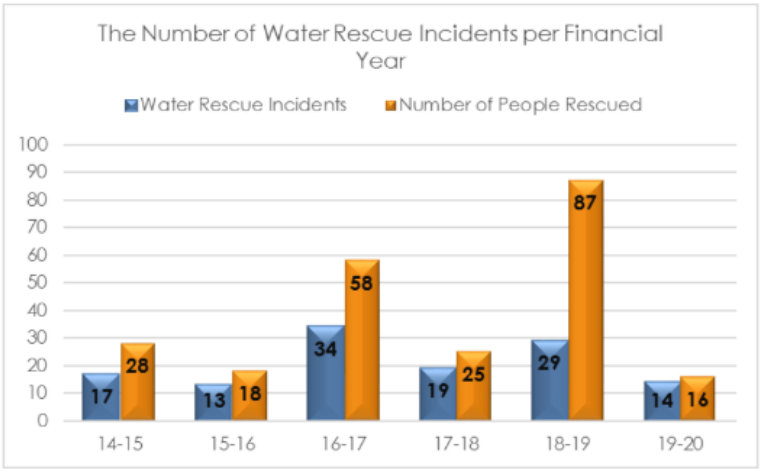
Weather Impact

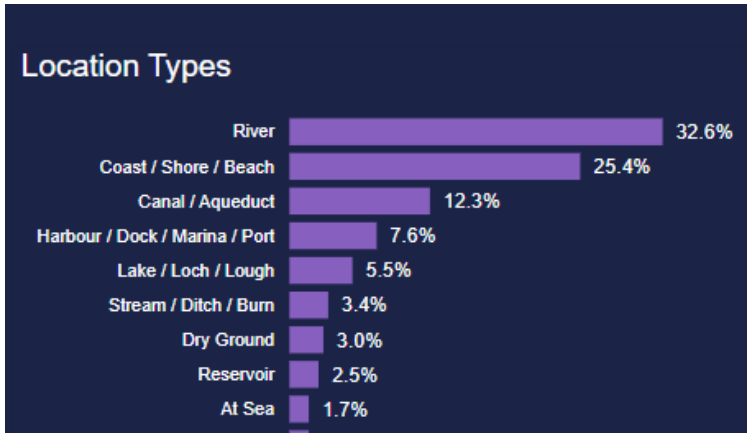


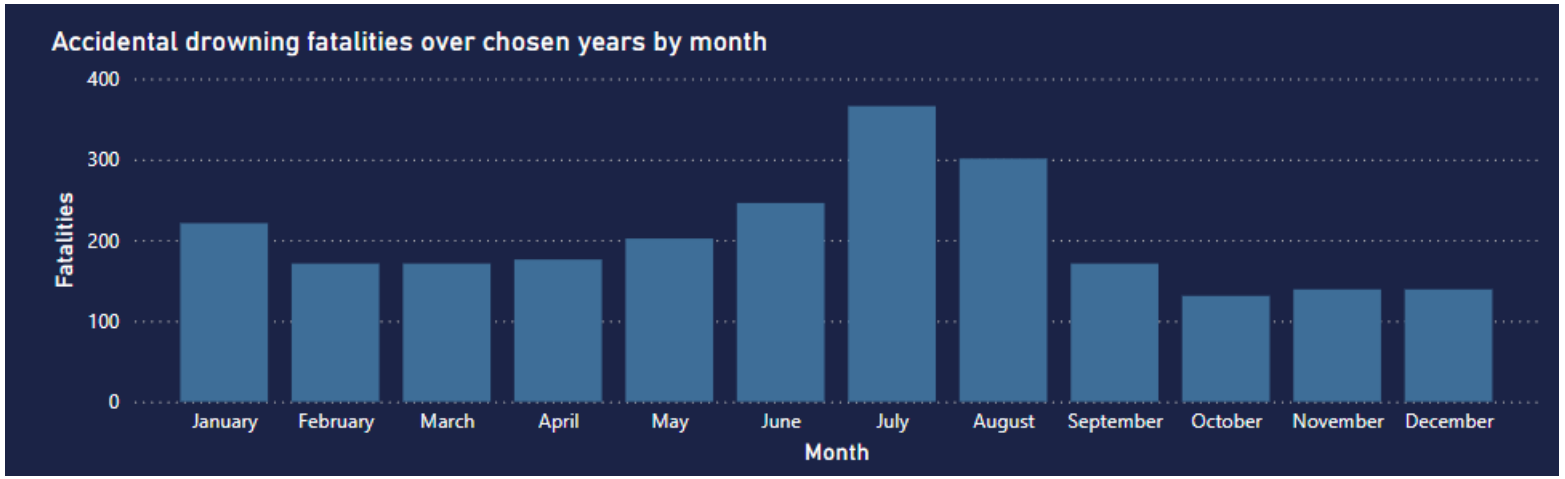
Secondary Fires & Wildfires


COOKING


WMFS Attended Barbecue Fires (SEC) Vs Maximum Temperature (°C)
Barbeque Fires
Max Temp (1991 - 2020)
25
20
15
10
5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec







Flooding & Water Incidents

Estates Improvement Programme

To ensure we can transform our estate to be carbon neutral

20yr Community Risk Forecast

A longer term look at the risk that may face our communities and understand what we can do now to adapt and prepare

Supporting our Communities

From adapting our prevention resources, carrying our additional analysis, changing our capability to looking at ways of supporting community resilience

What's Next

Regional adaptation delivery

Jackie Homan, WMCA, Head of Environment

Challenges of regional adaptation delivery

- **No regionally coordinated approach** to the management of climate risks, despite these risks being shared collectively across organisation, sectors and geographical boundaries.
- **Adaptation reporting on climate risks and actions is not place-based** and does not facilitate collaboration.
- There is no consensus on **what level of climate resilience,** we should be striving towards.
- **Limited capacity** and **lack of funding/grants** to mainstream adaptation activity
- It is **difficult to make the case for adaptation investment**, especially under uncertain future climate scenarios, and funding models are less clear/mature.

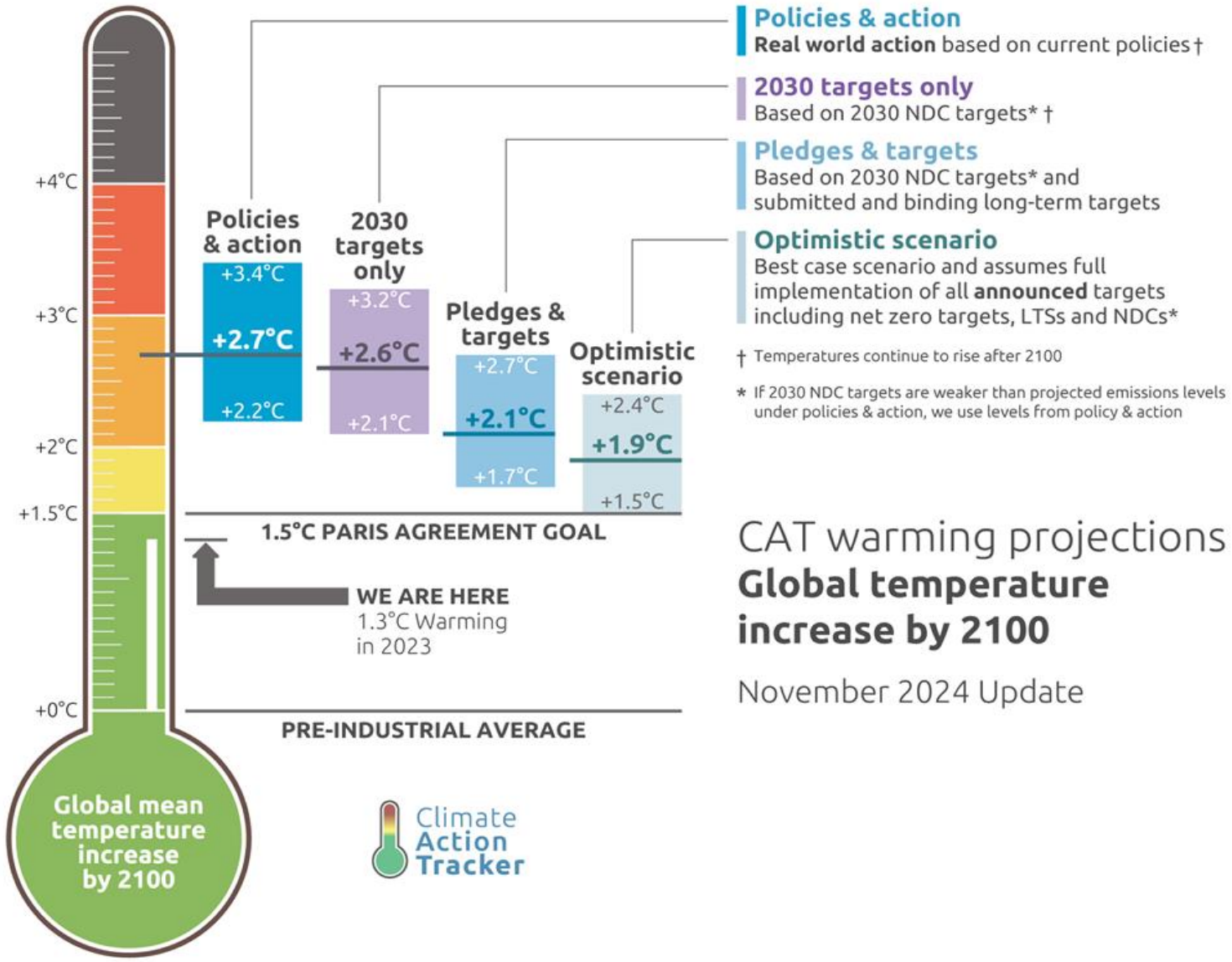
Devolution – an opportunity to strategically and efficiently address shared climate challenges

Discuss: what is your role in preparing the region for climate change?

Consider

- Climate and weather-related risks facing your work
- Your role in preparing for severe and extreme weather
- Examples of response to climate impacts
- Collaboration for climate risk management

What is WM-Adapt and why is it needed?



1. We must mitigate (reduce emissions). Most dangerous impacts of climate change happen above 1.5ºC

2. We must adapt (be ready for a different future climate).

3. We need to talk about climate change
   - stories, not scary facts
   - raising awareness, showing people what they can do, e.g. Kathy Hayhoe

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WM-Adapt

- West Midlands Adaptation (WM-Adapt) is a £2m research project that, through close collaboration with the West Midlands Combined Authority and other local partners, seeks to drive a step change in local adaptation delivery.

- Funded by the Department for Environment, Food and Rural Affairs (DEFRA) via the UKRI grant: **Maximising UK adaptation to climate change research projects.**

- Led by an interdisciplinary team of researchers from the University of Birmingham (UoB)

- Consists of three key workstreams which interact with one another.

- Running from December 2024 – June 2027

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WM-Adapt: Project overview

Delivering a step-change in adaptive capacity for the West Midlands

WORKSTREAM ONE

Co-create a framework to enable place-based adaptation

by collecting community perspectives of adaptation, co-creating and piloting community-scale adaptation pathways

WORKSTREAM TWO

Develop exciting new capabilities for mapping climate risk and vulnerability

by improving spatial maps on overheating and pluvial flood risk; new layers on health burden and economic impacts; testing future climate scenarios

WORKSTREAM THREE

Co-create a route map for building regional adaptive capacity

via a Regional Adaptation Network (RAN) to identify and co-develop solutions for regional adaptation barriers, and diagnose regional adaptive capacity to increase decision-making efficiency

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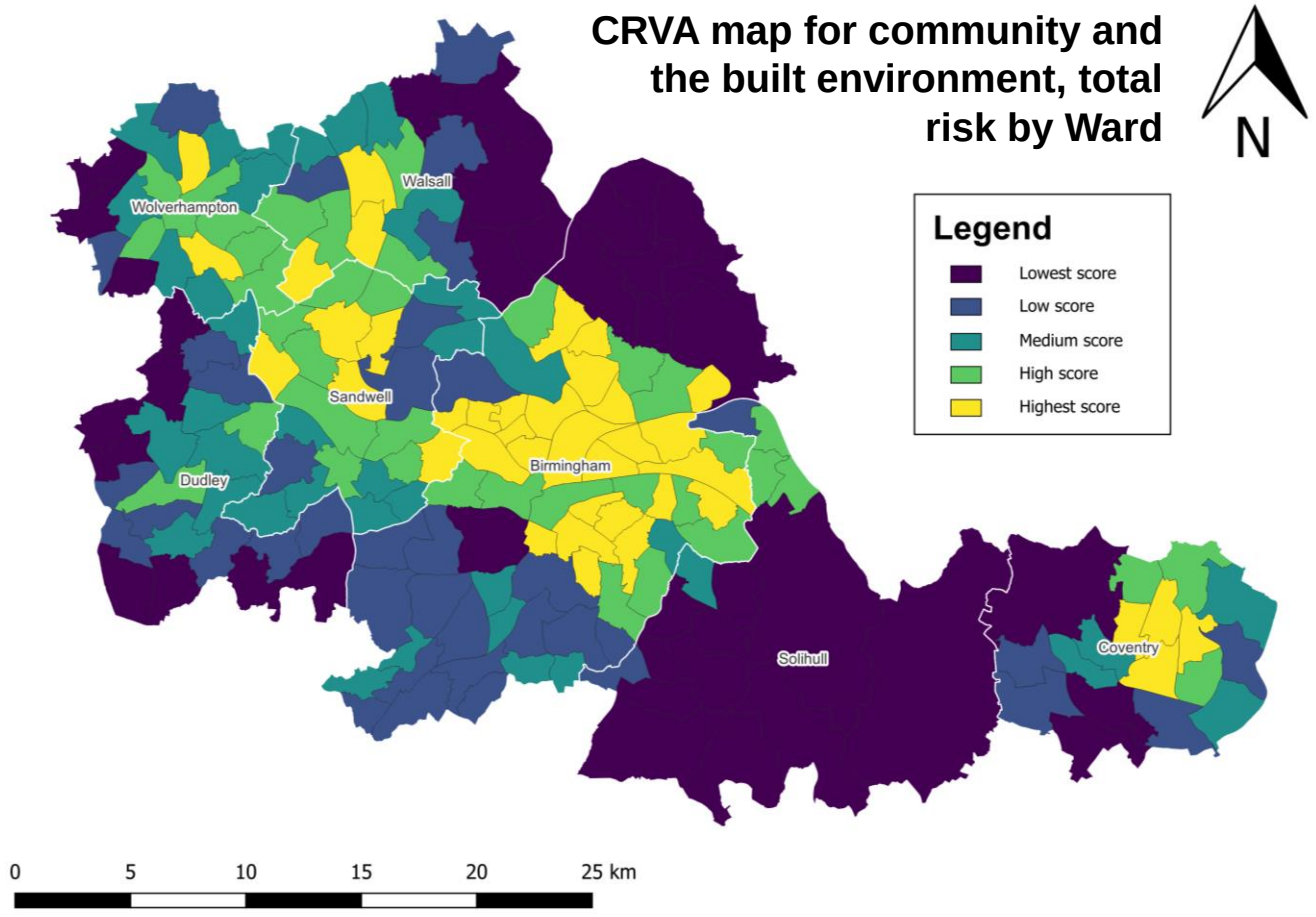
WM-Adapt: Project overview

- **The West Midlands:**
- Representing seven local authorities

- **Local-level focus:**
- Neighbourhood and community level engagement

- **Stakeholder importance:**
- Prioritising co-development of outputs with a variety of stakeholders

- **Legacy:**
- Ensuring activities and engagement continues beyond the project



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WM-Adapt: Project overview

ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	LONG-TERM OUTCOMES	IMPACTS
World Cafes Adaptation Cafes Adaptation pathway development	Baseline resident understanding of/appetite for climate adaptation Pilot adaptation pathways Framework for neighbourhood adaptation pathway planning	Policy makers engage with residents to improve baseline Pilot neighbourhoods undertake adaptation measures	**INDIVIDUAL LEVEL** Climate resilient homes Improved health resilience Improved economic resilience Improved climate awareness Behavioural change **NEIGHBOURHOOD LEVEL** Climate resilient neighbourhoods Climate resilient public spaces Climate resilient infrastructure Efficient adaptation investments **SERVICE LEVEL** Improved service reliability Improved climate awareness **SYSTEM LEVEL** Stakeholder collaborations Neighbourhood scale solutions	**Better experience and quality of life for residents and community** **Improved ability to withstand extreme weather events and climate impacts** **More reliable local services** **Joined-up delivery of climate change adaptation in a place-based way with cross-sector collaboration among stakeholders**
UHI and flood risk modelling Future climate scenarios Health and Economic impact mapping	Transformed CRVA mapping tools	Better data for decision-makers Adaptation solutions and investments are prioritised through a strong, scientific evidence base		
Regional Adaptation Network (RAN) CaDD Adaptive Capacity Analysis Seminar series	Cross-sector RAN with future road map Framework for monitoring climate impacts and data sharing and collation	Sector representatives are connected to discuss place-based adaptation Sector representatives better understand adaptation and apply outputs to their work		

WS3 – Building regional adaptive capacity

What is adaptive capacity?

The potential or ability of an organisation, system, region of community to adapt to the impacts of climate change.

Main deliverables:

Regional Adaptation Network (RAN) and Route Map for building regional adaptive capacity that outlines future steps for regional adaptation (i.e. a timeline for action) and a template for others.

The RAN will bring together representatives from key organisations within the West Midlands who have a role in adaptation the region to climate change.

The RAN will:

- facilitate knowledge exchange and training
- foster the partnerships needed to co-develop shared adaptation solutions
- identify shared barriers to climate adaptation planning and delivery
- develop a route map for improving regional **adaptive capacity**
- inform the data enhancements and community engagement emerging from other project workstreams
- shape regional vision, strategy and data developments based on organisational needs, responsibilities and intelligence gap
- strive to efficiently use collective resources over piecemeal, siloed working

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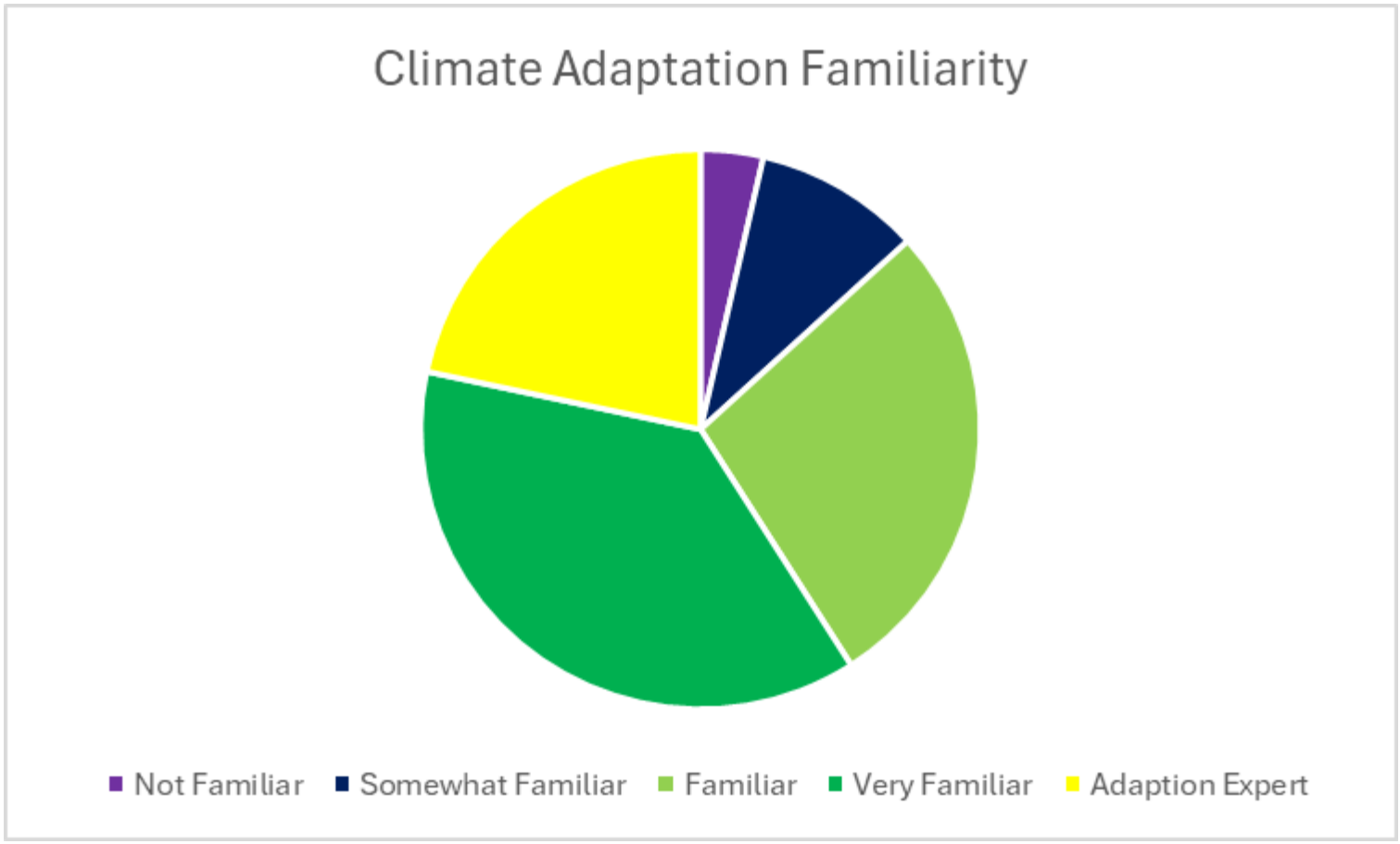
RAN Membership



- Members are recruited on a rolling basis
- 86 partners have registered for the Network so far

What are the asks of RAN members?

- Attend 2-hour RAN meetings on a quarterly basis
- Contribute to calls for evidence and perspectives

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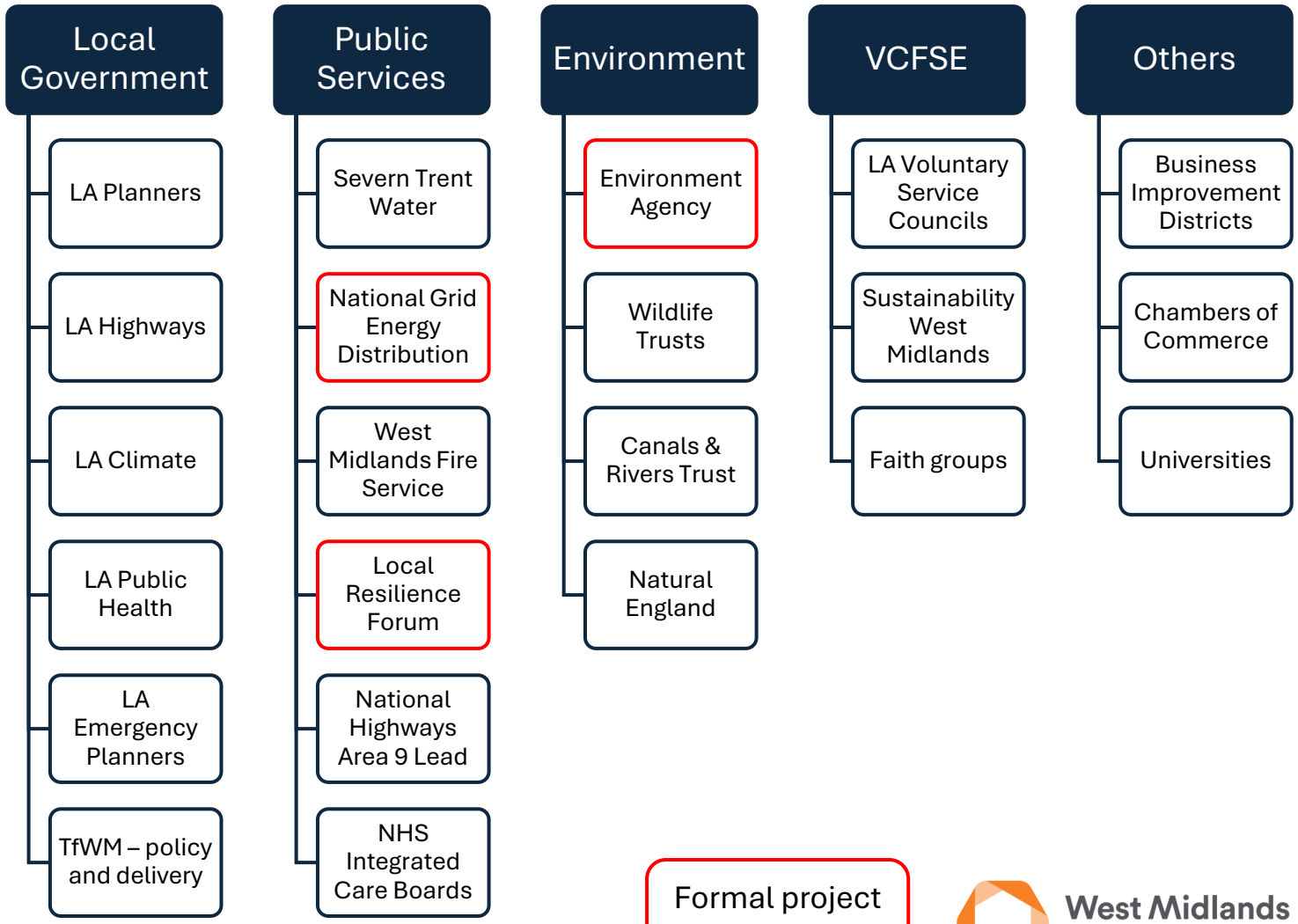
Sectoral representation on the RAN



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WS 1: Neighbourhood Adaptation Pathways

Workstream 1:

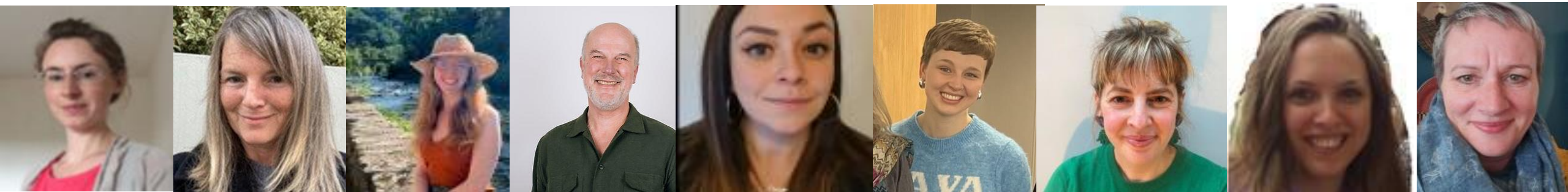
Development of hyper local adaptation pathways and a framework for replication

Main deliverable: a framework for developing community scale, place-based adaptation pathways.

(Prof. Jessica Pykett/Dr. Hali Healy)

Why a neighbourhood-based approach?

- Dominant practices hindered by imaginaries constrained by “technocratic, homogenous, top-down approaches that hinder sustainable, just, and effective adaptation” (Olazabal et al., 2024:1)
- Limited success:
  - Top-down, one-size-fits all decision making, institutional barriers and power imbalances
- Evidence of maladaptation, growing uncertainty & urgency
  - Demands targeted neighbourhood plans to ensure policies / actions are inclusive & reduce inequality



WS 1: Neighbourhood Adaptation Pathways

Adaptation as:

"Anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise damage, or taking advantage of opportunities that may arise" such that humans and the ecosystems within which they are embedded can not only survive, but thrive…

Key Enablers (WMCA 2024:7)

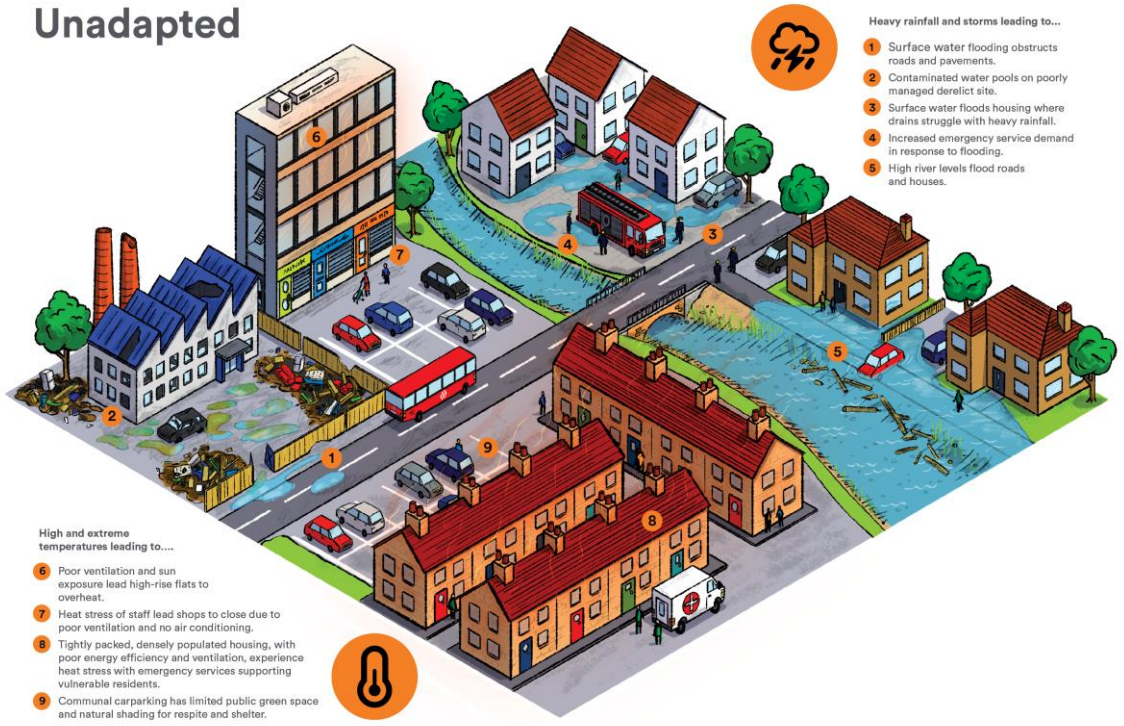
- Good (economic) value / visible impacts
- Obvious co-benefits (to people & nature)
- Improved access to green spaces & neighbourhood look and feel
- Community cohesion, engagement & ownership

Other enablers / barriers:

- Political ideologies/(dis)trust of government
- Connectedness to nature, society & local env. knowledge
- Socio-demographics: age/gender/education, financial concerns, place attachments
- Cultural / religious factors
- Psychosocial: anxiety / perceptions of risk / impacts / capacities to adapt
- Institutional/structural barriers
- Lack of consensus on how to achieve and measure adaptive success

WS 1: Neighbourhood Adaptation Pathways

- **Main research topics:**
  - Perceptions, beliefs, values, behaviours and experiences of climate adaptation at household, neighbourhood, community and regional levels
  - Understandings of / attitudes toward barriers and incentives
  - Perceptions of social group differences, vulnerabilities and inequalities
  - Visions and ideas for climate adapted neighbourhoods with different future scenarios and timelines for action



WS 1: Neighbourhood Adaptation Pathways

World Cafes: May-Sept 2025 in 16 Wards/Areas

Outputs/Outcomes

Outputs:

- Summary report of WC findings on experiences/perceptions/barriers & opportunities
    - Selection of Adaptation Planning Workshops from Jan 2026 (WS1)
    - Validation / enhancement of CRVA data (WS2)
    - Knowledge sharing & exchange with RAN (WS3) & MACC Hub

Outcomes:

Neighbourhood

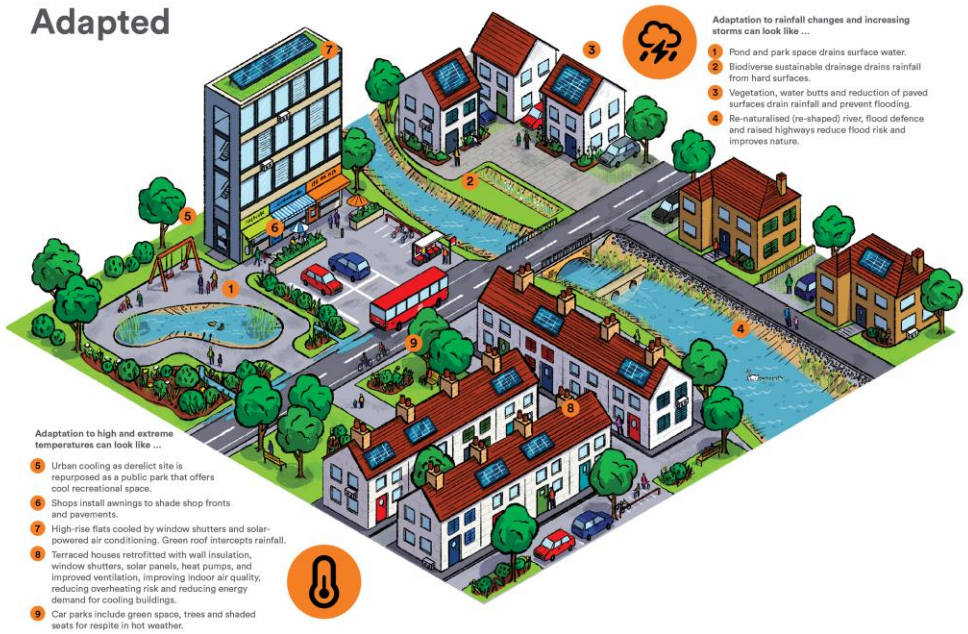
- Improved local understanding of adaptation; greater awareness of initiatives ; Increased ability to engage in / shape planning processes

Local/Regional Authorities and Partners

- Deeper understanding of residents' views, experiences, priorities, esp regarding responses to climate shocks
- Synergistic connections among local actors/partners

WS 1: Neighbourhood Adaptation Pathways

Adaptation Planning Workshops: Jan – Dec 2026



Hands-on sessions where residents, service and utility providers, local gov. reps (and RAN members) discuss potential adaptation solutions and routes for implementation

Outputs / Outcomes

Outputs:

- Four distinct Rapid Adaptation Pathways Assessments (RAPAs) based on community needs/vulnerabilities, changing socio-economic and climatic conditions, with timelines for action
- Co-produced framework for place-based adaptation in WM, grounded in local knowledge, experience, priorities and capacities

Outcomes:

- Neighbourhood and local / regional partners better able to prepare for and respond to climate shocks
- Potentially more inclusive, equitable, responsive & transformative adaptation planning and governance structures / processes in WM

WS2: CRVA Data Enhancement

WORKSTREAM TWO

Deliverable

An open access approach for CRVA forecasting and scenario analysis for the West Midlands and beyond

Resilience outcome

Decision-makers have the decision-centric science needed for evidence-based adaptation decision-making that can be used in the planning process

Task 2A: Model current and future regional **urban heat island**

Task 2B: Model current and future regional **pluvial flood risk**

Task 2C: Develop **regional health burden** layers associated with climate risk

Task 2D: Use macroeconomic impact assessments of previous extreme weather to develop an **economic impacts layer** associated with climate risk

Task 2E: **Integrate layers** into existing CRVA tools

Task 2F: Integrate CRVA layer processes into **existing stakeholder processes** and data platforms (Legacy)

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WS2: CRVA Data Enhancement

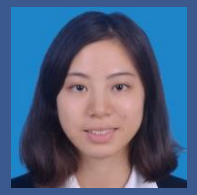
WORKSTREAM TWO

University of Birmingham

Dr Emma Ferranti (PI)
Associate Professor
Civil Engineering

Dr Sarah Greenham
Research Fellow
Civil Engineering

Dr Xilin Xia
Assistant Professor
Civil Engineering



Dr Qian Li
Research Fellow
Civil Engineering

Dr Suzanne Bartington
Clinical Associate Professor
Applied Health Sciences

Dr James Hall
Research Fellow
Applied Health Sciences

Yanzhi Lu
Research Fellow
Geography, Earth, and Environmental Sciences

University of Greenwich

Dr Jian Zhong
Senior Lecturer
Computational Science and Engineering

Cambridge Environmental Research Consultants (CERC)

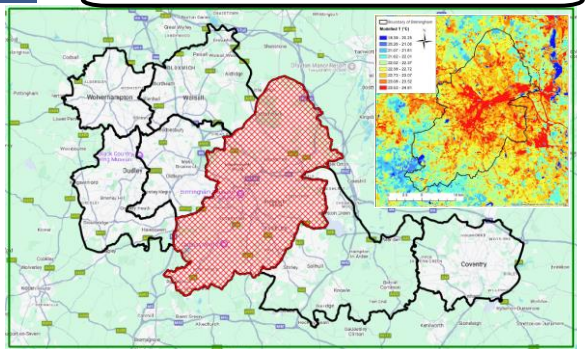
Dr Jenny Stocker
Associate Director (Research)

WS2: CRVA Data Enhancement

2A: Urban heat island

Improving temperature mapping resolution (previously used 1 km resolution datasets)
Model: ADMS-Urban

Approx. 100 m resolution



Improve Birmingham baseline modelling → Extend baseline to full West Midlands domain → Model scenarios (future climate & land use)

2B: Pluvial flood risk

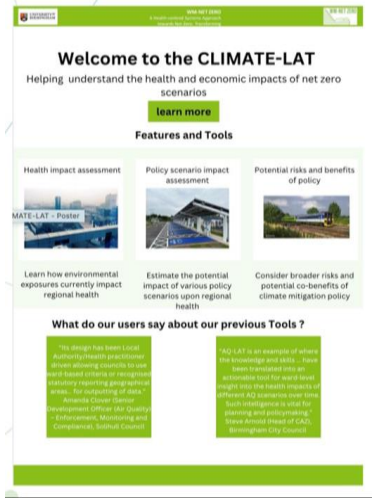
Improving pluvial flood risk data to include extreme rainfall projections and urban drainage systems
Model: SynxFlow

Open-source| High-Performance | Large scale | High resolution

2C: Health burden

Extend existing health burden tools (CLIMATE-LAT) to estimate:

- Health and health-related economic burden of extreme heat and pluvial flooding
- Benefits of potential adaptation pathways



2D: Economic impacts

Scenario	2020	2030	2040	2050
Absolute values				
Rising et al. (2022)				
High Mitigation (SSP1-RCP2.6)	£54	£637	£1,632	£1,863
Current Policies (SSP3-RCP7.0)	£54	£638	£2,784	£2,904
COACCH				
RCP2.6 (1.6 Degrees)	£66	£350	£878	£1,503
RCP4.5 (2.4 Degrees)	£96	£435	£940	£1,579
RCP6.0 (2.8 Degrees)	£74	£363	£846	£1,554
Percentage terms				
Rising et al. (2022)				
Current Policies (SSP3-RCP7.0)	0.1%	0.9%	3.0%	3.0%
High Mitigation (SSP1-RCP2.6)	0.1%	0.9%	1.9%	1.9%
COACCH				
RCP2.6 (1.6 Degrees)	0.1%	0.5%	1.0%	1.5%
RCP4.5 (2.4 Degrees)	0.2%	0.7%	1.5%	2.5%
RCP6.0 (2.8 Degrees)	0.1%	0.6%	1.3%	2.5%

Paul Watkiss Associates and Sustainability West Midlands (2024)

Risk quantification: how to allocate cost to change in climate risks?

GVA reduction in the WMCA area a year due to climate change

£350 - £638m
By 2030

£1.5bn - £2.9bn
By 2050

Q&A

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Any other business

- Invitation circulation
- What's coming up?
  - More from RAN members
  - Data enhancements – climate risk and vulnerability assessments (CRVAs)
  - Barriers to adaptive capacity
  - A vision for a climate adapted West Midlands
  - Interdependencies between members
  - Terms of reference for the RAN
- Menti meter – aspirations for this RAN
- Future meetings:
  - **Tuesday 24th June 2025, 13:00-15:00**
  - w/c 22nd September 2025
  - w/c 1st December 2025

Mentimeter QR code
Join at menti.com

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