West Midlands Combined Authority Air Quality Framework

Framework Implementation Plan (2024 – 2026)

November 2023

West Midlands Combined Authority

WEST MIDLANDS Greener Together


West Midlands
Combined Authority


Transport for
West Midlands


wsp


Birmingham
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Coventry City Council


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WM-AIR

Foreword

As Mayor of the West Midlands, I am pleased to introduce the West Midlands Combined Authorities' new Air Quality Framework Implementation Plan. Back in 2019, the West Midlands Combined Authority declared a climate emergency. Since then, we have grown our energy and environment programme to ensure we can tackle it. This comprehensive framework represents a vital step forward in our ongoing commitment to improving the quality of life for our residents, protecting our environment, and building a healthier, more sustainable future for our region.

I believe clean air is not a luxury but a fundamental human right. Every breath we take should be pure, safe and free from pollutants. I am aware that, like many regions across the globe, we have faced a considerable challenge when it comes to air quality. That is why this plan is the result of intense collaboration between our local authorities, key national and regional stakeholders and the dedicated teams within the Combined Authority who share a commitment to addressing air quality issues head-on. Through their forward-thinking and evidence-based approach, they have created something that I genuinely believe will benefit the lives of future generations.

Our existing Net Zero initiatives, such as retrofit and our active travel network, have demonstrated that we are first and foremost delivery-focused, and our work on air quality will be no different.

Through this plan, money secured from central government will see the West Midlands lead the way in tackling air pollution, becoming home to one of Europe's largest low-cost air quality sensor networks.

However, there remains significant work to do - some of which will require innovation in technology, policy, regulation or approaches to behaviour change. I hope this plan inspires not only our local authorities and public servants but also the entire community to join us. Please see this as an invitation to come forward and work with us at pace to identify new solutions for tackling air pollution. Together, we can create a West Midlands where the beauty of our natural landscapes is matched by the purity of our air.

Andy Street
Mayor of the West Midlands and Chair of the West Midlands Combined Authority

Foreword

Poor air quality remains the single biggest environmental risk to public health. The health impacts from poor air quality are significant: bronchitis, asthma, kidney disease, diabetes, dementia, and stunted lung development in children, and the list goes on. And poor air quality disproportionately impacts people living in deprivation, the very young and the old. Therefore, we all have an obligation to take action to reduce the sources of this pollution so that the people of the city and region can realise their full potential.

Birmingham City Council has made a significant commitment to tackling this issue through the introduction of the Clean Air Zone and the Brum Breathes Clean Air Strategy. Both these actions focus on air pollution created by road traffic, which is the dominant source of air pollution in Birmingham and across the region. However, air pollution from other sources such as: biomass boilers, firework displays, diesel generators, demolition and construction, bonfires, wood burners, industrial emissions will require different solutions and more coordinated action across the region.

The actions needed to improve outdoor air quality are clear. However, there is a growing need to better understand the sources and impacts of indoor air pollution. This is especially important as we start to realise improvements to outdoor air quality as the majority of our days are spent indoors.

There are far fewer studies of indoor air quality when compared with outdoor air quality, and pollution that affects indoor air quality is not just from indoor sources, such as cooking and stoves, it may also be due to outdoor pollutants. It is also true that some indoor sources emit pollutants that are found outdoors, such as particulate matter (PM) and nitrogen dioxide (NO_2) from woodburning stoves and open fires. Indoor air quality is also impacted by works to reduce heat loss from buildings and we need to ensure important steps to improve the energy efficiency of our built environment incorporate appropriate ventilation. This is particularly vital in older homes with building-integrated air circulation via air bricks, open fireplaces and suspended floors.

Critically, we know that someone with a pre-existing respiratory or cardiovascular condition, or an allergy, is particularly affected by poor indoor air quality, and children are particularly at risk from respiratory problems, such as wheezing and asthma, eye and skin complaints and reduced cognitive performance. Work to improve air quality supports Birmingham's ambition to be a UNICEF Child-Friendly City in which every child can enjoy the same opportunity to be safe, healthy, grow and develop.

There are some spaces that are fully private, such as owner-occupied homes, but there are many more public indoor spaces, including health and education settings, shops and workspaces. Local authorities across the region provide social housing to tens of thousands of people. As with outdoor settings people are exposed to air pollution indoors but often feel unable to avoid it and unsure how to improve it. Therefore, by working collaboratively, across the region with colleagues from the Combined Authority, local authorities, public health and others we need to develop a better understanding of how we can prevent and reduce air pollution. And we need to do so as a matter of urgency. Alongside this is a commitment to involve the public in our work to improve air quality, so that people know what air quality is all about, why it is important, and what we can do together to improve it.

Taking action to improve air quality can also help to address carbon emissions and enable some of the broader systemic changes required to achieve carbon neutrality within the next decade or so. Transport remains a significant contributor of carbon emissions, but fossil fuel combustion for heating, and those burned for electricity generation consumed in buildings is an equally large contributor. Therefore, by tackling the issues around indoor air quality and carbon emissions we have the opportunity to create more sustainable, lower cost homes for thousands of people across the city and the region.

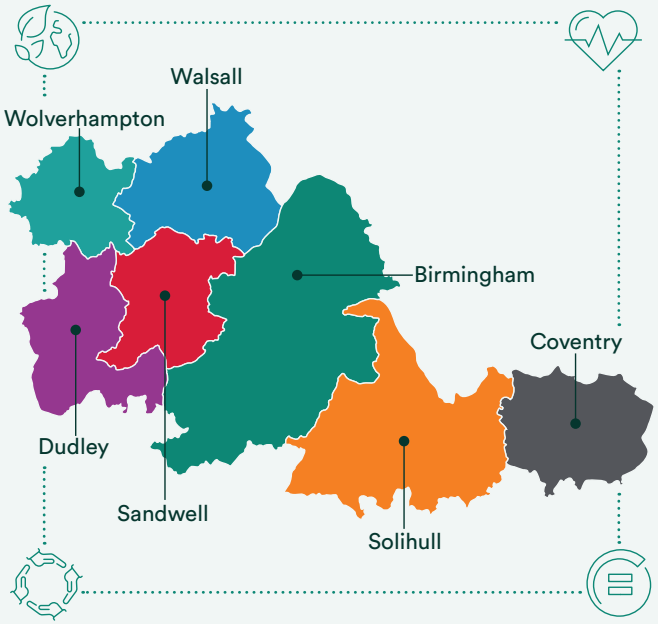
This Framework Implementation Plan provides a starting point for this work. We need more monitoring to better understand the locations and sources of air pollution. And we need to work across the region to share data, improve the understanding of the sources of air pollution and to provide people and organisations with the tools and support to address this issue.

Councillor John Cotton
Leader of Birmingham City Council and Chair of the West Midlands Combined Authority Environment & Energy Board

Executive Summary

This first Framework Implementation Plan has been developed to summarise priority measures from the West Midlands Combined Authorities (WMCA's) Air Quality Framework that will be progressed/delivered between 2024 and 2026. The implementation of these priority measures will see progress towards WMCA's vision:

"The West Midlands will have air quality that is safe for all people, no matter where you live in the region, resulting in significantly improved public health and environmental outcomes."



These priority measures have been identified and narrowed down (from the full list of 145 measures identified within the Air Quality Framework[1]) through engagement and consultation with relevant partners, charities, and organisations. This engagement included a wide consultation event which sought the views of attendees regarding the options/measures that should be the focus of activities over the next two years. At the end of this, there will be a further Framework Implementation Plan developed.

The options have been categorised into the following work packages:

- Monitoring and digital engagement;
- Air quality communications;
- Schools engagement;
- General air quality engagement and behaviour change (including dedicated measures for domestic combustion);
- Net zero and retrofitting;
- Planning and air quality assessment;
- Natural environment; and
- Research.

In addition, there are standalone measures that do not fit into the above work packages at this stage. The prioritised measures/work packages target improvements in both nitrogen dioxide and particulate matter and look beyond road transport emissions. This reflects the shifting focus for protection of future health in relation to particulate matter and associated effects from both road transport and other sources. Notably, WM-Air researchers estimate that annually in the West Midlands, up to 2,300 early deaths are attributable to long term $PM_{2.5}$ (particles that are less than 2.5 micrometres (µm) in diameter) exposure.

The implementation of the priority measures will not replace, but complement, the existing activities that are being delivered by both Transport for West Midlands (TfWM) and the region's local authorities to support improvements in air quality.

Whilst this document has been produced by the WMCA, working with its constituent local authorities, the Framework will need a collaborative approach to enable delivery. This will include local and regional government, but also the commitment of local businesses and communities. The Framework will also need financial investment in order to implement, and then sustain, some of the measures identified. As air pollution is both produced and experienced locally and regionally, any emissions reduction (by industry, transport, and housing) as a result of the implementation of the Framework will have immediate local and regional benefits.

We have begun our path to delivery through a DEFRA-funded air quality grant and look to continue working with our regional partners, local businesses and communities as the Framework is delivered.

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1. Introduction: Purpose and Scope of the Plan

The Air Quality Framework and need for a Framework Implementation Plan

The West Midlands Combined Authority (WMCA) has developed an Air Quality Framework[2]. This comprehensive document comprises a list of 145 potential 'options' that could be enacted to address poor air quality and inequality of exposure. The options vary in terms of their likely impact, timescale for implementation and cost but focus on measures that can be implemented at a regional level. The Air Quality Framework recognises the role and responsibility of the West Midlands constituent[3] and non-constituent local authorities[4] on Local Air Quality Management (LAQM) and seeks to support and amplify their efforts through the provision of a strategic framework for the region. This directly aligns with the Environment Act 2021[5] which suggests that more regional co-operation should be undertaken.

Given the scale of the task, this Framework Implementation Plan has been developed alongside the main Framework document to provide focus for work packages and measures to be prioritised during the initial two-year work programme.

It has been developed in conjunction with organisations from the public sector (including health, public health, and local authorities); research organisations and third sector organisations that have an interest in environment, health and air quality. Their feedback and input were gained through an interactive consultation process that allowed the identification of priority measures for implementation.

The outcomes that we hope to achieve through the implementation of the Framework include, but are not limited to:

- Reduced exposure to nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$ - particles that are less than 10 and 2.5 micrometres (µm) in diameter respectively) striving to achieve better health outcomes for people living and working in the West Midlands.
- Increased awareness amongst people, communities, developers, businesses, politicians, and policymakers of the need to tackle poor air quality in the West Midlands.
- Improved monitoring, data collection and communication of the data to local groups, especially those at risk. The resulting insights should be used to understand the impact of various policy measures. Findings can then be used to inform discussions concerning future prioritisation to address poor air quality (including soft measures such as behaviour change campaigns and/or infrastructure solutions).
- Increased regional and national co-working and cooperation to improve air quality and health outcomes in the most efficient way possible. This will build upon the work undertaken by local authorities and use the lessons learned to make the implementation and outcomes as effective as possible.

The delivery of this Framework Implementation Plan will require collaboration across a wide range of stakeholders; it cannot be delivered by any one organisation (i.e. WMCA) acting alone. As a result, we plan to establish a Framework Delivery Group (FDG) that will complement existing governance arrangements. This will enable wider integration of regional stakeholders through focused task and finish groups tackling particular issues. More on this is outlined in **Section 7**.

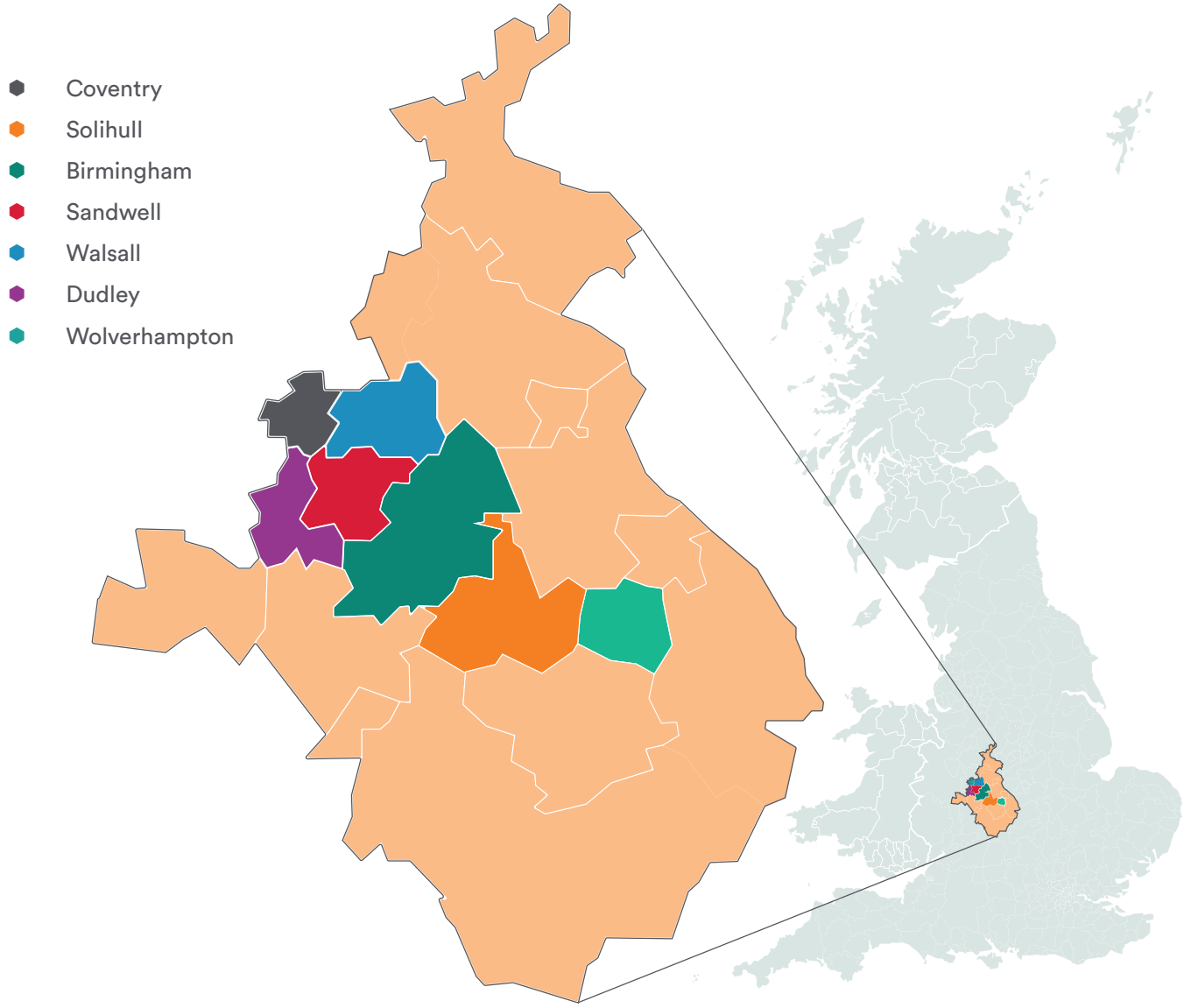
Finally, the engagement and involvement of the West Midlands people and communities is fundamental to helping assess, prioritise, and implement measures. The Greener Together Citizens' Panel has already provided input into the things we should consider when deciding to move forward with a particular measure or policy. We plan to continue working with the Panel to support the roll out of the Framework Implementation Plan.

Geographical Scope

Scope of the Plan

The Air Quality Framework, and subsequent Framework Implementation Plan, are applicable to the seven constituent local authorities and 11 non-constituent local authorities which make up the WMCA region. For the purposes of this work, we have focused on the role of the constituent local authorities but, as with many other environmental issues, there is scope to collaborate across different geographies. For example, the Coventry and Warwickshire Air Quality Alliance have been a stakeholder in developing the Framework.

Anything that can be delivered by WMCA, constituent local authorities or partners is considered within the scope of the Framework. Options which fall outside of the scope of the Framework typically are those which rely upon national government to promote or are not implementable within the current powers. If we identify any powers that would benefit air quality and public health, then they could form part of a future devolution deal.



Roles and Responsibilities

Table 1.1 lists the organisations involved within the development of the Air Quality Framework and their respective roles and responsibilities. There is a need to form a multi-disciplinary approach when considering measures to be implemented to improve air quality and health within the region (from transport, environmental and public health to planning etc.).

Table 1.1: Roles and Responsibilities Within the West Midlands

Organisation	Responsibilities					
	Transport	Planning	Public Health	Environment (excluding air quality)*	LAQM	Clean Air Zone (CAZ)
WMCA	✓			✓		✓
Local Authorities	✓	✓	✓	✓	✓	✓
Environment Act (2021) Air Quality Partners**	✓	✓	✓	✓	✓	✓

Notes:

* This is a responsibility that is shared across regional and local authorities. There are currently no statutory obligations (that sit outside planning), but the WMCA is expecting to be appointed responsible authority for the Local Nature Recovery Strategy (as outlined in the Environment Act, 2021).

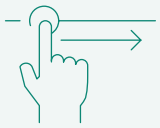
** Air Quality Partners may be a neighbouring local authority; a designated Relevant Public Authority (such as National Highways); the Environment Agency.

Role of WMCA

Each option within the Framework has an indicative WMCA role assigned to it, which is as follows:

Lead

WMCA would have direct responsibility and would take action;



Enable

WMCA can enable the option to go forward in some capacity (e.g. undertaking preliminary assessment work, providing physical items (e.g. trees) to enable the work to go forward);

Convene

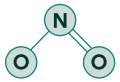
Bring parties together to discuss an issue/option and how it can be resolved. This could include providing inputs on challenging issues and then finding the mechanisms to address them (such as mitigation or adaptation).

The workplan in Section 5 is a combination of Framework options in complementary packages and standalone measures. It captures proposed ownership and delivery partners, as well as the targeted progress/delivery stage by the end of the initial two-year period. One of the strengths of a framework approach is that options within the Framework can be initially assessed, and experience drawn upon when required for more comprehensive and targeted assessment on a case-by-case basis.

2. Air Quality, Policy, and Regional Summary

2.1 Pollutants of Concern

This Framework is primarily dealing with two ambient (i.e. outdoor) pollutants:



Nitrogen Dioxide NO_2 is essentially a primary pollutant (directly emitted to the air). As such, it is typically emitted directly from or formed following high-temperature combustion (notably, road transport).

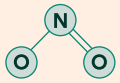
Particulate Matter (particularly $PM_{2.5}$) - Particulate matter has both primary and secondary elements (pollutants which are formed in the atmosphere, from the processing of other primary emissions). Direct emission sources include biomass (wood) burning, combustion, road traffic, resuspended dust and dust from construction; secondary sources include particle formation from the atmospheric processing of NO_2, sulphur dioxide (SO_2), volatile organic compound (VOC) gases, and ammonia (NH_3).

2.2 National Legislation, Policy, and Targets

There are several regulatory and advisory limits on air pollutants, as well as suggested policy approaches and measures for tackling poor air quality. For local authorities and the region, the most recent update to air quality limits and policy was part of the Environment Act 2021, its subsequent regulations (The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[6]) and other strategies such as the Environmental Improvement Plan 2023[7].

The current legally binding targets set are higher than the WHO Air Quality Guideline Values in **Table 2.1**, and therefore seen by many as not being sufficiently ambitious to maximise protection of health. It was noted in legislation that all areas within England should be able to reach the revised $PM_{2.5}$ target within the timescales set. However, transboundary pollution, especially in London and the south-east arising from continental Europe, was used to justify not setting a more ambitious target. As such, there is a disparity between what the Government considers an achievable target for all of England (a requirement of the Environment Act) and what the World Health Organization recommends governments should set as their $PM_{2.5}$ target, based on current evidence.

Table 2.1: Key Ambient Air Quality Standards (for England) and Guideline Values Set by the World Health Organization

Pollutant	Averaging Period	Government Objectives and Targets in England (µg/m³)	WHO Air Quality Guideline Values (µg/m³)
	Annual mean	40	10
	1-hour (hourly) mean	200 (not to be exceeded more than 18 times a year)	N/A
	24-hour (daily) mean	N/A	25 (not to be exceeded more than 3 to 4 times a year)
	Annual mean	40	15
	24-hour (daily) mean	50 (not to be exceeded more than 35 times a year)	45 (not to be exceeded more than 3 to 4 times a year)
	Annual mean (in 2023)	20	5
	Annual mean (2028 interim target)	12	5
	Annual mean (2040 target)	10	5

Local Air Quality Management

Local authorities have had long standing responsibilities due to the LAQM regime under the Environment Act 1995. There were amendments to the LAQM regime in the Environment Act 2021, alongside more defined responsibility for tacking local air pollution. The responsibility for addressing local air quality is now shared between designated relevant public authorities, all tiers of local government and neighbouring authorities. The key expectations have been further defined within a DEFRA policy paper[8] which includes statements such as "*If the government considers local action has not gone far enough, we will consider introducing a statutory duty on local authorities*". For context, Appendix B details what the government's priorities and actions are and provides some context on what will be done nationally.

The LAQM regime requires every district and unitary authority to review and assess air quality in their area on a regular basis and present the findings in an Annual Status Report (ASR). The ASRs will identify if objectives have been, or will be, achieved at relevant locations by the required date. If an Air Quality Management Area (AQMA) is designated on the back of an ASR, an Action Plan should be prepared within 12 months following the declaration of the AQMA.

There have been varying mechanisms and measures to reduce pollutant concentrations in areas with exceedances of the air quality objectives. However, typically these are in the form of transport schemes, smaller scale mitigation, behaviour change and wider geographical controls such as Smoke Control Areas (SCAs).

More recently there have been measures such as Clean Air Zones and Zero Emission Zones (ZEZs) that can be used as a mechanism to meet the legally binding NO_2 air quality objective in the shortest possible time. However, measures such as CAZs can have varying impacts on concentrations depending on the restrictions imposed, but typically the impact on NO_2 is greatest. For example, the Birmingham CAZ area includes approximately 5% of the city population, which is one of the major limitations in achieving any significant health benefit (for major cost). CAZs can also exacerbate social and economic inequality, however, if funds are used efficiently, changes in behaviour and modal shift can provide wider benefits which may not be immediately apparent.

With the clarified responsibility to improve local air quality, it is imperative that regional solutions are implemented. This is a departure from most previous LAQM approaches, which have been primarily locally targeted when not included within a regional plan (such as a Local Transport Plan (LTP)). Most local authorities have extensive experience in improving air quality within their area, focusing on NO_2; however, there are potential benefits to using this knowledge to expand measures across the region and implement new ones.

2.3 Impacts, Sources and Regional Picture

Air Quality Impacts on Health and the Environment

Traditionally for ambient air pollution, the focus has been on NO_2 and the larger particle sizes (such as PM_{10}). However, there is a substantial evidence base that concludes[9] $PM_{2.5}$ is more dangerous to human health, as the particles can penetrate more deeply into the body, lungs and even bloodstream; and is causally associated with a broader range of health outcomes than NO_2. This is reinforced within the Public Health Outcomes Framework (PHOF), where the 'Fraction of mortality attributable to particulate air pollution' only includes $PM_{2.5}$. As such, the Framework options have a particular focus on reducing emissions and exposure to $PM_{2.5}$. However, pollutants such as NH_3 should not be ignored as they have both a direct impact on the natural environment and play a part in secondary $PM_{2.5}$ formation, with emissions largely coming from agriculture.

The mortality burden of long-term exposure to outdoor air pollution (i.e., an estimate of how many people die from long-term outdoor air quality exposure) in England is estimated to be equivalent to 26,000 to 38,000 deaths a year[10].

Most of these deaths attributable to outdoor air pollution are related to long-term exposure to $PM_{2.5}$. WM-Air estimate that annually in the West Midlands, up to 2,300 early deaths are attributable to long term $PM_{2.5}$ exposure. In addition to the mortality burden, there is the causation and exacerbation of both avoidable and unavoidable chronic illnesses, such as asthma, along with associated impacts on mental health and cognitive function. As such, exposure to poor air quality has a significant impact on quality of life, public health, and the economy, when considering associated healthcare costs. As shown in Figure 1, the impact of poor air quality can affect anyone during their lifetime, and impacts are typically not equal. Air quality inequality can stem from a variety of factors including socio-economics, ethnicity, age and other medical factors (such as pregnancy and pre-existing conditions).

Ambient air pollution also has an impact on the natural environment, with pollutants such as nitrogen oxides (NO_x) and NH_3 having an impact on sensitive plants through the formation of nitric acid in sunlight, which is a major constituent of acid rain, tropospheric ozone and smog. Through processes such as nitrogen deposition and direct toxicity, increased pollution can lead to a decrease in biodiversity and even crop damage, because some plants can adapt to the changes better than others.

Indoor air pollution is affected by both actions that happen indoors, and the quality of the air outdoors entering the space in question. Sources of indoor air pollution include combustion sources (such as gas boilers/hobs and solid fuel appliances like log burners), household products, furniture mould, cooking and outdoor pollutants. Indoor air quality is a less mature field of study than outdoor air quality. With improvements to outdoor air quality, it is expected that there will be an increased focus on indoor air quality, given the time that people spend indoors, and the range of behavioural and other interventions which can mitigate exposure. This can include advice on better ventilation, change to electric cooking methods, having a smoke free home (no smoking and log burners), reducing the use of harsh cleaning chemicals and keeping your home heated/ventilated to prevent condensation leading to damp and mould.

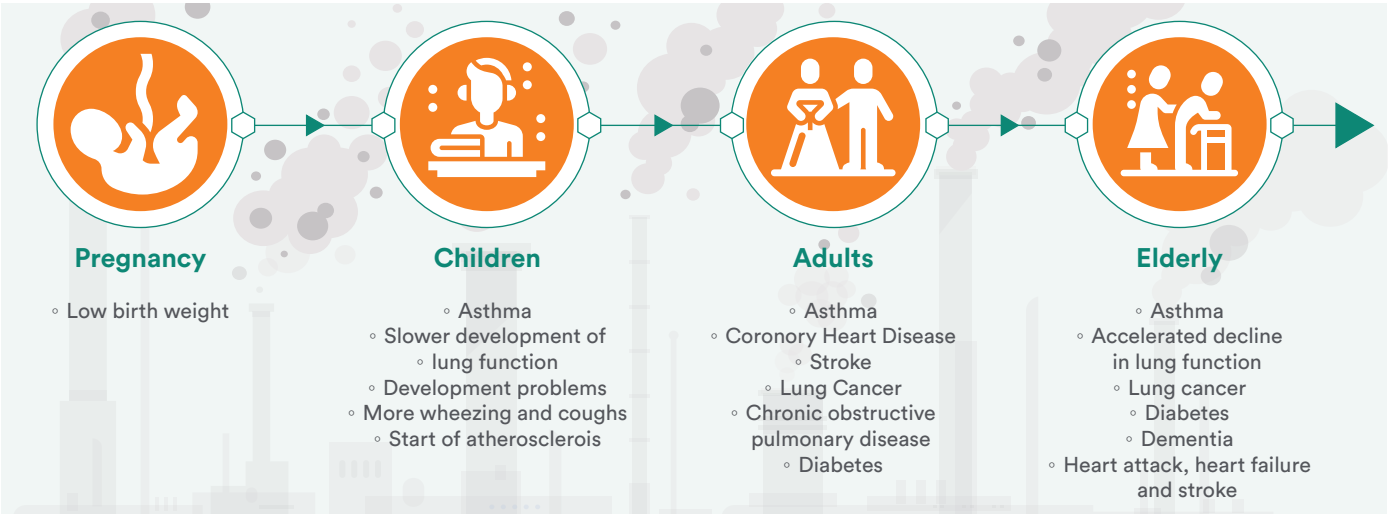


Figure 1: Health effects of air pollution throughout life.
Adapted from the Chief Medical Officer's 2022 Annual Report: Air Pollution[11]

Pollutant Sources Within the West Midlands

Primary NO_2 and NO_x emissions in the West Midlands are dominated by road transport. Within this, as typical for UK urban environments, emissions are dominated by older diesel vehicles. Particulate matter, with a lifetime of a few days, bridges this divide: PM concentrations in the West Midlands reflect both local emissions, and transported pollution from elsewhere (i.e. transboundary pollution). Primary particulate matter emissions in the West Midlands also have a much wider spread of sources – including commercial and domestic combustion, industrial production and road transport.

The largest single source of particulate matter emissions in the West Midlands is domestic and commercial combustion.

Air pollutants are dispersed and transported by the wind. Weather conditions can also affect their deposition and removal. Their rate of removal from the air – or lifetime – reflects the importance of transported pollution relative to local emissions. Notably, levels of short-lived species will be dominated by local or regional emissions (e.g. NO_2); at the opposite extreme levels of very long-lived species depend upon emissions globally (e.g. carbon dioxide (CO_2)).

Whilst we are expecting urban NO_2 to decrease with the move to electric vehicles, projections from the National Atmospheric Emissions Inventory indicate that we cannot currently anticipate an equivalent reduction in $PM_{2.5}$ without additional interventions (related to non-exhaust particulate matter sources: brake, tyre, and road wear, exacerbated by increased vehicle weight).

West Midlands Ambient Air Quality Overview

Ambient air quality has significantly improved over the past 50 years, particularly with notable reductions in pollutants like NO_2. This trend is expected to continue as the transportation industry shifts towards lower and zero-emission vehicles. However, the decrease in particulate matter concentrations has slowed in the last decade. Moreover, particulate matter emissions are not solely from transportation; domestic combustion, especially in the West Midlands, remains a primary source of particulate matter emissions, and an increase in solid fuel combustion in recent years has hindered overall emission reductions.

NH_3 is typically more relevant to the natural environment but is gaining importance in terms of human health. It can contribute to increased secondary $PM_{2.5}$ concentrations through chemical reactions in the atmosphere.

Ammonia emissions and concentrations have not decreased to the same extent as other pollutants.

The highest 2021 annual average $PM_{2.5}$ concentrations in the West Midlands are modelled in central Birmingham, Coventry, Sandwell and Walsall (as shown overleaf in **Figure 2**). This is largely supported by the monitoring undertaken by the WMCA constituent local authorities and published within their ASRs. N.B this dataset is a modified 2016 model and therefore it has limited influence from COVID-19. This is because it utilises a 2021 vehicle fleet that would not be affected by COVID-19.

Across the region, monitored concentrations of PM_{10} and $PM_{2.5}$ are below their respective objectives, with monitored annual mean $PM_{2.5}$ concentrations being below the 2040 target (10µg/m^3) in recent years. This indicates that in comparison to the government's objectives, monitored particulate matter concentrations are acceptable (although this may not capture all pollution hot spots). However, $PM_{2.5}$ in all areas exceeds the WHO Air Quality Guideline Value (5µg/m^3); this is the situation across England, due to the combination of urban, rural, and transboundary pollution, from a mixture of natural and human origins.

DEFRA mapping for 2019 indicates that ward-mean annual average $PM_{2.5}$ levels in 72 of the 192 wards within the West Midlands exceed 10µg/m^3. Modelling by WM-Air[12] suggests that that 1.2m people or ca. 40% of the West Midlands' population live in wards where ward average annual mean $PM_{2.5}$ concentrations exceed 10µg/m^3. What emerges from this data is that the least advantaged areas (highest indices of multiple deprivation (IMD) score) tend to have the worst air quality and that the picture varies depending on the data source and methodology used.

Based on the WM-Air modelling (through the Air Quality Life Assessment Tool (AQ-LAT), across the WMCA area in 2019 the estimated fraction of annual mortality attributable to particulate air pollution was up to 8.4%, which is higher than the West Midlands average. Sandwell is predicted to have the highest fraction at up to 8.8%, whilst Solihull, has the lowest fraction of attributable mortality in the WMCA area at up to 7.9%. It should be noted that national PHOF fractions (shown in Appendix B) are based on NAEI background mapping and have a lower fraction in comparison.

Although the regional $PM_{2.5}$ monitoring results are promising when compared to the Government's 2040 target, meeting more ambitious targets will reduce the burden and promote a wide array of benefits to the region. These include but are not limited to improvements in health, reduction in inequality and financial benefits of a healthier and more productive West Midlands.

For NO_2, there have been historical exceedances of the annual mean objective prior to COVID-19, and locations in the West Midlands where NO_2 exceeded the objective during covid affected years (2020 and 2021). In line with the national trends, the number of locations exceeding the annual mean NO_2 objective has been decreasing over the past 15 years, however, in some urban locations, the concentrations are not decreasing at the same rate as elsewhere within the region. The results for 2022 (the first year to not have significant COVID-19 related impacts) are currently being prepared by local authorities, so this will provide further update on the progress made in dealing with road-source NO_2 emissions and exceedances of the annual mean NO_2 objective.

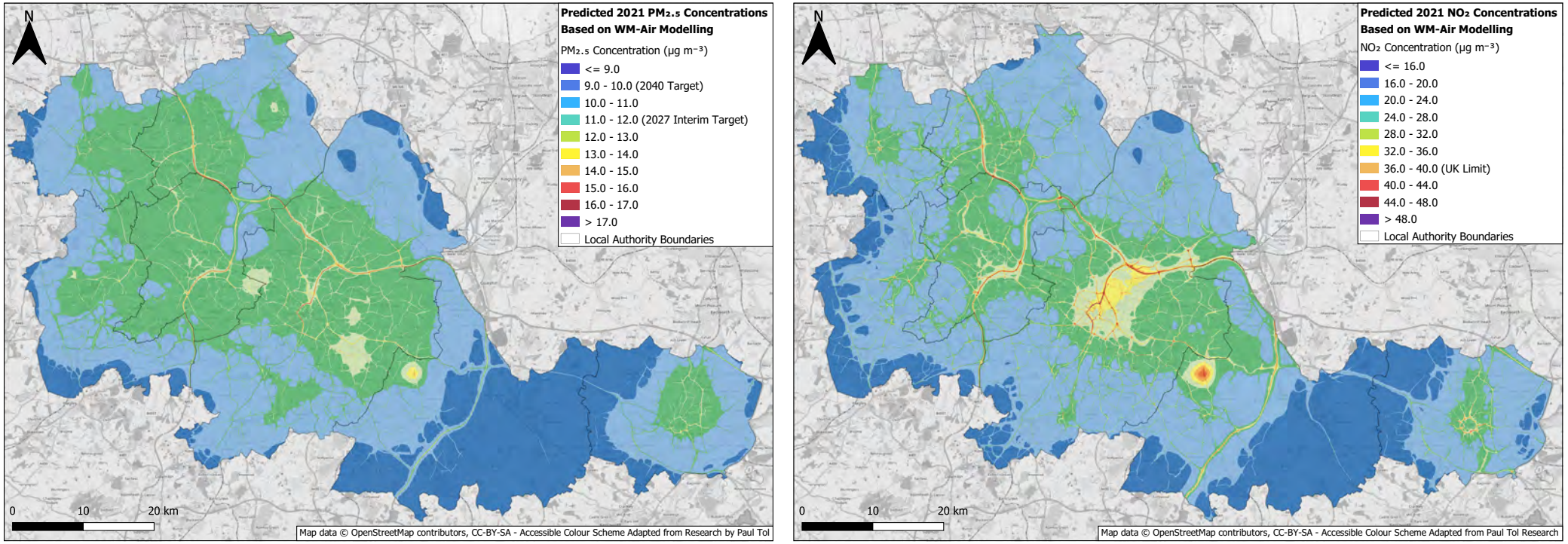


Figure 2: Modelled 2021 annual average concentrations of $PM_{2.5}$ (left) and NO_2 (right) in the West Midlands. Provided by WM-Air modelling.

3. Framework Overview

In response to member questions on air quality, WMCA in conjunction with the WM-Air project at the University of Birmingham, prepared an Air Quality Options paper[13], which was presented to the WMCA Board in February 2022.

An initial overview of actions was identified in this paper, but there was recognition that this needed to be translated into an Air Quality Framework comprising a list of options assessed and prioritised against criteria including health outcomes, wider benefits, feasibility of implementation, cost and timescales as well as the likelihood to deliver air quality improvements. The Air Quality Framework took these options and included additional options following discussions with constituent local authorities and research from other key sources (such as from DEFRA[14]). The main Framework document details each of the stages in the Framework process. **Figure 3** provides a summary of the stages of work undertaken.

At the inception of the Framework, and throughout the process, regular discussion and consultation was undertaken with TfWM, constituent local authorities and partners such as WM-Air. Details of the contributors and consultees for the Framework are given in Appendix C. These discussions shaped the Framework's scope and direction, along with specific options which had not been previously identified. The WMCA's Greener Together Citizens' Panel also led the development of guiding principles that should be used as part of the detailed assessment and implementation of options outlined in this Framework Implementation Plan. More detail on how the Air Quality Framework options were appraised can be found in the document here.

A targeted consultation process was also undertaken in August 2023, culminating in an in-person workshop event. Organisations from the public sector (including health, public health, and local authorities); research; and third sector organisations that have an interest in environment, health and air quality were invited to the event. The workshop event allowed for relevant decision makers and other key organisations to provide feedback on the draft Framework document, discuss air quality issues and make recommendations on the options they would like included within this document. Following the consultation event, feedback and comments were collated along with the option recommendations for inclusion within this Air Quality Framework Implementation Plan. The resultant list of priorities within Section 5 provides a challenging, but achievable set of packages and measures to improve air quality within the region.

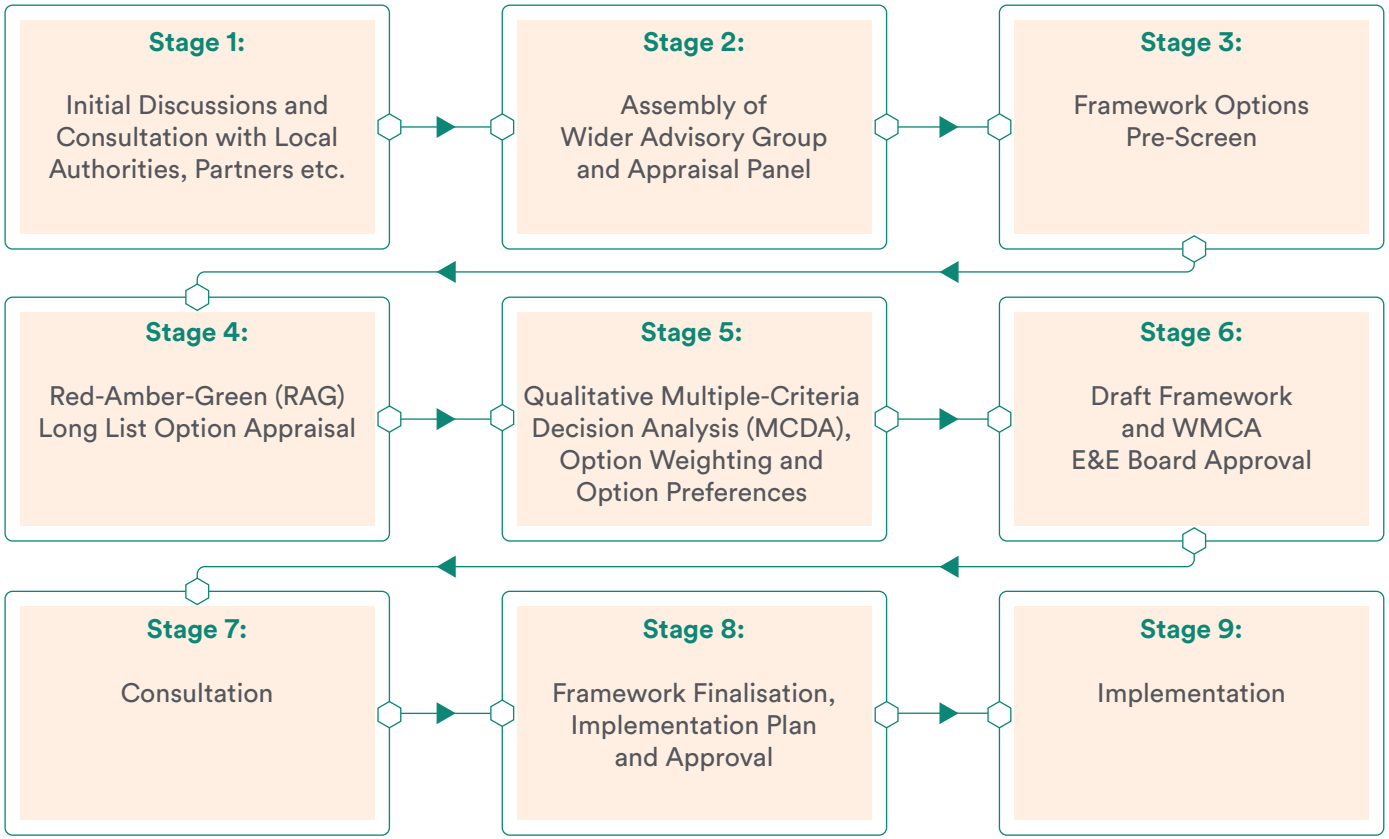


Figure 3: Framework Stages and Workflow

4. Wider West Midlands Strategic Approach

The Air Quality Framework, and this Framework Implementation Plan, do not sit within a policy vacuum. Strategic approach, and delivery, is dependent on effective coordination across other WMCA and local authority functions. These predominantly relate to:

- Existing air quality plans (especially local authority AQAPs and strategies).
- Transport plans, including the LTP, and associated area strategies and implementation plans.
- Net zero plans. At a regional level this is the WM2041 plan (and the associated Five-Year Plan) as well as local authority net zero strategies.
- Other linked area of work, e.g. regional and local public health and natural environment plans.

These are represented in **Figure 4**. We expect the Air Quality Framework Delivery Group to work with all of these areas as part of delivery (also see governance in Section 7).

Within the boxes in the below diagram, there are specific plans and strategies that will be relevant to the successful delivery of air quality improvements. For example, the local authority plans and strategies box represents planning, local net zero plans, public health strategy, transport and natural environment (noting these may not necessarily be interlinked at a local authority level). We will be relying on the work with local authorities to identify areas where the Air Quality Framework can support on delivery and consistency.

Further, each of these plans/ strategies will be on a different cycle of renewal, approval, and adoption. As a result, the aim would be for the Air Quality Framework to support the provision of up-to-date information and action on addressing air quality for inclusion where appropriate.

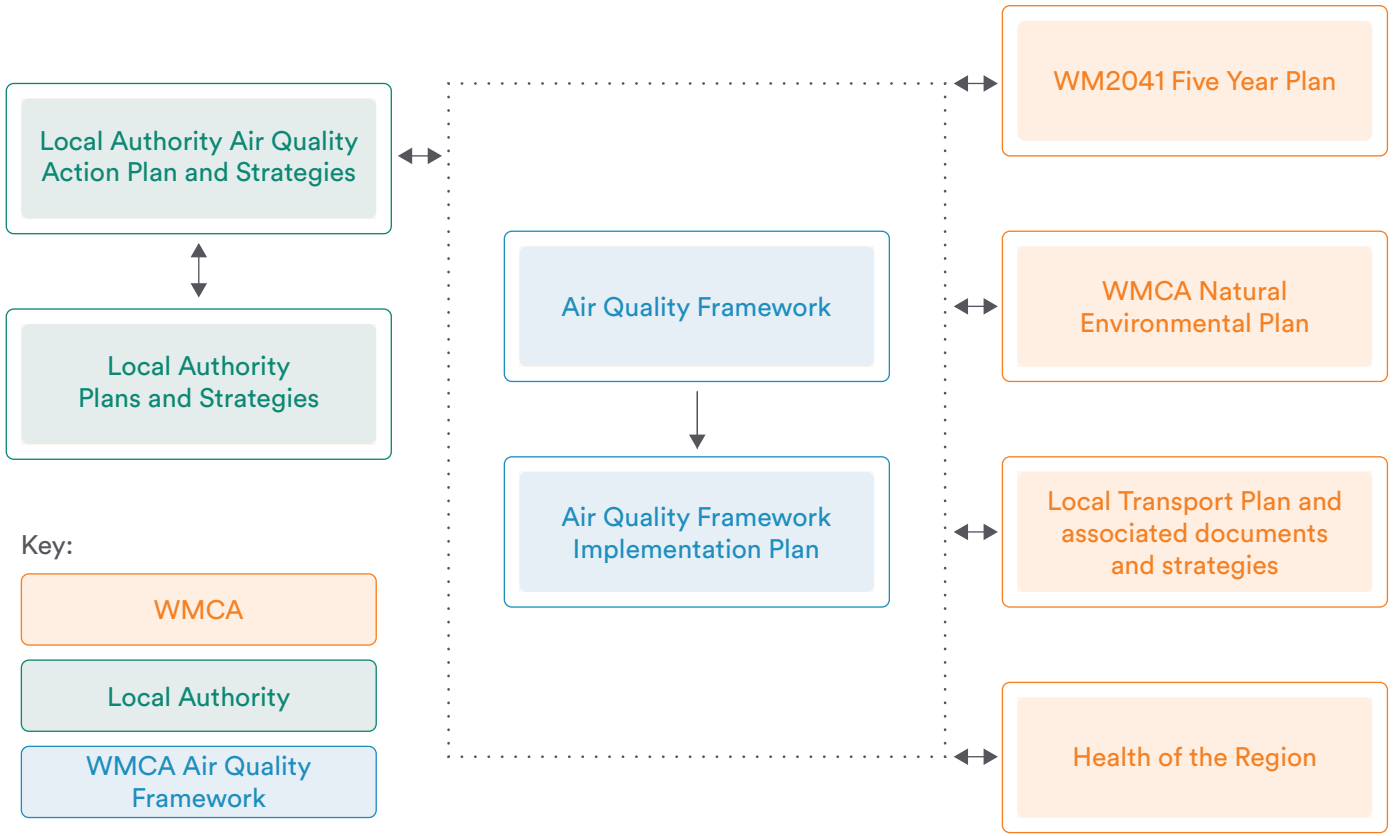


Figure 4: Alignment of the WMCA Air Quality Framework to Regional Strategies

5. Our Priorities 2024 – 2026

This section outlines the priorities of the Framework for the next two years by providing a set of work packages (WP) and measures to progress. The tables within this section provide an overview of the following:

- What each package or measure will deliver;
- Expected stage of delivery for the next two years;
- Cross references to the Framework options;
- Ownership for delivery and stakeholders/ consultees;
- Indicative costs; and
- Risks and dependencies.

The overall scope, tasks required to progress, and funding requirements vary across the work packages and measures. As such, there are varied levels of delivery targeted within the two-years this document covers, grouped as:

- Outline feasibility stage;
- Business case prepared;
- Funding sought/secured;
- Early stage implementation; and
- Full implementation.

The Framework options vary in scope and granularity, with some options within the Framework having logical synergies with others. Where this is the case and there is benefit to a combined delivery, options have been grouped together into a work package. These include:

Monitoring and Digital Engagement	Table 5.1
Air Quality Communications	Table 5.2
Schools	Table 5.3
General Air Quality Engagement and Behaviour Change	Table 5.4
Dedicated Engagement and Behaviour Change Package for Domestic Combustion	Table 5.5
Net Zero and Retrofit	Table 5.6
Planning and Air Quality Assessment	Table 5.7
Natural Environment	Table 5.8
Research	Table 5.9
Transport for West Midlands and Local Authority Standalone Measures	Table 5.10
Additional Standalone Measures for WMCA, Transport for West Midlands and Local Authorities (1)	Table 5.11
Additional Standalone Measures for WMCA, Transport for West Midlands and Local Authorities (2)	Table 5.12

Many of the work packages are interconnected with common themes and actions, so there will be opportunities for reduced overheads when it comes to resourcing, finances, and delivery. Key aspects such as the building of communication channels and monitoring of outcomes can be applied across all work packages.

Those options that represent larger distinct works by themselves or do not naturally fit into the above structure have been retained as standalone measures. These standalone measures have the potential to be incorporated into existing or future work (such as the TfWM LTP) and the Framework Delivery Group will have a role in optimising the delivery of these measures, whether that be processing with a measure in isolation or have it incorporated into other packages. Table 5.10 (Transport for West Midlands and local authority standalone transport measures) and Tables 5.11 and 5.12 (additional standalone measures for WMCA, Transport for West Midlands and local authorities) summarise the measures that have not been placed into a work package. In all the tables below, the Framework options which make up the work packages or measures are stated, with the option description, followed by the Framework option identifier (such as 'MON1') in brackets.

Regarding finances and funding sources, an assumption has been made that officer time will be available from local authorities, supported by a WMCA officer post (currently financed by DEFRA). We do, however, recognise that there are significant capacity issues in terms of delivery in the constituent local authorities, which is a potential risk to delivery of some of these programmes. Providing additional resource through external support will be critical for success.

Some work packages and measures can be delivered in conjunction with existing projects and work (with some additional funding or officer time), but others will need standalone funding. Indicative resource requirements for the next 2 years have been identified against these.

Much of the engagement and behaviour change work can be delivered through existing officer time, potential additional resources and by leveraging the benefits of having more of a regional approach. Others, such as those relating to transport and infrastructure, will be much more complex to estimate financially and will have to be determined once allocated to a delivery partner and once a scope is defined. The Framework Delivery Group will play an integral role in identifying sources of finance and resourcing the delivery of the work packages and measures. In advance of this, it has already been demonstrated that the WMCA and seven constituent local authorities are able to attract funding through DEFRA grants and Department for Levelling Up, Housing and Communities (DLUHC) funding. There is also the scope for Section 106 (S106) funding and funds raised on the back of revised planning guidance (i.e. damage cost calculations) to support specific work packages in the future.

Where the costs of stand-alone measures and work packages are not yet known, the following scale has been applied based on professional judgement:

- £ - Officer time, or below £100,000
- ££ - Between £100,000 and £500,000
- £££ - Above £500,000.

Table 5.1: WP1 - Monitoring and Digital Engagement

Monitoring and Digital Engagement

Package Summary

Establish a West Midlands wide low-cost sensor network, along with an associated standalone website, network standard and behaviour change elements. This will bring together existing indicative low-cost sensors from local authorities, plus existing monitoring that is used for compliance. This will enable increased understanding of particulate concentrations within the region and provide tools to reduce exposure and emissions to benefit public health. The network will be designed in conjunction with partners and with guidance/standards to be shaped by upcoming DEFRA low-cost sensor guidance.

Expected Delivery

Full implementation.

Consisting of Framework Options

- Establish a West Midlands wide low-cost sensor network, with an associated standalone website that includes existing regional data, enable other systems (such as an alert system) and air quality information that is effective for behaviour change. (MON1)
- Establish regional standards on air quality monitoring covering all monitoring types to ensure that the data being acquired is robust and the equipment used is to a minimum standard. (MON2)
- Use a centralised West Midlands air quality network website as a data store to enable various analyses such as trends and the quantification of the impact of air quality measures. (MON4)
- Use low-cost sensors to capture high level domestic combustion data to be used in effective behavioural change advertisement and create real life stories/case studies. (EBC9)
- Provide a centralised online public resource and/or platform for engagement and behaviour change co-ordination across the West Midlands. (EBC30)
- Use a regional air quality website to deliver key air quality information and effective information to facilitate behavioural change through a single point for the West Midlands. (EBC31)
- Interactive online resources to demonstrate air quality issues. (EBC32)

Proposed WMCA Role and Ownership

WMCA to **lead**, with local authority and partner input.

Stakeholders / Consultees

Local authorities, TfWM, communities, medical professionals/GPs and businesses.

Indicative Two-Year Costs and Sources

£640k (already secured through DEFRA grant and DLUHC funding), likely to cover up to five years.

Risks

Long term viability without long term funding. Dating of equipment due to adoption of new technologies/fragmentation of technologies. Lack of promotion and engaging materials on the centralised website leading to lack of usage.

Indicative Long-Term Costs and Sources

TBC following finalisation of scope and procurement, however existing funds expected to provide support to five years (££-£££).

Dependencies

External funding (including promotion), local authority highways/TfWM support for installation on lampposts where required and property owner consent.

Table 5.2: WP2 - Air Quality Communications

Air Quality Communications

Package Summary

Produce a communications strategy and materials to harmonise and maximise the effective delivery of air quality communications throughout the West Midlands. This would include using existing channels of communications (such as local authority communication teams) and leveraging trusted advisors to disseminate key information to those that need it the most. Having coordinated and harmonised air quality messaging will be key to increasing awareness and leading to changes in behaviour. Utilising local authority public health teams will be critical in the creation and dissemination of materials through existing partnerships and communication channels.

Expected Delivery

Early stage to full implementation.

Consisting of Framework Options

- Leverage campaigns for public transport, walking and cycling to promote the various co-benefits (including emissions and health) along with exposure mitigation. (EBC10)
- Use health professionals to educate and disseminate targeted air quality information to vulnerable and at-risk patients. (EBC27)
- Work with existing public health channels to deliver consistent messaging across the West Midlands. (EBC29)
- Use trusted advisors to disseminate air quality messaging (including faith leaders, GPs, nurses, fire service etc). (EBC34)
- Ensure that air quality communication and engagement are consistent and inclusive across the West Midlands (and modified where necessary) to make messaging as clear as possible with the best chance of behavioural change. (EBC38)
- Roll out tools to warn and update residents of poor air quality and supported by regional/local healthcare system. (PH1)

Proposed WMCA Role and Ownership

WMCA to **lead**, with local authorities supporting on local implementation.

Stakeholders / Consultees

Local authorities (air quality, public health, and communication teams), TfWM, healthcare, communities, and external organisations.

Indicative Two-Year Costs and Sources

Set up and initial delivery of the work package expected to be in the region of £80,000. This would include a feasibility study/business case for an alert system and healthcare system integration.

Risks

Poor public reach due to lack of coordination in communications, no agreement on messaging and key messages, conflicting messaging, lack of support within communities. No scope to update healthcare systems to integrate air quality alerts/ warnings leading to lack of use.

Indicative Long-Term Costs and Sources

TBC following feasibility – Expected to be officer time, any identified promotional costs and long-term support of air quality alert system if implemented (£-££).

Dependencies

Establishment of strong communication channels, agreement on messaging, frequency, and style. Lessons learnt and outputs from the WMCA led DEFRA behaviour change project.

Table 5.3: WP3 - Schools

Schools

Package Summary

Produce a coordinated approach to engaging with West Midlands schools on air quality. Several local authorities already undertake schools' engagement. However, utilising existing experience, lessons learnt and contacts to deliver a consistent engagement programme and accreditation scheme should provide better air quality outcomes in a timely and financially efficient way. Working with a wide range of partners and local organisations will allow for greater access to secondary and further education establishments, which are historically difficult to engage with (due to such factors as resourcing, time, and curriculum relevancy). There should be engagement and linkages to existing programmes and working with existing groups who campaign in the area (such as Mums for Lungs).

Expected Delivery

Early-stage implementation.

Consisting of Framework Options

- Introduce a West Midlands schools accreditation and education scheme for air quality. (EBC28)
- Develop and deliver a consistent regional schools engagement programme across the West Midlands, with flexibility to account for variations across the area (such as city vs suburban locations). (PH4)

Proposed WMCA Role and Ownership

WMCA to **enable**, with local authorities leading on local implementation.

Stakeholders / Consultees

Schools, local authorities (air quality, public health, and communication teams), TfWM, communities and external organisations.

Indicative Two-Year Costs and Sources

Establishment of the region wide programme and initial delivery of the work package expected to be in the region of £100,000.

Risks

Low uptake by schools (particularly secondary schools) because of lack of time/ resourcing, duplication of work. Lack of officer time leading to fewer schools and a smaller programme.

Indicative Long-Term Costs and Sources

TBC following feasibility – Expected to be officer time + any identified promotional costs (£). Potential sources to be investigated, could include Section 106 agreement or damage cost assessment funding steams (where in place and applicable). Potential funding request from DEFRA etc.

Dependencies

Sufficient officer time and promotion to provide an effective programme.

Table 5.4: WP4 - General Air Quality Engagement and Behaviour Change

General Air Quality Engagement and Behaviour Change

Package Summary

Produce a public health toolkit (a collection of authoritative and adaptable resources) and toolbox of measures (a package of measures for implementation) to raise the awareness of air quality issues and how changes in behaviour can have both personal and wider benefits. This should also include information on general behaviour change on better transport choices and small changes to reduce personal emissions when possible. The toolkit and toolbox approach will aim to reduce the ongoing resourcing burden, as resources and measures are collated for easier implementation. Linkages to the air quality communications package is key to disseminate information and ensure the information reaches everyone within the West Midlands. There will be key interactions with the DEFRA behaviour change project regarding campaigns that could be implemented, and the lessons learnt.

Expected Delivery

Early stage to full implementation.

Consisting of Framework Options

- Raise awareness of wider general indoor air quality issues, how to manage and potential solutions. (EBC4)
- Provide information on how to reduce personal exposure to poor air quality outside of the home and what can be benefits can be. (EBC25)
- Develop a small public health toolkit between stakeholders which standardises air quality communications and phrases across the West Midlands to ensure that communications are consistent and effective. (EBC26)
- Develop a toolbox of measures that local authorities can easily implement and have pre-packaged communications packages that local authorities can use to promote the measures. (PH3)

Proposed WMCA Role and Ownership

WMCA to **lead**, with local authorities supporting on local implementation.

Stakeholders / Consultees

Local authorities (air quality, public health, and communication teams), TfWM, healthcare, communities, external organisations, and businesses.

Indicative Two-Year Costs and Sources

£350,000 funding secured through DEFRA for a seven behaviour change programmes across the WMCA area (covering themes in WP4 and WP5).

Risks

Poor public reach due to lack of coordination in communications, no agreement on messaging and key messages, conflicting messaging, lack of support within communities. Lack of officer time leading to a smaller programme.

Indicative Long-Term Costs and Sources

TBC following feasibility – Expected to be officer time + any identified promotional costs (£). Potential sources to be investigated, could include Section 106 agreement or damage cost assessment funding steams (where in place and applicable).

Dependencies

Establishment of strong communication channels, agreement on messaging, frequency, and style. Lessons learnt and outputs from the WMCA led DEFRA behaviour change project.

Table 5.5: WP5 - Dedicated Engagement and Behaviour Change Package for Domestic Combustion

Dedicated Engagement and Behaviour Change Package for Domestic Combustion

Package Summary

Produce an effective regional engagement and behaviour change campaign to raise the profile of domestic combustion issues, particularly log burning, and the steps that can be taken to reduce non-essential emissions and exposure. Many residents are unaware of the health risks that even DEFRA approved appliances can have on their household's health and others within the region. Using lessons learnt from the DEFRA behaviour change project and others (such as the London Wood Burning Project), the package will aim to inform and promote small changes in behaviour to reduce a major source of $PM_{2.5}$ emissions within the region. Reducing the level of misinformation and misconceptions regarding log burning and domestic combustion will be key, as will driving home the real-world health risks. It should be noted that there is the potential to deal with some aspects of domestic combustion through the planning process, via planning conditions on new development alongside Building Regulations requirements.

Expected Delivery

Early-stage implementation.

Consisting of Framework Options

- To raise awareness of specific air quality issues and potential solutions associated with the use of log burners, fireplaces, and bonfires. (EBC1)
- Raise awareness of air quality issues and potential solutions associated with general domestic combustion. (EBC2)
- Where solid fuel combustion is required, raise awareness to ensure the correct fuels are used (i.e. dry seasoned wood). (EBC3)

Proposed WMCA Role and Ownership

WMCA to **lead**, with local authorities supporting on local implementation.

Stakeholders / Consultees

Local authorities (air quality, public health, and communication teams), healthcare, communities, external organisations, and businesses.

Indicative Two-Year Costs and Sources

£350,000 funding secured through DEFRA for a seven behaviour change programmes across the WMCA area (covering themes in WP4 and WP5).

Risks

Poor public reach due to lack of coordination in communications, no agreement on messaging and key messages, conflicting messaging, lack of support within communities. Lack of officer time leading to a smaller programme. Adverse publicity when targeting non-essential combustion. Potential cost of living implications for small minority who have combustion appliances as their main source of heating and hot water.

Indicative Long-Term Costs and Sources

TBC following feasibility – Expected to be officer time + any identified promotional costs (£). Potential sources to be investigated, could include Section 106 agreement or damage cost assessment funding steams (where in place and applicable).

Dependencies

Establishment of strong communication channels, agreement on messaging, frequency, and style. Lessons learnt and outputs from the WMCA led DEFRA behaviour change project.

Table 5.6: WP6 - Net Zero and Retrofit

Net Zero and Retrofit

Package Summary

Leverage existing WMCA and local authority net zero initiatives to promote the co-benefits of addressing air quality and Net Zero at the same time, for example through the WMCA Net Zero Neighbourhood programme. The incorporation of air quality as a greater component and recognising both the benefit and disbenefits of climate and net-zero action will promote air quality issues and promote changes that reduce emissions and exposure when implemented. The retrofit scheme will also have the potential to target more deprived areas and reduce the exposure of those most affected by poor air quality. Links to the changes in indoor air quality because of retrofit could be made, with promotional campaigns undertaken. There are also opportunities for the new WM-Net Zero research project to support and provide outputs, alongside linkages to other research, such as Framework option PH5 (Research into the real-world exposure of West Midlands residents (including the differences in exposure based on age and socio-economic situation) and what measures can be effectively implemented based on the findings).

Expected Delivery

Full implementation.

Consisting of Framework Options

- Metrics for improving air quality, to capture co-benefits from net zero actions and for policy to reduce regional health inequalities. (CNZ1)
- Reduce fuel combustion by improving home energy efficiency. (DOM1)
- Supporting the transition from gas central heating. (DOM4)
- Support landlords and homeowners in accessing grants to retrofit. (DOM6)

Proposed WMCA Role and Ownership

WMCA to **lead**, with local authorities supporting on local implementation.

Stakeholders / Consultees

Local authorities (air quality, public health, net zero and planning teams), TfWM, WM-Net Zero, businesses, housing organisations, healthcare, and communities.

Indicative Two-Year Costs and Sources

TBC following feasibility – Officer time (£) from an air quality perspective but tying into existing packages (£££). Potential sources to be investigated, could include section 106 agreement or damage cost assessment funding steams (where in place and applicable).

Risks

Potential costs to lead to meaningful change when based on air quality grounds. Message getting lost in the net zero messaging. Lack of officer time. Cost of living crisis impacting affordability of measures.

Indicative Long-Term Costs and Sources

TBC following feasibility – Officer time (£) from an air quality perspective but tying into existing packages (£££). Potential sources to be investigated, could include Section 106 agreement or damage cost assessment funding steams (where in place and applicable).

Dependencies

Continuation of current net zero programmes, net zero neighbourhoods' expansion.

Table 5.7: WP7 - Planning and Air Quality Assessment

Planning and Air Quality Assessment Considerations

Package Summary

Air quality is a material planning consideration and ensuring that the planning process both promotes and addresses air quality issues is a key aspect of delivering better air quality outcomes. By having specific aspects of planning identified as best practice consistently throughout the West Midlands, standards can be raised, and developers know what is required. Some aspects such as air quality positive/neutral (i.e. ensuring that new developments' transport and building emissions do not worsen air quality; and maximising air quality benefits, while minimising exposure) and health impact assessments may require a longer-term approach, however they can be powerful tools to reduce future emissions and exposure for both new and existing residents. There should be a clear process on what should be done when there is a potential negative impact on air quality/public health. This will ensure it is clear for developers and consultants on what is expected and how this should be dealt with, ideally prior to a planning decision being made. There is the potential to expand existing requirements for damage cost assessments to fund air quality initiatives and promote higher standards of development.

Expected Delivery

Business case to early-stage implementation.

Consisting of Framework Options

- Establish a region wide planning and design for air quality best practice document which will be kept updated with local, regional, and national changes in guidance and legislation. (PPG1)
- Introduce air quality neutral and/or air quality positive assessments into the planning process across the West Midlands. (PPG2)
- Including Health Impact Assessments (HIA) in planning applications that consider air quality. (PPG8)
- Ensure that there is the sufficient assessment/integration of transport plans and projects (such as area transport strategies and mitigation schemes) to ensure that the air quality impacts are quantified and where necessary, mitigated. (TRN1)
- Land use planning - give preference to developments in locations that minimise the need to travel and/or propose sufficient facilities, which will therefore reduce operational impacts. (NBE8)

Proposed WMCA Role and Ownership

WMCA to **enable/convene**, to be led by local authorities.

Stakeholders / Consultees

Local authorities (air quality, public health and planning teams), TfWM and communities.

Indicative Two-Year Costs and Sources

£60,000 to bring in external delivery support.

Risks

Patchy implementation, evolving planning processes, legislation, guidance etc. Political support for additional planning processes and policy. Lack of officer time. Existing national and local planning policy typically leads to air quality issues in practice being low in the decision-making process.

Indicative Long-Term Costs and Sources

Officer time (£).

Dependencies

Proposed changes to the National Planning Policy Framework (NPPF), emerging local plans including enhanced air quality considerations.

Table 5.8: WP8 - Natural Environment

Natural Environment

Package Summary

Through its role as the Responsible Authority to deliver the Local Nature Recovery Strategy and the Natural Environment Plan, the WMCA is best placed to coordinate on natural environment aspects. To begin with, this will involve promoting the best ways to use the natural environment to improve air quality within the West Midlands, but also finding ways in which existing methods (such as biodiversity net gain (BNG)) can be leveraged to promote better air quality outcomes.

Expected Delivery

Early-stage implementation.

Consisting of Framework Options

- Leverage modified biodiversity net gain BNG metrics to improve urban design and reduce exposure to poor air quality. (NBE1)
- Working though the Natural Environment Plan to identify best uses of green infrastructure for air quality. (NBE5)

Proposed WMCA Role and Ownership

WMCA to **lead**, with local authorities supporting on local implementation and policy.

Stakeholders / Consultees

Local authorities (air quality, public health, planning and natural environment teams), partners, communities, and developers.

Indicative Two-Year Costs and Sources

Officer time (+ DEFRA funding through Local Nature Recovery Strategy Responsible Authority function).

Risks

Uptake from constituent local authorities, developers (due to costs). Willingness for developers to engage. Lack of officer time.

Indicative Long-Term Costs and Sources

Officer time (£).

Dependencies

Local Nature Recovery Strategy, adjustment to BNG metrics.

Table 5.9: WP9 - Research

Research

Package Summary

Further detailed research into real-world emissions and population exposure in the West Midlands is key in understanding the best measures and policy that can be applied. Extensive work is already being performed by WM-Air within the West Midlands, and this has directly informed this framework and implementation plan, but additional research will enable us to determine the best path to better air quality outcomes. Additionally, creating new links with research institutions and commercial partners will allow for the research into more complex issues within the region such as increased road wear and improving road surface materials.

Expected Delivery

Funding secured to early-stage implementation.

Consisting of Framework Options

- Understand the relative importance of within-region emissions and transported air pollution for WMCA air quality. (MON5)
- Research into the real-world exposure of West Midlands residents (including the differences in exposure based on age and socio-economic situation) and what measures can be effectively implemented based on the findings. (PH5)
- Research on the effectiveness of new technologies for reducing pollutant concentrations in the built environment. (NBE12)
- Research the sources and methods for effective secondary aerosol formation reduction and how these can be implemented across commercial, industrial and agriculture. (CIA21)

Proposed WMCA Role and Ownership

WMCA to **convene**, with WM-Air at the University of Birmingham to lead.

Stakeholders / Consultees

Research institutions, WMCA, Local authorities (air quality, public health, and communication teams), TfWM, healthcare, communities, businesses, and industry.

Indicative Two-Year Costs and Sources

Utilising existing research streams (£).

Risks

Potential difficulty in providing the resolution required across the region. Additional data may be required for particular emission sources, which may be expensive.

Indicative Long-Term Costs and Sources

TBC depending on funding coming forward and existing funding streams (££-£££).

Dependencies

Ongoing WM-Air funding and capacity within the workstreams. Finding research institutions with existing complementing workstreams or where there is funding available.

Tables 5.10 to **5.12** overleaf provide a summary of the measures that have not been put into a work package but are still a priority over the next two years. The measures mostly relate to transport, however, there are built environment and other considerations. As with the work packages above, the expected 'delivery stage' of the measures is subject to assessment, feasibility studies, business cases and funding.

Table 5.10: Transport for West Midlands and Local Authority Standalone Measures				
Framework Option	TRN4	TRN8	TRN11	TRN15
Measure	Introduction of new Low Traffic Neighbourhoods and local area environmental traffic management measures.	Achieve a zero emission West Midlands bus fleet by 2030 and consider use which brings greatest benefit to areas with poor air quality in the deployment strategy.	Explore the case for workplace parking levies and other effective demand management measures as part of area strategies for the West Midlands.	Speed limit reduction (or dynamic speed limits) on high-speed roads.
Expected Delivery Stage	Outline feasibility stage.	Early-stage implementation.	Outline feasibility stage.	Business case prepared.
Proposed WMCA Role and Ownership	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **convene** - TfWM and local authorities to lead.
Indicative Two-Year Costs and Sources	Officer time (£).	TBC - Dependant on implementation timescales, but most implementation expected to be outside of two years (£-££).	Officer time and dependant on appraisal required (£-££).	Delivery of a business case, estimated to be in the region of £30,000.
Indicative Long-Term Costs and Sources	Dependant on specific scheme. Will have associated assessment and feasibility costs. Local Transport Plan and other potential sources to be investigated. Could include section 106 agreement or damage cost assessment funding steams (where in place and applicable) (£££).	Some funding available - ZEBRA funded 124 zero emission buses and Coventry All Electric Bus City (£££).	Officer and management time (£-££).	Dependant on scope scheme. However, officer time and assessment costs will be primary costs (££-£££).
Stakeholders/ Consultees	Communities and local businesses.	Communities, local businesses, and transport companies.	Communities and local businesses.	National Highways, communities, local businesses.
Risks	Community and business reception. Will require detailed assessment to identify any issues with redistribution.	Increase to ticket prices. May not always target the most deprived areas or those with the highest pollutant concentrations. Potential for unknown changes in particulate matter emissions due to heaver vehicles, but the change depends on the existing fleet.	May be difficult to promote politically across the West Midlands as it will be an additional cost to businesses/ workers.	Would require political sign off and National Highways support. Unknown level of upgrades required to enforce.
Dependencies	Promotion by local authorities and appropriate assessment.	LTP implementation.	Promotion by local authorities and appropriate assessment.	National Highways support.

Table 5.11: Additional Standalone Measures for WMCA, Transport for West Midlands and Local Authorities (1)				
Framework Option	TRN16	NBE2	NBE9	NBE11
Measure	Investigate the lowering and enforcement of speed limits in urban centres and residential areas to address localised transport related air pollution and increase active travel. This includes further roll-out of 20 mph speed limits.	Promote transport schemes and road alterations that include effective green infrastructure to reduce exposure to poor air quality.	Creation of Low Traffic Neighbourhoods and local area environmental traffic management as part of the design of new developments which promotes sustainable transport use.	Construction of new high quality cycle tracks and other cycle infrastructure in accord with West Midlands cycle network planning, including links between key developments and key services to promote mode shift from car.
Expected Delivery Stage	Outline feasibility stage.	Early-stage implementation.	Business case prepared.	Business case prepared.
Proposed WMCA Role and Ownership	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **convene** - TfWM and local authorities to lead.
Indicative Two-Year Costs and Sources	Delivery of a business case, estimated to be in the region of £30,000.	Officer time (£).	Officer time (£).	Dependant on specific scheme. Will have associated assessment and feasibility costs. Local Transport Plan and other potential sources to be investigated. Could include section 106 agreement or damage cost assessment funding steams (where in place and applicable) (£££).
Indicative Long-Term Costs and Sources	Dependant on scope. Will have associated assessment and feasibility costs. Local Transport Plan and other potential sources to be investigated. Could include section 106 agreement or damage cost assessment funding steams (where in place and applicable). (£££).	Officer time (£).	Dependant on specific scheme. Local Transport Plan and other potential sources to be investigated. Could include section 106 agreement or damage cost assessment funding (£££).	TBC
Stakeholders/ Consultees	Communities and local businesses.	Communities, local businesses, research institutions.	Communities & local businesses.	Communities, local businesses, road safety teams, local and national cycling groups.
Risks	Potentially lower speeds in urban areas may worsen air quality. May need street feature changes instead and risks road safety.	Promoting green infrastructure that is effective. Long term maintenance costs. Space constraints.	Will require detailed assessment to identify any issues with redistribution. Investment in alternative transport and cycle lanes etc.	Getting the required funding. Ensuring that the cycle lanes are fit for purpose and that modal shift occurs due to changes in behaviour. Minimising impacts on existing congested areas.
Dependencies	Promotion by local authorities and appropriate assessment.	LTP and Natural Environment Plan implementation.	Promotion by local authorities through transport and planning, and appropriate assessment.	LTP implementation.

Table 5.12: Additional Standalone Measures for WMCA, Transport for West Midlands and Local Authorities (2)			
Framework Option	**PPG14**	**PPG19**	**Stretch Air Quality Targets**
Measure	Continue to roll out school streets programmes to reduce traffic and emissions in the vicinity of schools when there is transient exposure.	Provide training for members/decision makers/ local authority officers through a standalone air quality literacy training programme to ensure they are up to date on air quality matters.	The adoption of stretch targets which are more ambitious in terms of timescales and pollutant concentration targets than the UK Government air quality targets. These should be closer to World Health Organisation (WHO) targets for NO_2 and $PM_{2.5}$ to benefit public health.
Expected Delivery Stage	Full implementation.	Full implementation.	Business case prepared and targets agreed.
Proposed WMCA Role and Ownership	WMCA to **convene** - TfWM and local authorities to lead.	WMCA to **lead**.	WMCA to **lead** in partnership with a delivery partner (such as WM-Air).
Indicative Two-Year Costs and Sources	Dependant on specific scheme. Will have associated assessment and feasibility costs. Local Transport Plan and other potential sources to be investigated. Could include section 106 agreement or damage cost assessment funding steams (where in place and applicable) (£££).	Funded through the DEFRA Air Quality grant.	Delivery of a business case and research, estimated to be in the region of £25,000, assuming WM-Air can be mobilised to support on the work with their regional air quality model.
Indicative Long-Term Costs and Sources	TBC	Officer time and programme running costs (£).	N/A
Stakeholders/ Consultees	Communities, local businesses, police, road safety teams and transport companies.	Members and local authorities.	Members, local authorities, research partners.
Risks	Impacts on parents where there aren't viable alternatives to travel to school safely. Ensuring issues are not displaced.	Promotion will be required to ensure uptake.	Adoption across the region within air quality policies is key to ensure that the region has a common goal. Reliant on funding and adoption of Framework measures. Transboundary emissions are outside of the control of the region.
Dependencies	Continued support and implantation by TfWM and local authorities.	DEFRA Air Quality grant.	Utilisation of the WM-Air regional model for efficiency. Support from local authorities.

6. Delivery and ways of working

We are committed to making the work delivered through this Air Quality Framework Implementation Plan as open and transparent as possible. The WMCA is in the process of developing an air quality website where progress against our different projects/programmes will be shared. This will include a map illustrating the location of sensors with near to real time data on air quality across the WMCA region. Constituent local authorities will be able to add data and shape the website where possible. We will also look to publish data through the WMCA Environment and Energy Dashboard (which will be live in 2024).

Throughout our delivery, we will be evaluating the success of our projects and programmes. Given the diverse nature of our projects, there will not necessarily be a single approach to monitoring and evaluation; each project/programme will have its own methodology. There is also a commitment to provide regular updates to both the Environment and Energy Board, Transport Delivery Overview and Scrutiny and the Strategic Transport Board (outlined in the governance below).

Greener Together Citizens' Panel

The Greener Together Citizens' Panel has also developed a number of guiding principles for our air quality project implementation and we are committed to working with these and the Panel hereon in. Bringing a representative group of citizens together is a powerful way to understand both acceptability and need for putting particular programmes and infrastructure in place, as well as to shape the way we deliver them. An initial report from the Greener Together Citizens' Panel on air quality is available here.

For wider input and consultation, we also have the opportunity to discuss air quality related issues with the Greener Together Forum, a quarterly meeting open to anyone to attend.

Implementation and Action

The establishment of a Framework Delivery Group, defined ways of working and defined governance will guide the Framework programme forward in an efficient manner. This will ensure that there is representation from relevant stakeholders and that work is driven forward in a responsible way, whilst maximising outcomes across the West Midlands. More details on the Framework Delivery Group can be found in Section 7.

Some packages and measures will require additional assessment, consultation, and funding. As such, there are varied levels of targeted delivery within the two-years this document covers. Typically, the implementation target for the larger and more complex packages and measures will be more towards feasibility and securing funding. This is to ensure that the packages and measures are appropriately appraised for impacts, communities are consulted and that the funding and resourcing is in place. This should not be seen as a lack of ambition, but as a drive to proceed with more complex action across the region as quickly as possible, in a way that is measured and can have the most meaningful impact. Detailed feasibility studies and business cases will also enable partner organisations such as WM-Air to assist with complex package appraisal to quantify the changes on communities and optimise health and economic outcomes.

Many of the engagement and behaviour change, communications and monitoring and digital packages can begin quickly and achieve early-stage to full implementation within the two-year period covered by this document. These packages have the potential to provide cost-efficient changes in behaviour that can reduce health impacts and make small changes to reduce emissions. Through secured DEFRA funding and the Framework, the increase in regional cooperation and coworking will provide a strong base to implement the larger regional packages and measures in the shortest timescales.

Finally, any projects and programmes will be subject to sign-off through the **WMCA's Single Assurance Framework.**

7. Governance and financing

To ensure that the Framework is delivering for the whole WMCA, we will establish an Air Quality Framework Delivery Group. The Group will form a core membership comprising the 7 constituent local authorities, WMCA and TfWM. This will also facilitate engagement with air quality partners (as identified in the Environment Act, 2021) as well as bringing additional expertise on board to support different air quality issues that are common to all partners.

Other relevant partners will either be included in the Framework Delivery Group itself or brought into task and finish groups to bring specific expertise forward as necessary. These additional partners could bring experience in relation to public health, environment, research and innovation. Suggestions made through the consultation process include:

- Public health (Directors of Public Health as well as the UK Health Security Agency)
- Local authority representation (air quality, behaviour change and net zero officers)
- Community group representation
- Political stakeholder (such as a member of the WMCA Environment and Energy Board)
- A member of the University of Birmingham's WM-Air Team
- Business representative
- Birmingham Airport
- National Highways
- National Express
- National Rail
- West Midlands Fire Service

Terms of reference for the Framework Delivery Group will be established with a proposal to meet quarterly. The task and finish groups will enable specific stakeholders to come together around focused/ technical issues such as planning, procurement or monitoring and data.

It is important that the Framework Delivery Group compliments existing governance arrangements – this has been outlined in **Figure 5** below. This recognises that air quality is of interest to both the environment and transport portfolios at the WMCA. The incorporation of wider governance arrangements and their role within the Framework Governance will be agreed by the Framework Delivery Group.

Resourcing of the Air Quality Framework Implementation Plan will be critical for success. The DEFRA Air Quality grant, secured in March 2023, will support the implementation of some of the priority measures, especially in relation to behaviour change and establishment of a low-cost sensor network, and availability of data to support decision-making across the region. Bringing in experience from lessons learned in other project delivery, as well as consolidating the learning and sharing from projects delivered through the Framework Implementation Plan will be key. The successful delivery of other measures will be dependent on resourcing and business cases and subject to the WMCA Board approval. Financing and investment into delivery will be a central element of the Framework Delivery Group work.

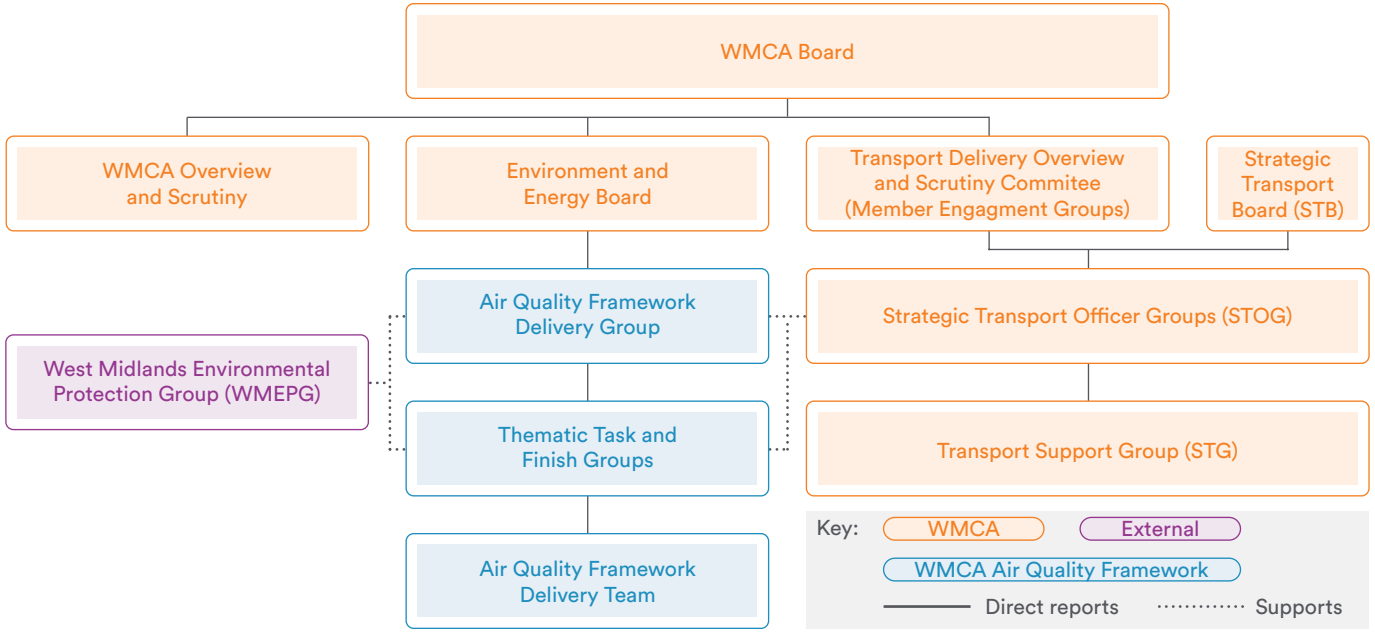


Figure 5: Proposed WMCA Air Quality Framework Governance Structure

8. How you can get involved

Delivery of the actions in the Air Quality Framework Implementation Plan will need to be a collaborative effort. As highlighted in **Figure 6**, there are multiple stakeholders that will be important in supporting action over the two years of this Plan, and then delivering the remaining ambition set out in the West Midlands Air Quality Framework.

We will seek to provide opportunities for information-sharing and collaboration as we deliver the Framework Implementation Plan. Some of these, including community engagement events and a conference, are part of an existing DEFRA-funded project.

If you would like to be kept up-to-date on our work on air quality, or would like to find out about how you could get more involved with delivery, then please email the WMCA Environment Team:

environment@wmca.org.uk

Endnotes

1 Air Quality Framework. https://www.wmca.org.uk/what-we-do/environment-and-energy/air-quality

2 Air Quality Framework. https://www.wmca.org.uk/what-we-do/environment-and-energy/air-quality

3 Birmingham City Council, City of Wolverhampton Council, Coventry City Council, Dudley Metropolitan Borough Council, Sandwell Metropolitan Borough Council, Solihull Metropolitan Borough Council and Walsall Metropolitan Borough Council.

4 Cannock Chase District Council, North Warwickshire Borough Council, Nuneaton and Bedworth Borough Council, Redditch Borough Council, Rugby Borough Council, Shropshire Council, Stratford-on-Avon District Council, Tamworth Borough Council, Telford and Wrekin Council, Warwickshire County Council and Warwick District Council.

5 Environment Act 2021, c.30. Online: https://www.legislation.gov.uk/ukpga/2021/30/contents

6 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023/96). Online: https://www.legislation.gov.uk/uksi/2023/96/contents/made

7 Department for Environment, Food and Rural Affairs (2023) Environmental Improvement Plan 2023. Online: Environmental Improvement Plan (publishing.service.gov.uk)

8 DEFRA (2023) Air quality strategy: framework for local authority delivery. Online: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery

9 An extensive evidence base on the impact of PM2.5 on health is outlined within the Chief Medical Officer's annual report 2022. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1124738/chief-medical-officers-annual-report-air-pollution-dec-2022.pdf

10 Department of Health and Social Care (2022) Chief Medical Officer's 2022 Annual Report: Air Pollution. Online Chief Medical Officer's annual report 2022: air pollution - GOV.UK (www.gov.uk)

11 Mitsakou C et al. (2022) UK Health Security Agency Chemical Hazards and Poisons Report Issue 28 – June 2022: Updated mortality burden estimates attributable to air pollution. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1083447/CHaPR_AQ_Special_Edition_2206116.pdf

12 Zhong J et al. (2021) Atmosphere 2021, 12(8), 983: Using Task Farming to Optimise a Street-Scale Resolution Air Quality Model of the West Midlands (UK). Accessed online: https://www.mdpi.com/2073-4433/12/8/983

13 WM-Air (2022) Air Quality in the West Midlands: Option Paper Online: https://governance.wmca.org.uk/documents/s6510/Appendix.pdf

14 Wood Group UK (2022) Study to identify potential measures to reduce future PM2.5 concentrations to inform PM2.5 target development. Online: https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2302091627_Wood_Sector_Review_Report.pdf

Appendix A - Glossary

Table A.1 – Glossary of Terms	
Term	Meaning
Air quality (dispersion) model	An air quality dispersion model is a computer-based tool to predict how pollutants emitted from various sources, such as roads and industry disperse and affect the air quality in a specific geographic area. The models require various inputs including meteorological data, traffic data and emission inventory data to predict pollutant concentrations over a set time period (usually one year). They are predictions as there is inherent uncertainty and variability, however this can be minimised by using accurate inputs and validating models against known concentrations. Predicted data can be used to estimate pollutant concentrations in the future, however they are subject to greater uncertainty.
Ambient air quality	The quality of the air in the outdoor environment
AQAP	Air Quality Action Plan - a comprehensive strategy developed and implemented by local authorities to address air quality issues and improve air quality within a specific area, typically an Air Quality Management Area. These plans are a key component of the Local Air Quality Management process and are designed to mitigate air pollution and protect public health and the environment.
AQ-LAT	A tool developed by WM-Air to estimate the future health and healthcare costs and benefits associated with changes in fine particulate matter and nitrogen dioxide concentrations in the West Midlands Combined Authority area.
AQMA / Air Quality Management Area	A designated area in the United Kingdom where air quality objectives and standards for specific air pollutants are not being met or are at risk of not being met. Local authorities declare Air Quality Management Areas to address and manage air quality issues in certain locations. The primary purpose of designating an Air Quality Management Area is to take targeted actions to improve air quality within that specific area.
ASR	Annual Status Report - a document that provides an overview of air quality in a specific area, typically at the local authority level. Local authorities are responsible for monitoring and assessing air quality within their jurisdictions, and the ASR is a key component of the Local Air Quality Management process.
Automatic air quality monitor	A device or system designed to continuously and automatically measure and record various air quality parameters in the ambient environment. Typically, these are of 'reference' or 'reference equivalent' standard and can provide the most accurate monitoring data when properly calibrated and maintained.
Biomass (combustion)	Organic materials, typically of plant or biological origin, that can be burned to produce heat or energy. Biomass combustion involves the burning of these organic materials, such as wood, agricultural residues, and other bio-based fuels, to generate heat, electricity, or other forms of energy. The burning of sustainable biomass is seen by some as one net zero solution, however there are local and regional air quality issues associated with the burning of biomass due to the releases of pollutants such as particulate matter. Using log burning appliances to burn biomass within the home presents a major risk to health due to the pollutants released both indoors and outdoors.
CAZ / Clean air zone	An area where specific measures and regulations are put in place to improve air quality by reducing air pollution. The primary objective of a Clean Air Zone is to limit the impact of harmful air pollutants, particularly in areas where pollution levels exceed established legal limits. There are range of classes from A to D, where Class A enforces the least restrictions and Class D enforces the most restrictions on vehicle types. The Birmingham clean air zone is a Class D.

Table A.1 – Glossary of Terms	
Term	Meaning
Constituent local authorities	WMCA member local authorities with full voting rights. This is comprised of Birmingham City Council, City of Wolverhampton Council, Coventry City Council, Dudley Metropolitan Borough Council, Sandwell Metropolitan Borough Council, Solihull Metropolitan Borough Council and Walsall Metropolitan Borough Council.
DEFRA	Department of Environment, Food and Rural Affairs
DLUHC	Department for Levelling Up, Housing and Communities
Domestic combustion	Primarily the burning of solid fuels in homes for heating and cooking purposes. It typically involves the use of open fires, wood-burning stoves, coal fires, and other forms of solid fuel heating and cooking appliances within residential properties. The combustion of solid fuels in households can be a significant source of air pollution, particularly in areas with a high prevalence of such practices. It also includes the use of gas appliances for cooking and heating.
FDG	Framework Delivery Group
FIP / Framework Implementation Plan	The document containing the priority work packages and measures for implementation between 2023 and 2025 and is based on this Framework Document and inputs from consultees.
Fraction of mortality attributable to particulate air pollution	A metric used to estimate the proportion of premature deaths within a population that can be attributed to exposure to particulate air pollution.
Greener Together Citizens' Panel	A group of 30 citizens of the West Midlands who are participating in a Panel to deliberate on some of the climate and environmental issues facing the West Midlands. More information on the Panel, and the selection process, can be found here: Greener Together Citizens Panel (wmca.org.uk)
Guiding principles	A set of considerations proposed by the WMCA Greener Together Citizens' Panel that should be used as part of the detailed assessment and implementation of Framework options, work packages and measures.
Indoor air quality	The condition of the air within indoor spaces, such as homes, offices, schools, and other enclosed environments. It encompasses the presence and concentration of various pollutants and contaminants in the indoor air and their potential impact on the health, comfort, and well-being of occupants. Maintaining good indoor air quality is essential for creating a healthy and comfortable indoor environment.
LA	Local authority
LAQM / Local Air Quality Management -	A framework established under the Environment Act 1995 to assess and manage air quality at the local level. It is designed to monitor and improve air quality in areas where pollution levels may be a concern.
LEZ	Low Emission Zone
Low-cost sensor	A relatively affordable device designed to measure and monitor various air pollutants in the surrounding environment. These sensors are intended for widespread deployment, enabling individuals, communities, and organizations to access real-time or near-real-time data on air quality. While they may not provide the same level of accuracy as certified monitoring equipment, they serve as valuable tools for raising awareness about local air quality issues and for promoting citizen engagement in environmental monitoring efforts.

Table A.1 – Glossary of Terms	
Term	Meaning
LTP	Local Transport Plan
MCDA	Multi-criteria decision analysis - a structured decision-making approach that helps individuals or organizations evaluate and prioritize various options or alternatives when faced with complex decisions involving multiple, often conflicting, criteria or objectives. Multi-criteria decision analysis provides a systematic framework for assessing, comparing, and ranking these alternatives to make informed choices.
Measure	A Framework option that has been selected for implementation.
NAEI / National Atmospheric Emissions Inventory	Estimates of the annual pollutant emissions within the UK based on a range of data sources.
NH_3 / Ammonia	A gas emitted from primarily agriculture that can play a major role in secondary particulate matter formation and have an impact on ecological receptors.
NO_2 / Nitrogen dioxide	A gaseous component of air pollution and is often produced by the combustion of fossil fuels, such as in car engines and power plants.
Non-constituent local authorities	WMCA member local authorities with reduced voting rights. This is comprised of Cannock Chase District Council, North Warwickshire Borough Council, Nuneaton and Bedworth Borough Council, Redditch Borough Council, Rugby Borough Council, Shropshire Council, Stratford-on-Avon District Council, Tamworth Borough Council, Telford and Wrekin Council and Warwickshire County Council. It also includes Warwick District Council as an observer with no voting rights.
NOx / Nitrogen oxides	A collective term used to refer to a group of reactive nitrogen oxide, primarily nitric oxide (NO) and nitrogen dioxide (NO_2).
NPPF / National Planning Policy Framework	A planning policy document used in England to guide the planning and development process. The National Planning Policy Framework sets out the government's planning policies for local authorities and decision-makers, providing a framework for making planning decisions and shaping land use and development across England.
NZ / Net zero	Refers to the balance between the amount of greenhouse gases emitted into the atmosphere and the amount removed from the atmosphere. Achieving net zero means that the total emissions of greenhouse gases are equal to the total removal of these gases from the atmosphere, effectively resulting in no additional increase in the concentration of greenhouse gases. This balance is crucial in the fight against climate change, as it aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels, in line with the goals of the Paris Agreement.
Option	A proposed action within the Framework that can be selected for use as a standalone or combined into a work package for implementation.
PM / Particulate matter	A complex mixture of tiny solid particles and liquid droplets suspended in the air. These particles vary in size, composition, and origin and can have significant effects on air quality, human health, and the environment.
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres. Also known as fine particulate matter.

Table A.1 – Glossary of Terms	
Term	Meaning
Primary pollutants	Pollutants that are emitted directly into the atmosphere because of human activities or natural processes. These pollutants are released in their original form and are not the result of chemical reactions in the atmosphere. An example of a primary pollutant are gases such as NO_2 produced during combustion.
RAG / Red-amber-green	A traffic light rating system used to indicate the status of a variable using red, amber or green.
SCA / Smoke control area	A designated area where you cannot release smoke from a chimney; and you can only burn authorised fuel, unless you use an appliance approved by Defra. There are also penalties that can be applied if your chimney releases smoke in a smoke control area or if you buy unauthorised fuel to use in an appliance that's not approved by Defra.
Secondary pollutants	Pollutants that are not emitted directly into the atmosphere but are formed in the atmosphere through chemical reactions involving primary pollutants, atmospheric constituents (like sunlight, water vapor, and oxygen), and sometimes natural sources. An example of this is secondary particulate matter that is formed from ammonia due to reactions in the air.
TfWM / Transport for West Midlands	The public body responsible for co-ordinating transport services within the WMCA area.
UK	United Kingdom
VOC	Volatile Organic Compounds
WHO / World Health Organization	A specialised agency of the United Nations responsible for international public health.
WM-Air	The West Midlands Air Quality Improvement Programme – WM-Air is a NERC funded initiative, led by the University of Birmingham.
WMCA / West Midlands Combined Authority	West Midlands Combined Authority a regional governing body and partnership in the United Kingdom, established to promote economic growth, infrastructure development, and improved public services in the West Midlands region. It was created as part of the government's devolution agenda to empower regions and cities in England with greater decision-making powers and control over local issues. It was established by statutory instrument under the Local Democracy, Economic Development and Construction Act 2009.
Work package	A group of measures brought together to form a larger package of work.
µm / Micrometre	One thousandth of a millimetre.

Appendix B – Proposed Government Priorities and Actions

The *Air quality strategy: framework for local authority delivery* policy paper provides an overview of the Government's priorities and actions to address air quality issues. The actions will shape changes on a national scale and the West Midlands Air Quality Framework sits below it to realise change on a regional scale.

The priorities are:

- *Planning reforms helping to deliver on air quality.*
- *Building capacity in local councils through training, guidance and knowledge sharing.*
- *Reducing emissions from industrial sources through improved enforcement of environmental permits.*
- *Reducing pollution from domestic burning through smoke control areas and cleaner fuels.*
- *Raising awareness within local communities of air quality impacts and how to reduce them.*
- *Boosting active travel and public transport to improve air quality.*

The actions for the government are as follows:

- *The government will align air quality reporting zones with local government boundaries, to empower councils, increase transparency and accountability.*
- *The government will work with local authorities to improve the UK-Air website and other air quality web services.*
- *The government will look to strengthen the effect of Smoke Control Areas. We will consult on tougher stove standards for Smoke Control Areas, potentially lowering the smoke limit for newly installed stoves from 5g smoke per hour.*
- *We will consult on tougher emission standards for Manufactured Solid Fuels reducing both smoke emissions and sulphur levels.*
- *We will explore policies to incentivise a shift from older, more polluting devices towards newer appliances which meet our tough new emission standard.*
- *We will provide updated guidance, templates, and information to support local authorities in reducing emissions from domestic burning.*
- *We will continue to roll out the UK best available techniques framework for large and medium industry, and develop it further to cover new technologies*
- *We are exploring a similar approach for smaller industrial installations, allowing out- dated regulatory standards to be updated more frequently.*
- *We will consider closer alignment between the Local Air Quality Management and permitting regimes, so that swifter, more complementary action can be taken to resolve local air quality issues.*
- *We will consider how to boost local authority regulatory capacity and capability including exploring how the fees and charges system can be improved to provide better cost recovery.*
- *We will require that an increasing proportion of car and van sales from each manufacturer are zero tailpipe emission from 2024 onwards.*
- *We are investing in research programmes to develop methods to prevent or reduce emissions from non-exhaust vehicle sources, such as brake and tyre wear.*

- *Through Active Travel England, we will continue to support cycling and walking.*
- *We will consider actions to improve air quality on the Strategic Road Network as part of developing the next Road Investment Strategy 2025 to 2030.*
- *The government will consult on bringing dairy and intensive beef farms within scope of environmental permitting.*
- *We will continue to issue funding to invest in slurry storage infrastructure to reduce ammonia emissions, with an increased budget of £33.9 million made available in April 2023 and two further rounds to follow.*
- *We will consult on new rules to reduce ammonia emissions from organic manure, including requirements for low emission techniques for slurry and digestate spreading.*
- *The government will develop new guidance on mould and damp for the housing sector.*
- *The government has launched the Air Quality Information System review in December 2021. The remit of the two-year review is to provide a series of actionable, evidence-based improvements which could be made to the government's provision of air quality information.*
- *The government will develop a best practice guide on outdoor burning that can be provided to members of the public to help reduce emissions.*
- *The government will share communications assets and other material of wider relevance with local authorities to use in their own communications.*
- *We will consult further on the detail of a combined design stage emission prevention and quantitative assessment approach.*
- *The government will continue considering the responses to the recent National Planning Policy Framework consultation which closed on 2 March 2023.*

Appendix C – Framework Contributors and Consultees

Table C.1 - Core Contributors and Consultees (to date)

Organisation	WMCA	TfWM	WM-Air at the University of Birmingham	Constituent Local Authorities (Air Quality)	WSP
Members	Alex Jones (WMCA Air Quality Framework Lead/WSP), Jackie Homan (Head of Environment) and Mike Webb (Natural Capital Programme Manager).	Jake Thrush (Associate Policy Adviser).	William Bloss (WM- Air Lead), Joe Acton (WM-Air Impact Fellow) and Catherine Muller (Project Manager).	**Birmingham:** Mark Wolstencroft (Operations Manager Environmental Protection), Paul Burns (Environmental Protection Officer) and Peter Mackintosh (Air Quality Projects Officer). **Coventry:** Neil Chaplin (Principal Environmental Protection Officer) and Steve Dewar (Environmental Health Officer). **Dudley:** Ruth Burgin (Pollution Control Officer) and Ian Grove (Principal Environmental Health Officer). **Sandwell:** Elizabeth Stephens (Senior Environmental Health Officer) and Sophie Morris (Public Health Specialist- Air Quality and Climate Change). **Solihull:** Nick Laws (Senior Public Health Specialist) and Amanda Clover (Senior Development Officer). **Walsall:** John Grant (Environmental Protection Manager) and Curtis Dean (Environmental Protection). **Wolverhampton:** Shaun Walker (Service Lead – Environmental Crime).	**Air Quality:** Bethan Tuckett- Jones (Head of Profession for Air Quality), Joanna Rochfort (Air Quality Team Lead), Peter Walsh (Technical Director), Andy Talbot (Associate Director), Sioni Hole (Principal Consultant) and Lee Shelton (Principal Consultant). **Behaviour Change:** James Knoll-Pollard (Behavioural Design Lead). **Planning:** Michael Wood (Technical Director). **Ecology:** Joe Franklin (Associate Director), and Vaughn Lewis (Consultant).

Table C.1 - Core Contributors and Consultees (to date)					
Organisation	WMCA	TfWM	WM-Air at the University of Birmingham	Constituent Local Authorities (Air Quality)	WSP
Framework working group	✓	✓	✓	✓	
Option Pre-Screen	✓				
Optioneering and Advisory	✓	✓	✓	✓	
RAG	✓	✓			
MCDA	✓	✓	✓	✓ (Represented by Sophie Morris)	✓ (Represented by Andy Talbot)
Option Preferences	✓				

Table C.1 - Core Contributors and Consultees (to date)	
Organisation	Members
WMCA	Katie Jepson (Environment Behaviour Change Project Officer), Ed Cox (Executive Director - Strategy, Integration and Net Zero) Richard Rees (Senior Programme Manager – Environment), and Tatum Matharu (Strategic Lead for Health Inequalities).
WMCA Panels / Groups	Transport Support Group (TSG - Heads of Service of the local authority transport departments and TfWM policy officers), Strategic Transport Officers Group (STOG - Directors of Transport Departments and TfWM Policy, Strategy and Innovation Department Director) and Transport Delivery Committee (TDC) Air Quality, Congestion and Environmental Sustainability Member Engagement Group, West Midlands Environmental Protection Group (WM-EPG).
TfWM	David Harris (Transport Strategy and Place Manager), Alex Greatholder (Principal Policy and Strategy Officer), Liam Edge (Transport Data Researcher), Claire Williams (Head of Cycling and Walking), Mitchell Robinson (Cycling and Walking Development Officer), Stuart Lester (Head of Transport Data), Helen Osborn (Travel Behaviour Specialist) and Gill Hunt (Travel Behaviour Specialist).
WM-Air at the University of Birmingham	Suzanne Bartington (WM-Air Health Effects Strand Lead) and Jian Zhong (WM-Air Model Development).
Constituent Local Authorities – Non air quality officers	**Birmingham**: Maria Dunn (Head of Development Policy), Sarah Scannell (Planning Assistant Director), Uyen-Phan Han (Planning Policy Manager), Chris Baggot (Public Health Service Lead) and Claire Humphries (Senior Public Health Officer). **Coventry**: Alicia Phillips (Programme Manager for Inequalities in Built Environment), Emily Stewart (Programme Officer for Inequalities in Built Environment) and Angelia Baker (Consultant in Public Health and Inequalities). **Dudley**: Joanne Todd (Development Manager). **Solihull**: Mark Andrews (Head of Planning, Design and Engagement Services). **Wolverhampton**: Perminder Balu (Head of Green Cities and Circular Economy.

We acknowledge and thank the attendees of the Framework consultation workshop. The full list of attendees on the day is as follows:

- Maddy Dawe (Asthma + Lung UK)
- Maria Dunn (Birmingham City Council)
- Claire Humphries (Birmingham City Council)
- Peter Mackintosh (Birmingham City Council)
- Stephen Arnold (Birmingham City Council)
- Ian Braddock (Birmingham City Council)
- Waseem Zaffar (Clean Air Justice Network)
- Emily Stewart (Coventry City Council)
- Ruth Burgin (Dudley MBC)
- Ian Grove (Dudley MBC)
- Christopher King (Dudley MBC)
- Gordon Allison (DustScanAQ on behalf of South Coast Science)
- Chris Taylor (EarthSense Systems Limited)
- David Green (EarthSense Systems Limited)
- Greg Lewis (EarthSense Systems Limited)
- Kirsten de Vos (Mums for Lungs)
- Charlotte Harris (NHS England)
- Sophie Morris (Sandwell Council)
- Lucy Bastin (School of Computer Science, Aston University)
- Nick Laws (Solihull MBC)
- Amanda Clover (Solihull MBC)
- Tim Egan (Sustrans)
- David Clasby (Sustrans)
- Ninette Harris (The Dudley Group NHS Foundation Trust)
- David Harris (Transport for West Midlands)
- Jake Thrush (Transport for West Midlands)
- Catherine Muller (University of Birmingham)
- Joe Acton (University of Birmingham)
- William Bloss (University of Birmingham)
- Zongbo Shi (University of Birmingham)
- Sue Jowett (University of Birmingham)
- James Hall (University of Birmingham)
- Damilola Agbato (Walsall MBC)
- Pat Fleming (Walsall MBC)
- Matthew Griffin (West Midlands Combined Authority)
- Bethany Haskins-Vaheesan (West Midlands Combined Authority)
- Jordan Gerrard (West Midlands Combined Authority)
- Nathan Morrison (West Midlands Combined Authority)
- Richard Rees (West Midlands Combined Authority)
- Grace Scrivens (West Midlands Combined Authority)
- Jackie Homan (West Midlands Combined Authority)
- Katie Jepson (West Midlands Combined Authority)
- Ritvick Nagar (West Midlands Combined Authority)
- Alex Jones (West Midlands Combined Authority/WSP)
- Liz Hopkins (West Midlands Fire Service)
- Ian Greatbatch (West Midlands Fire Service)
- John Newson (West Midlands Friends of the Earth)
- Joanna Rochfort (WSP)