MAYOR OF LONDON

The Mayor of London's School Air Quality Audit Programme

Prior Weston Primary School, London Borough of Islington

MAY 2018

Mayor's Foreword

Poor air quality is a major public health issue and cause of inequality in our city. It is shocking that in London alone, air pollution contributes to thousands of early deaths every year, and has been linked to strokes, heart attacks, asthma, dementia and smaller lungs in our children.

We cannot allow this to continue. That is why, since becoming Mayor, I have made tackling poor air quality a priority. That is also why my administration has nearly doubled spending on cleaning up London's toxic air and we are delivering the boldest and most ambitious plan to tackle air quality anywhere in the world.

This includes introducing a new charge on the oldest, most polluting vehicles coming into central London, consulting on expanding the Ultra Low Emission Zone, making buses in London cleaner and greener, and reducing exposure to air pollution around schools.

As part of this, we launched the Mayor's School Air Quality Audit Programme in January 2017, with the aim of reducing emissions and primary school children's exposure to polluted air. I am delighted that this programme has now been completed, with 50 audits undertaken at primary schools located in the most polluted areas of London.

We are confident that implementing the recommendations from these audits will go a long way to delivering cleaner air, reducing health inequalities and, most importantly, improving the health and wellbeing of our children.

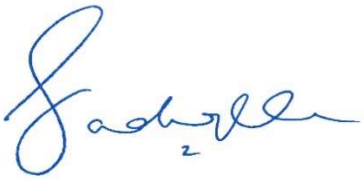
But we want to go even further. The implementation of the recommendations and dissemination of this programme offers us an invaluable opportunity to really make a difference. So, I want to see the London boroughs rolling it out to every school located in pollution hot spots.

The audit recommendations for the 50 schools that have already gone through the process are bespoke to each school, and whilst some recommendations will require funding to implement, there will be some that will not; such as changing walking routes to less exposed routes. Each report also contains a tool kit and template that could be used locally by other schools and similar organisations to undertake their own air quality audit.

We understand that schools and boroughs are under enormous financial pressure, which is why I am encouraging boroughs to prioritise funding through their Local Implementation Plan budgets provided by Transport for London (TfL). I am also urging Clinical Commissioning Groups and local businesses to consider setting aside some funding to support the funding of these recommendations.

In addition, we are keen to encourage schools to sign up to TfL's STARS (Sustainable Travel: Active, Responsible, Safe) programme, if they have not already done so. By swapping car journeys for active travel, through STARS, schools can make a real difference to our city and help create healthier streets for Londoners.

Finally, I would like to commend all those involved in the successful delivery of the School Air Quality Audit Programme - the schools, boroughs, consultants and, above all, the school children.



Sadiq Khan
Mayor of London

THE MAYOR OF LONDON'S SCHOOL AIR QUALITY AUDIT PROGRAMME

Prior Weston Primary School, London Borough of Islington

ACKNOWLEDGEMENTS & CONTRIBUTIONS

Prior Weston Primary School – Tamzin Barford (Deputy Head Teacher), Joanne Pettifor (Deputy Head Teacher) and Gary Maker (Head of Premises)
London Borough of Islington – Jo Shaw (Pollution Officer) and Rob O'Connor (School Travel Plan Officer)

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DISCLAIMER

The contents of this report and its recommendations are principally based on the findings of the independent audit as of the date it was undertaken, and may not account for subsequent changes in local policy, conditions and/or circumstances in and/or around the school.

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minicom 020 7983 4458
ISBN
Photographs ©

Copies of this report are available
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1 INTRODUCTION

1.1 BACKGROUND

1.1.1. As part of the Mayor's ambition to tackle poor air quality, WSP has been commissioned to identify a combination of hard-hitting measures and quick-win solutions to help protect pupils' health from toxic air quality, and examine new ways to lower emissions and exposure to pollution in and around primary schools.

1.1.2. The Mayor has stated that London is experiencing a '*public health crisis*, and that he is committed to improving air quality, particularly for the most vulnerable Londoners. Over 400 primary schools are located in areas which exceed legal pollution limits, and 25% of primary schools are in areas with dangerously high levels of air pollution.

1.1.3. Primary school children are amongst the most vulnerable of the at risk groups, as their lungs are still developing, and toxic air can stunt their growth, causing significant health problems in later life.

1.1.4. Road transport is a major contributor to emissions, has a significant impact on air quality, accounting for around half of NO_x emissions. Whilst private car use is decreasing, congestion is increasing[1]. Without significant intervention, as the Capital grows rapidly these trends are set to continue.

1.1.5. In response the Mayor is implementing a significant programme of measures, including bold proposals to reduce London's deadly air pollution and protect the health and wellbeing of all Londoners, including:

[1] London Assembly, London stalling: Reducing traffic congestion in London, January 2017, Transport for London, Travel in London - Report 9 data, 2017

- **The Toxicity Charge** (T-Charge) now applies to older, more polluting vehicles in central London, which means that including the Congestion Charge drivers with these vehicles will now pay £21.50 total during peak congestion.
- **Cleaning up London's Buses** - The Mayor is spending more than £300 million to transform London's bus fleet by retrofitting thousands of buses and committing to phase out pure diesel double deck buses from 2018. 12 Low Emission Bus Zones have been announced, two of which have already been delivered, putting the greenest buses on the capital's most polluted routes. The zones are expected to reduce NO_x emissions by 84 per cent and thousands of school children in these areas will benefit from cleaner air.
- **The Ultra Low Emission Zone** (ULEZ) will supersede the T-Charge, and operate 24 hours a day, 7 days a week within the same area as the current Congestion Charging Zone (CCZ), The world's first Ultra Low Emission Zone (ULEZ) is to start 8 April 2019, approximately 17 months earlier than planned, and create stricter emissions standards for diesel vehicles, 24 hours, 7 days a week. Those that do not comply will face a charge. This is expected to reduce harmful NO_x (Nitrogen Oxides) emissions by about 50 per cent in central London, 40 per cent in inner London and 30 per cent in outer London.
- **Expanding the ULEZ and tightening the Low Emission Zone (LEZ)** - As part of the Mayor's pledge to help improve air quality and health for all Londoners, he is also proposing to make the London-wide Low Emission Zone (LEZ) stronger, and expand the Ultra Low Emission Zone (ULEZ) requirements for vehicles. This involves introducing a Euro 6 emissions standard London-wide for heavy duty vehicles (i.e. buses, coaches, Heavy Goods Vehicles (HGVs) vehicles) from 26 October 2020, and expanding the ULEZ for light duty vehicles (i.e. cars, vans and motorcycles) so that all vehicles are subject to emissions standards within an area roughly bounded by the North and South Circular Roads from 25 October 2021. The introduction and expansion of the ULEZ, and tightening of the LEZ standards, is forecast to result in a significant reduction in NOx emissions across London.
- **London's taxis –** New taxis licensed after 1 January 2018 will need to be zero emission capable to help clean up London's dirty air, with new 'zero emission' ranks for drivers who pioneer green technology alongside a network of rapid electric charge points.
- **Low emission neighbourhoods –** five low emission neighbourhoods have been founded across London to pioneer bold new measures to promote the use of low emission vehicles and improve local air quality, including low emission vehicle only streets, measures to promote deliveries by cycle cargo bikes and low emission vehicles, and bold proposals to promote walking and cycling.
- **The London Environment Strategy** – is a bold and ambitious strategy, with a particular focus on air quality. The strategy was consulted on in 2017 and will be published in 2018, and seeks to address the most urgent environmental challenges facing our London, to safeguard its environment over the longer term. This will be the first strategy to bring together approaches to every aspect of London's environment, including: air quality, green infrastructure, climate change mitigation and energy, waste, adapting to climate change and ambient noise. To make the Mayor's vision of transforming the city's environment a reality, this strategy establishes some key aims for London, which include having the best air quality of any major city, making more than half of London's area green and for tree canopy cover to increase by ten per cent by 2050, and making London a zero carbon city by 2050, with energy efficient buildings, clean transport and clean energy.

- **The Draft London Plan -** published in November 2017, places a considerable emphasis on air quality, with policy S|1 stating that London's air quality should be significantly improved, and exposure to poor air quality, especially for vulnerable people, should be reduced. The aim of this policy is to ensure that new developments are designed and built, as far as is possible, to improve local air quality and reduce the extent to which the public are exposed to poor air quality. This means that new developments, as a minimum, must not cause new exceedances of legal air quality standards, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits. Where legal limits are already met, or are predicted to be met at the time of completion, new developments must endeavour to maintain the best ambient air quality compatible with sustainable development principles. The draft London plan also highlights the importance of creating new, accessible green open space, particularly in areas where this access is lacking. The Mayor is providing funding through his Greener City Fund to create and improve green spaces and to plant trees, including in schools. A proposed new Urban Greening Factor seeks to encourage major new developments to contribute to the greening of London by incorporating measures such as green roofs, tree planting and green walls.
- **Healthy Streets Approach** - the Mayor is embedding the 'Healthy Streets' approach in transport strategy. This promotes a holistic approach that can fulfill multiple objectives such as improving the health, liveability, social cohesion and economic prosperity of an area.
- **The Mayor's Transport Strategy 2018 -** The Mayor has set out ambitious plans to improve transport in London over the next 25 years in his draft Transport Strategy, which will act as the backbone of transport planning across London, helping to deliver The Mayor's ambition for 80% of trips in London to be made on foot, by cycle or using public transport by 2041. It includes record investment in new and improved rail, tube and bus services, an unprecedented focus on walking and cycling, and a commitment to make the entire transport system zero-emission by 2050.

1.1.6. These measures in combination will dramatically improve London's air quality. However, the Mayor also wanted to take early action at 50 primary schools located in areas with some of the highest air pollution levels, so has provided £250k funding to commission The Mayor of London's School Air Quality Audits programme, to identify ***hard-hitting measures*** to minimise the impacts of toxic air on primary school children in some of the worse affected areas across London. This is both in terms of ***reducing the sources*** of harmful emissions, as well as ***reducing the exposure*** to these emissions. The aim is to establish a robust process and toolkit of measures, which the London boroughs and primary schools can roll out, so that every school that is located in an area of high pollution can benefit from this approach.

1.2 OBJECTIVES

1.2.1. The key objectives of the Mayor of London's School Air Quality Audit Programme is to:

- Identify the sources of outdoor air quality and potential exposure by primary school children at the school and their surrounding catchment areas, and potential indoor exposure through the internal audits.
- Identify, evaluate and recommend a combination of hard hitting measures and pragmatic approaches, both within and around the school that will help a borough to reduce emissions or reduce primary school children's exposure to poor air quality at those sites, which could be delivered as part of the boroughs' Local Implementation Plan (LIP) funding schemes, as well as

other sources of funding such Clinical Commissioning Groups, local businesses and charitable trusts.

- Engage school communities to educate stakeholders about the impacts of air pollution and contribute towards activities, initiatives and policies that the primary school community could implement.
- Engage eligible London boroughs and other relevant stakeholders to inform the feasibility of the proposed recommendations.
- Provide recommendations for the boroughs' consideration and future implementation, and wider dissemination.

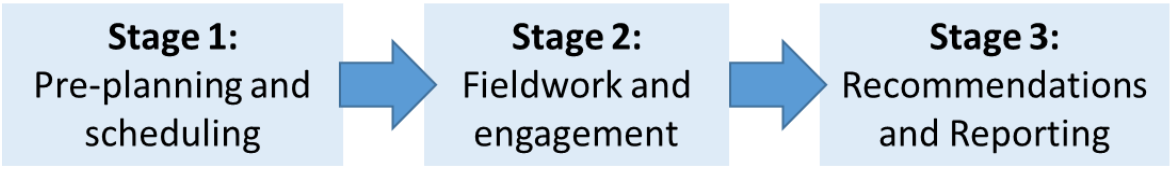
Chapter 2 – Audit Approach

2 AUDIT APPROACH

2.1 OVERALL AUDIT APPROACH

2.1.1. The Mayor of London's School Air Quality Audits follow a structured approach, summarised in **Figure 1**.

Figure 1 – Overview of Approach



2.1.2. Each audits consists of broadly three key stages:

- **Stage 1:** Pre-planning and scheduling
- **Stage 2:** Fieldwork and engagement
- **Stage 3:** Recommendations and Reporting

Pre-planning and scheduling

2.1.3. The borough air quality primary contacts were contacted by the lead Auditor, and mutually available potential dates for the audit were agreed. The borough then introduced the auditor to the school, and a schedule for the tasks to be undertaken was agreed to fit in with the operations of the school and availability of key staff contributing to the audit.

2.1.4. Prior to the audit air quality modelling was undertaken for the area around the school, with an assessment of the contribution to emissions made by each vehicle type on the roads around the school.

2.1.5. A desktop review of the local areas around the school site, and the wider catchment was also undertaken, to highlight key features for the auditor to assess further on site. This includes sources of pollution, causes of exposure, and notable features in the local area which may have a bearing on the potential mitigation measures (i.e. bus routes, pedestrian crossing locations, nearby construction sites, physical barriers such as railways or rivers). The school's STARS2 travel plan progress was also reviewed for reference ahead of the audits. Engagement materials were developed for use in delivering bespoke awareness raising interactive presentations to the children. A toolkit of measures for addressing air quality issues was developed for use in informing our recommendations for each school.

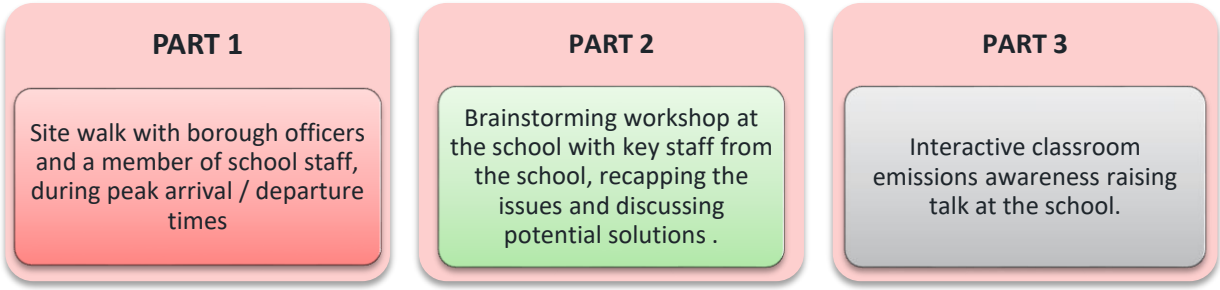
Fieldwork and engagement

2.1.6. The approach taken in carrying out the audit comprised of several elements, including a visit to the school by the WSP auditor and officers at the borough who deal with air quality, transport planning

[2] STARS is TfL's accreditation scheme for London schools and nurseries, promoting travel to school sustainably, actively, responsibly and safely by championing walking, scooting and cycling.

and school travel. A key element of the audits was to capture the views of school staff, wider school community and relevant borough officers, in understanding operational considerations, behavioural traits and recent history of the school. As such, we proposed a three-fold approach summarised below:

Figure 2 – Key elements of the Audit



2.1.7. Initial observations and site familiarisation were undertaken by the auditor prior to the school opening. This allowed us to sense check the context maps compiled initially from desktop assessments. Observations with the borough officers and school staff were then undertaken throughout the period of drop-off and waiting activity, prior to the school gates opening, until parents have dispersed. During this critical period the auditors captured as much information as possible on activity in and around the school, with comprehensive photo records and discussions with the school staff to capture issues which often occur but were not evident during our observations. The external observations were then followed by a walk around the school building and grounds to enable the auditor to familiarise themselves with its layout, and the proximity of classrooms, nurseries, playgrounds etc to areas of poor air quality.

2.1.1. A brainstorming session was then undertaken, with key staff from the school and the borough officers in attendance. This session served several functions. It enabled the auditor to capture additional information on other issues and concerns not observed directly, and additional information on issues such as whether there are any plans for extensions or additional pupil intake for example. Whilst from the borough officers we were able to establish what planned or committed development is nearby, proposed or previously considered transport schemes etc. We then discussed a range of potential measures to address the issues discussed and collected feedback and suggestions from the borough and school representatives to inform the recommended measures.

2.1.2. An interactive and bespoke engagement activity was then delivered to a school assembly, using presentation slides to raise awareness of the air pollution, its causes, the health impact, areas of pollution near the school and a range of measures to reduce air pollution. An audit of the building was then undertaken with the assistance of the facilities manager, including a review of the school's boilers, their flues, the ventilation systems and kitchen extraction.

2.2 AUDIT SCHEDULE – PRIOR WESTON PRIMARY SCHOOL

2.2.1. Table 1 provides further details of the audit schedule and key participants from the school and borough.

Table 1 – Audit Details

Date of Audit	**Thursday 7th December 2017**	
School Representatives	Tamzin Barford (Deputy Head Teacher), Joanne Pettifor (Deputy Head Teacher), Gary Maker (Head of Premises)	
Borough Representatives	Jo Shaw (Pollution Officer), Rob O'Connor (School Travel Plan Officer)	
WSP Auditors	Glenn Higgs	
Itinerary	Timings	Description
	0800 - 0830hrs	Initial observations and site familiarisation by WSP auditor
	0830 – 0900hrs	Site walk & observations outside the school with borough officers, during peak arrival time
	0900 – 0930hrs	School building and school grounds familiarisation – walk around with school staff and borough officers
	0930 – 1100hrs	Brainstorming workshop with key staff from the school, plus borough officers - recapping the issues observed/ reported, and discussing aspirations and potential solutions
	1100 – 1130hrs	Internal Audit of building and school grounds accompanied by the Head of Premises/Deputy Head Teacher
	1130 onwards	Further observations and completion of site audit template by WSP auditor

Recommendations and Reporting

2.2.2. The auditor reviewed the findings of the audit and preparatory assessments, with the specialist support of WSP's air quality, transport planning and buildings specialists, to develop advice and recommendations, based on a toolkit of best practice measures and case study examples.

Chapter 3 – Context and Initiatives

3 CONTEXT AND INITIATIVES

3.1 SCHOOL CONTEXT

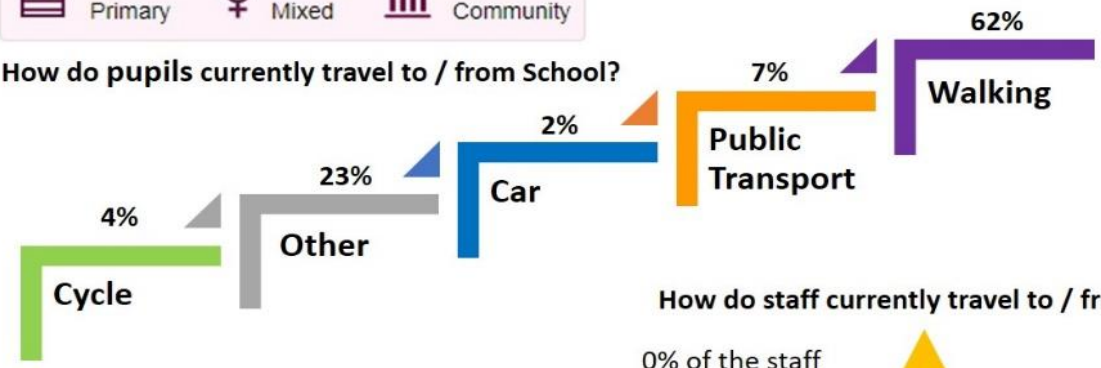
Borough: Islington

Address: Whitecross Street, EC1Y 8JA

Pupil Numbers: Approximately 500

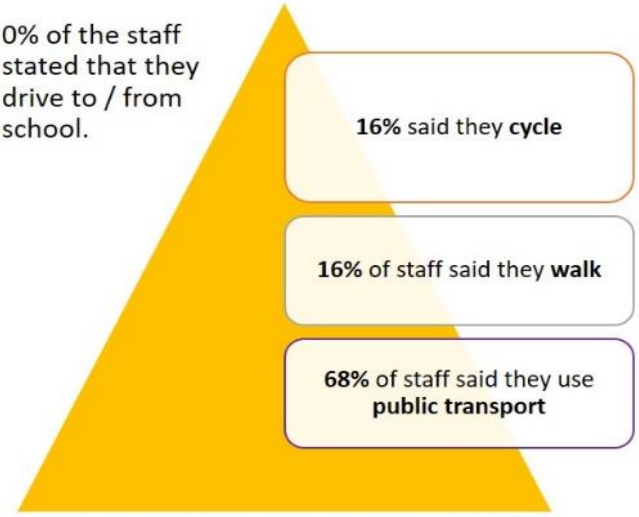
Age	Gender	Type
Primary	Mixed	Community

How do pupils currently travel to / from School?



How do staff currently travel to / from the School?

0% of the staff stated that they drive to / from school.



What is the catchment area for the school and how long would it take for pupils to walk to / from the School?

1st Quartile 25% - 0.18km; walking time 2 minutes
2nd Quartile 50% - 0.37km; walking time 5 minutes
3rd Quartile 75% - 0.61km; walking time 8 minutes
Mean – 0.72km; walking time 9 minutes

The map to the left confirms that half of the pupils can travel to / from school within a 5 minute walk, and 75% within a 8 minute walk. The average walking time for pupils is 9 minutes.

3.1.1. Prior Weston Primary School is located in central London and sits within the London Borough of Islington. The main entrance is on Whitecross Street, which like the rest of the nearby roads has a 20 mph speed limit.

3.1.2. Golden Lane Children's Centre is part of Prior Weston Primary School and shares the Golden Lane Campus site with the primary department and Richard Cloudesley Special School.

3.1.3. There are approximately 2,600 vehicles per day on the core roads within a 200m radius of the school[3]. This is within the 1st quartile (<25%) in terms of traffic volumes amongst of the 50 schools assessed as part of this programme.

3.1.4. The desktop review and subsequent discussions with the school confirmed that nearly two-thirds of pupils currently travel to / from school on foot (62%), 23% by other modes, which in this case is scooting, and 7% by public transport. 4% travel via cycle and only 2% travel to/from school by car.

3.1.5. The travelling to / from the school via sustainable means also applies to school staff, with 68% of staff members travelling on public transport and 16% on foot. 16% of the staff stated that they cycle to / from school with no staff members travelling via car.

3.1.6. The catchment area is relatively compact, as 25%, 50% and 75% of pupils live within a 2, 5 and 8 minute walk to school respectively.

3.1.7. The subsequent two pages illustrates the inner and outer context plans for the school that provides detail on the main access (both pedestrian and vehicular) to the school, the location of the playgrounds where children are most exposed to air pollution, as well as bus routes in the near vicinity of the school and the catchment area for the school.

[3] Each site, take a baseline year, take DfTs – look on LAEI for descriptor. Only covers main roads. LAEI modelled roads

Figure 3 - Outer Context Plan

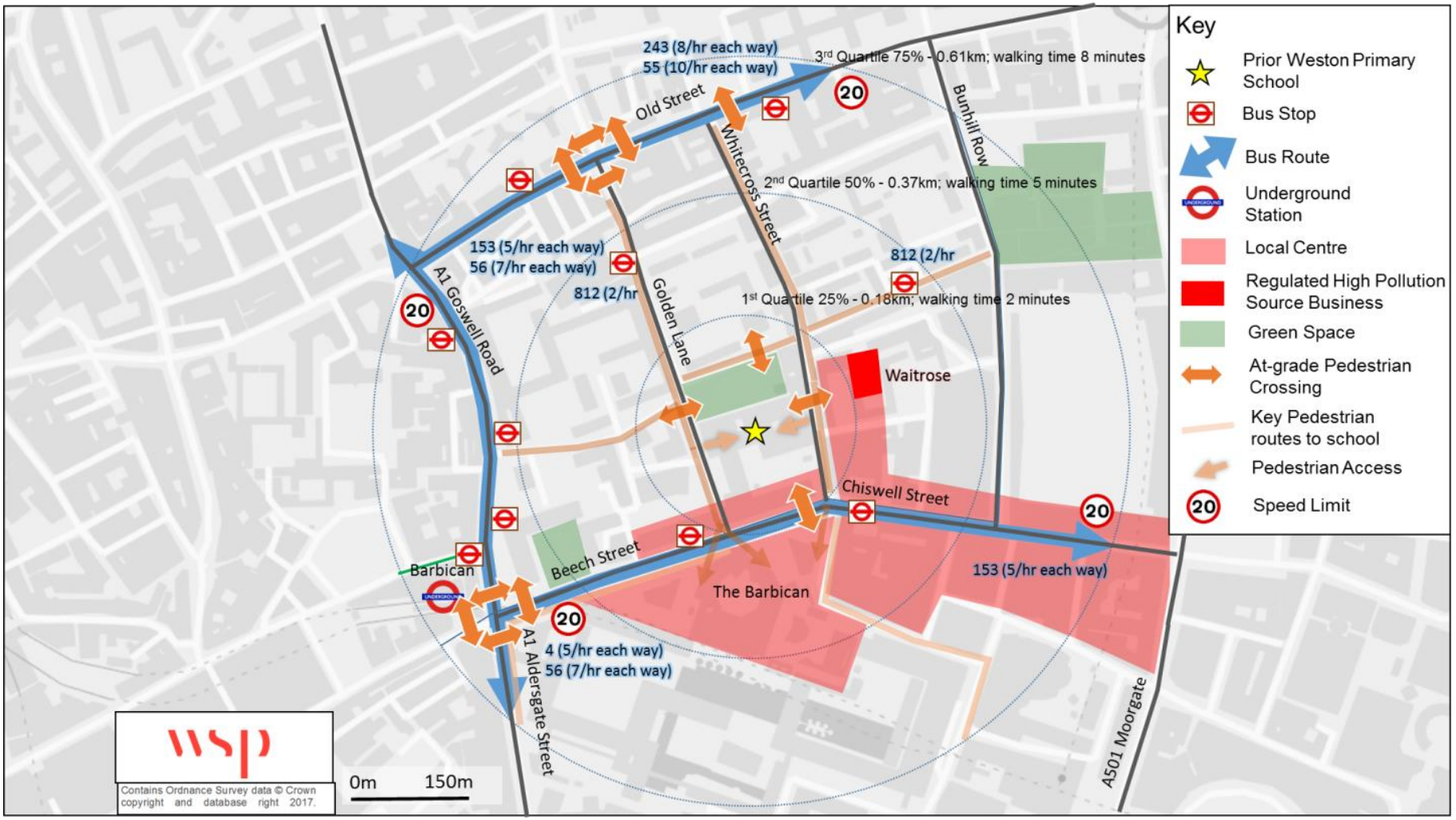


Figure 4 – Inner Context Plans

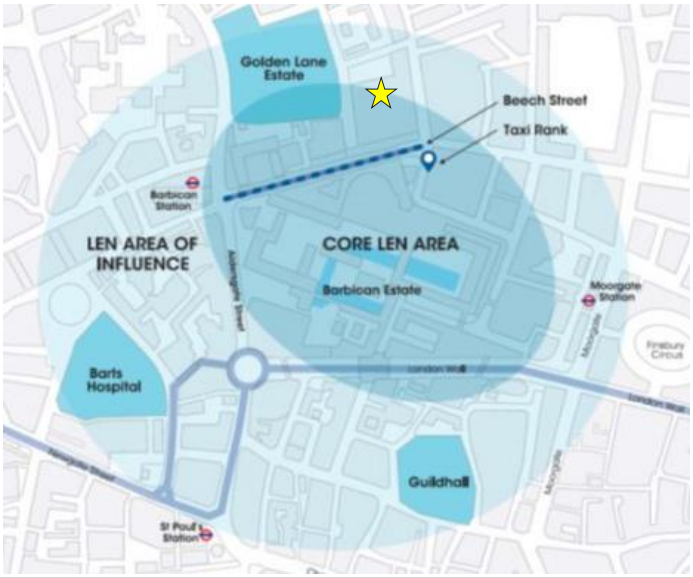
3.2 PLANNED SCHEMES & RECENT INITIATIVES

LOCAL SCHEMES

3.2.1. There are several development projects and transport schemes within the immediate locality of the school which may have a significant bearing on air quality, these include:

City of London Low Emission Neighbourhood

3.2.2. The City of London was awarded £990,000 over three years to implement a Low Emission Neighbourhood (LEN) in the Barbican, Guildhall and Barts area. The aim of the LEN is to improve local air quality by reducing the amount of traffic and encouraging and supporting low and zero emission vehicles in the locality. The funding for the LEN lasts until March 2019.



3.2.3. Some of the measures being introduced as part of the LEN programme include:

- an Ultra-Low Emission Vehicles (ULEV) street
- Construction & Non-Road Motorised Machinery Audit of all construction sites within the LEN area to check compliance with GLA standards
- Anti-idling campaign
- Electric vehicle charging point trial for Barbican car parks
- Zero emission capable (ZEC) only taxi rank on Silk Street, with dedicated electric vehicle charging point
- Micro-consolidation centres
- Rapid EV charging & taxi ranks

3.2.4. A feasibility study was undertaken to assess options for introducing ULEV-only restrictions on Beech Street. However, these proposals have been put on hold and consideration is being given to other streets which could become ULEV-only instead.

City fringe low Emission neighbourhood

3.2.5. The boroughs of Islington, Hackney and Tower Hamlets are working together to combat air pollution in the City Fringe area by creating a Low Emission Neighbourhood. The LEN aims to be a pioneering blueprint of how cities of the future should be designed and a test-bed of new solutions that can be rolled out city, nation and worldwide.

3.2.6. Measures which are being introduced include ultra-low emission vehicle-only streets, lamp column charging, parklets, planting and car free days. The funding programme runs until March 2019.

Cultural mile

3.2.7. The Culture Mile is a transformational initiative which will create a vibrant cultural area in the north-west corner of the City over the next 10 to 15 years. It will stretch just under a mile from Farringdon to Moorgate.

3.2.8. One of the three building projects associated with the cultural mile is the transformation of Beech Street. The City of London is assessing how best to transform Beech Street, to make it a more welcoming environment, particularly for pedestrians and cyclists, including the introduction of new retail units and providing better access to the existing cultural destinations either side of it.

3.2.9. The plan is that vehicular traffic will be restricted to westbound only movements and cycle lanes will be retained eastbound and westbound.

Denizen development

3.2.10. A former police accommodation block on Golden Lane opposite Prior Weston Primary School was demolished to make way for a 10 storey block which will contain 99 luxury 1, 2 and 3 bedroom apartments. The development is due to be completed in 2018.

Richard Cloudesley School redevelopment

3.2.11. There are many developments in the area surrounding Prior Weston Primary School. One development currently going through the planning process that could impact Prior Weston are the plans for a new primary school, residential building and workspace on the former site of Richard Cloudesley School on Golden Lane.

Central Street Public Realm Masterplan

3.2.12. Islington Council is working on a public realm masterplan to improve the quality of streets and spaces along Central Street and Golden Lane. The masterplan aims to enhance the local streetscape, prioritise pedestrian safety and improve cycling routes by transforming the junctions. The detailed design and delivery of these improvements will be phased over the next few years subject to funding.

Smithfield Market Redevelopment

3.2.13. The Smithfield Market is located in the City of London, west of Beech Street on Long Lane. Smithfield is a historic meat market that has been running for over 140 years; however, parts of the market are undergoing redevelopment to allow the Museum of London to be relocated within Smithfield.

3.2.14. The buildings that are to be redeveloped are at the western end of the site, between the Poultry market building and Farringdon Street. The buildings have been unused for many years. The meat market will still operate in the three existing buildings including the Poultry Market and the East and West Market buildings. The redevelopment of the market is likely to lead to a reduction in HGV trips, some of which are currently made through Beech Street.

Crossrail Station Farringdon

3.2.15. Crossrail is set to open its Elizabeth Line in 2018 where Farringdon Station will be one of the busiest in the UK, connecting Thameslink and the London Underground to provide improved connections into, within and out of central London.

3.2.16. Farringdon Station will open in December 2018 and trains will terminate at Paddington in the west and Abbey Wood in the east. The full route will open in December 2019 where trains will allow passengers to travel from Heathrow and Reading in the west to Shenfield or Abbey Wood in the east. At peak times a train will run every two and a half minutes.

Old Street Roundabout

3.2.17. The Old Street roundabout is a complex, multiple-lane roundabout. It links the A5201 Old Street and A501 City Road and forms a part of London's Inner Ring Road. It provides a route for traffic heading north to the M1, south to the City and London Bridge, west to London's West End and east to Canary Wharf and City Airport.

3.2.18. The roundabout will undergo significant change in the coming years as part of the planned highway transformation that will see the removal of the one-way system, and two-way traffic reintroduced. As a result of the works, the north-western arm of the roundabout will be closed to traffic and a peninsula will be created around an upgraded Old Street station entrance.

3.2.19. The existing roundabout, developed in the 1960s, will be converted into an attractive new pedestrianised public space. The highway transformation will result in fully segregated cycle lanes and crossings, as well as improved safety and amenity for pedestrians, public transport users, cyclists and people who live and work nearby.

3.2.20. Design work is ongoing and is due to be completed later in 2018. Construction of the scheme is planned to start in winter 2018.

WIDER SCHEMES

3.2.21. There are a number of notable transport schemes which are part of London-wide programmes which may have a significant bearing on the air quality around the school, these include:

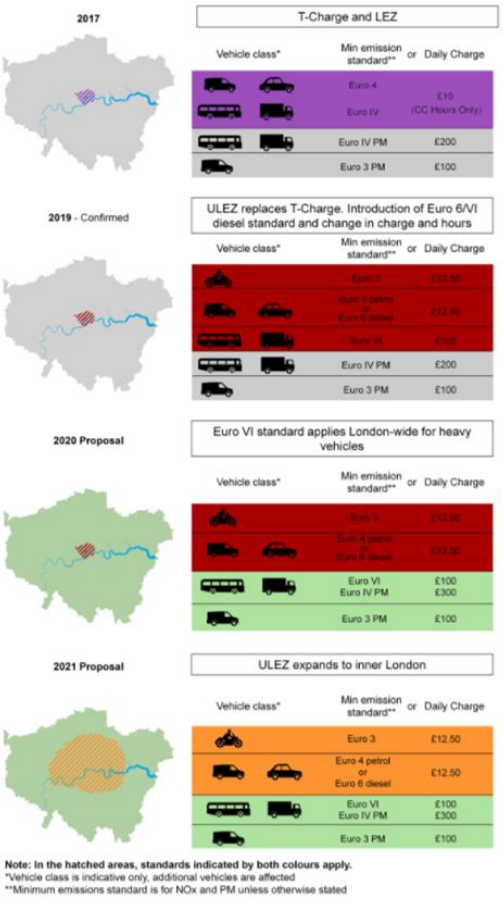
T-CHARGE

3.2.22. From 2017, older vehicles that drive in the central London Congestion Charge zone need to meet minimum Euro emission standards or pay an additional daily charge. The T-charge applies from 07:00-18:00 Monday to Friday and is the first step towards the introduction of the Ultra-Low

Emission Zone (ULEZ). The minimum emissions standards are Euro 4/IV for both petrol and diesel vehicles. As shown in the diagram below, Prior Weston Primary School is located within the T-Charge (and ULEZ) area.

Ultra Low Emission Zone (ULEZ) and Low Emission Zone (LEZ)

3.2.23. The ULEZ will operate 24 hours a day, 7 days a week within the same area as the current Congestion Charging Zone (CCZ), and comes into force on 8th April 2019. The introduction of the ULEZ will reduce exhaust emissions of NO_2 and particulate matter PM_{10} and $PM_{2.5}$. In 2019, all cars, motorcycles, vans, minibuses, buses, coaches and heavy goods vehicles (HGVs) will need to meet exhaust emission standards, or pay a daily charge. In the case of petrol cars and vans this means Euro 4, and Euro 6 for diesels. HGVs and coaches are also Euro 6.



3.2.24. As part of the Mayor's pledge to help improve air quality and health for all Londoners, he is proposing to make the London-wide Low Emission Zone (LEZ) stronger and expand the Ultra Low Emission Zone (ULEZ). This involves introducing a Euro VI emissions standard London-wide for heavy duty vehicles (buses, coaches, Heavy Goods Vehicles (HGVs) and other specialist heavy vehicles) from 26 October 2020 and expanding the ULEZ for light duty vehicles (such as cars, vans and motorcycles) so that all vehicles are subject to emissions standards within an area roughly bounded by the North and South Circular Roads from 25 October 2021.

3.2.25. The introduction and expansion of the ULEZ, and tightening of the LEZ standards, is forecast to result in a 30.9% reduction in NO_x emissions in the London borough of Islington by 2020.

Electric and Hybrid Buses

3.2.26. TfL has started to deliver on their plan to introduce around 3,000 Ultra Low Emission double-deck buses in central London by 2019 and over 250 Zero Emission single-deck buses into central London by 2020. Route 153, connecting Finsbury Park to Moorgate, is the only bus route which runs through Beech Street. This will be converted to a single-deck electric bus.

Zero Emission Capable Taxis & Private Hire Vehicles

3.2.27. TfL is introducing new licensing requirements to reduce emissions from the taxi fleet by phasing out diesel taxis and increasing the number of Zero Emission Capable (ZEC) vehicles in London. The maximum 15 year age limit remains in place.

3.2.28. From 1 January 2018, taxis presented for licensing for the first time will need to be ZEC. This means having CO_2 emissions of no more than 50g/km and a minimum 30 mile zero emission range. A first-

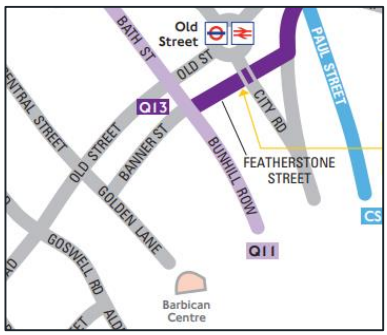
time taxi vehicle licence will no longer be granted to a diesel taxi. ZEC taxis with petrol engines will need to meet the latest emissions standard (currently Euro 6).

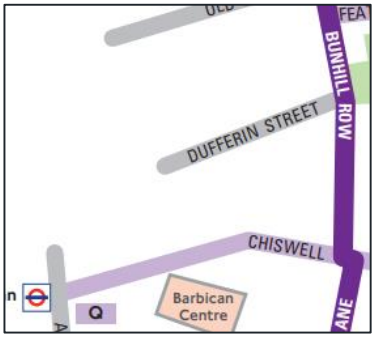
3.2.29. All Private Hire Vehicles (PHVs) licensed for the first time must have a Euro 6 petrol or diesel engine, or a Euro 4 petrol-hybrid engine. From 8 April 2019, all PHVs travelling in the ULEZ zone must meet certain emissions standards or pay a £12.50 charge per day. In addition to the ULEZ requirements, the licensing requirements for PHVs will change to encourage uptake of zero emission capable PHVs from 2020.

3.2.30. Beech Street is a taxi rat run between the West End and Liverpool Street. Taxis contribute to 33% of the NO_X emissions on Beech Street, so longer-term the new licensing requirements should make a significant difference to the air quality around Beech Street.

Quietway Cycle Routes 11 & 13

3.2.31. Quietways are continuous and convenient cycle routes on less-busy backstreets across London. Quietways 11 and 13 are two of those that are due to be introduced as part of the next phase in 2018.





3.2.32. Quietway 11 runs from The City to Angel, and passes just to the east of Prior Weston Primary School along Moor Lane and Bunhill Row. Quietway 13 starts from the northern end of Bunhill Row and runs to Broadway Market.

School Stars Activities

3.2.33. STARS (Sustainable Travel: Active, Responsible, Safe), is TfL's accreditation scheme for London schools and nurseries, to inspire young Londoners to travel to school sustainably, actively, responsibly and safely by championing walking, scooting and cycling.

3.2.34. As part of the STARS scheme schools receive bespoke guidance from the borough, high quality on-line resources with over 120 activity cards, access to a London-wide community of schools, priority access to funding, accreditation and recognition.

3.2.35. Prior Weston Primary School holds **Bronze status** of the STARS programme, and has been active in undertaking a range of STARS activities, with the following recorded since July 2016.

- Travel Activity: Public transport for school trips, road safety talks, Bikeability training, personal safety promotion, Road safety week, walking trips, other walking activity, other cycling activity, junior citizenship scheme.
- Supporting Activity: Healthy schools London, school travel noticeboard and web page, environmental benefits of active travel, theatre in Education, pupil journey planning, communicating with parents/carers, world environment day.

Healthy Schools London Accreditation

3.2.36. Healthy Schools London is a programme that supports London's schools to provide an environment and culture that helps their pupils grow to be healthy happy and learn. This programme supports schools as they work towards an award scheme (sponsored by the Mayor of London), with a network of local coordinators, and a range of resources, tools and advice provided through this website and regular workshops for schools. Prior Weston Primary School currently has **Bronze accreditation**.

School Streets

3.2.37. Schools in Islington are set to be asked their views on a new scheme aiming to bring cleaner air and safer streets to pupils, reducing traffic and encouraging children and parents to walk or cycle to school.

3.2.38. The School Streets Scheme would operate in roads directly outside the entrance to schools, preventing both through-traffic and drop-offs and collections at both ends of the school day.

3.2.39. The scheme is designed to create an environment that encourages more walking and cycling, improves air quality and reduces emissions.

Islington Anti-Idling Campaign

3.2.40. Vehicle Idling Action is a London-wide behaviour change campaign which is helping to reduce localised air pollution caused by motorists who leave their engines running when parked. This programme of idling action days is being delivered by the Vehicle Idling Action Partnership. The campaign is funded by the Mayor's Air Quality funding.

3.2.41. Idling Action Events are taking place in 16 local authorities, including LB Islington. Teams of volunteers, local authority and project staff work together to educate both motorists and pedestrians. The volunteers engage on street with idling drivers and passers-by about the effects of idling on local air quality. The approach is to invite drivers to join the campaign and switch off their engines when parked. When approached in a friendly and non-judgemental way, it has been found that over 80% of drivers switch off their engines when asked by the volunteers, and many pledge to give up the idling habit for good.

3.2.42. An event is run in the borough of Islington every month and the first event was held in October 2017. The Idling Action Days 'pop up' in a designated hotspot and last for approximately 2 hours. The events have been held near schools as well as outside rail/tube stations and on high streets.

Chapter 4 – Audit Findings: Sources of Emissions and Exposure

4 AUDIT FINDINGS: SOURCES OF EMISSIONS & EXPOSURE

4.1 INTRODUCTION

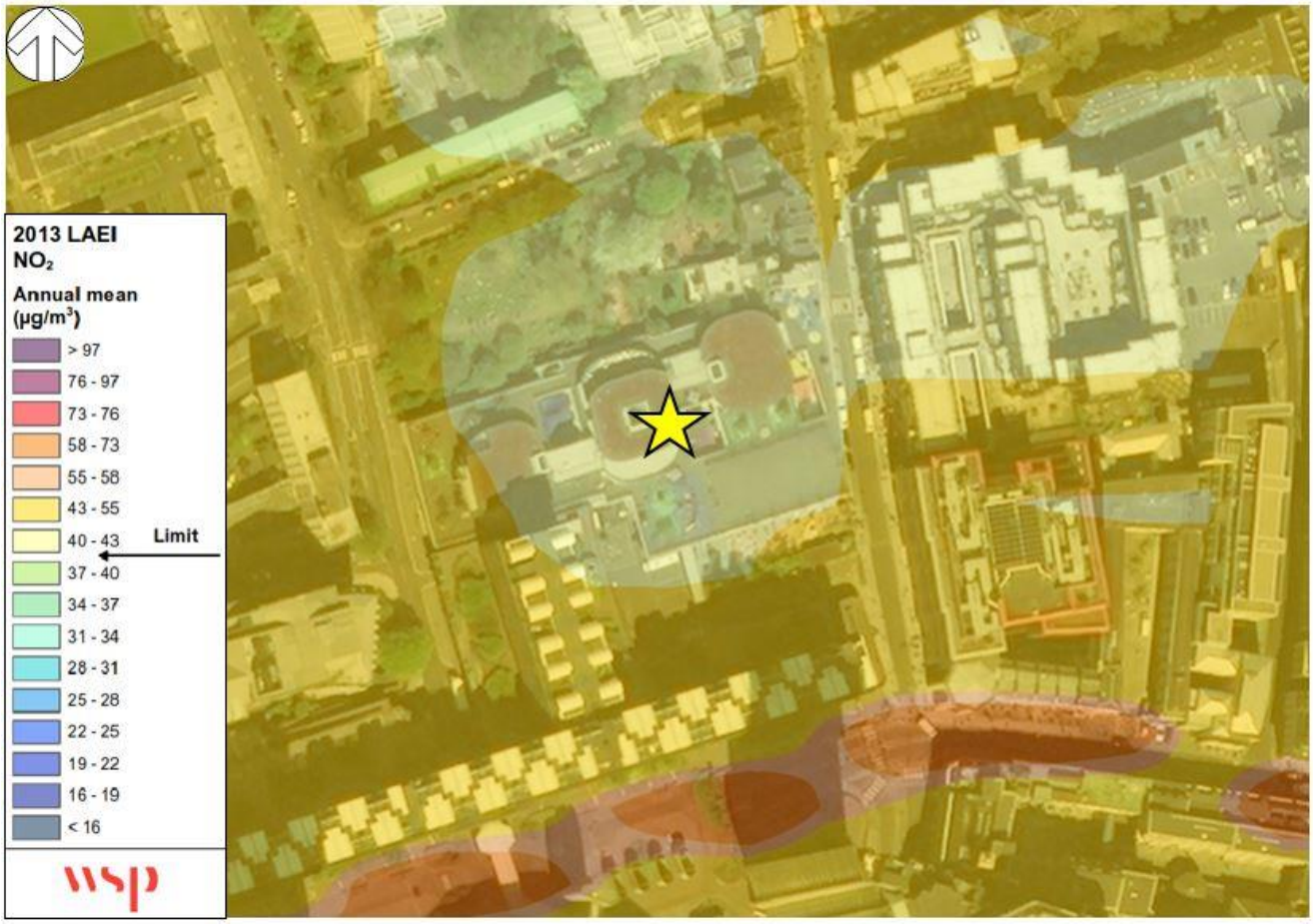
4.1.1. The audit findings are summarised in this chapter as follows:

- Air quality data
- Observed issues, emission source or exposure: Highways and School Grounds / Buildings

4.2 AIR QUALITY IN THE SURROUNDING AREA

4.2.1. The air quality data used to assess the pollution climate immediately around each school has used a combination of modelled and measured data. Modelled baseline NO_2 annual mean concentrations have been taken from the 2013 London Atmospheric Emissions Inventory (LAEI) model. NO_2 measurements have been derived for the past ten years (2006-16) for the closest monitoring site to the school from a combination of measurements taken from the London Air Quality Network (LAQN) and Local Authority diffusion tube sites, where available.

Figure 5 – Localised Air Quality modelling around Prior Weston Primary School



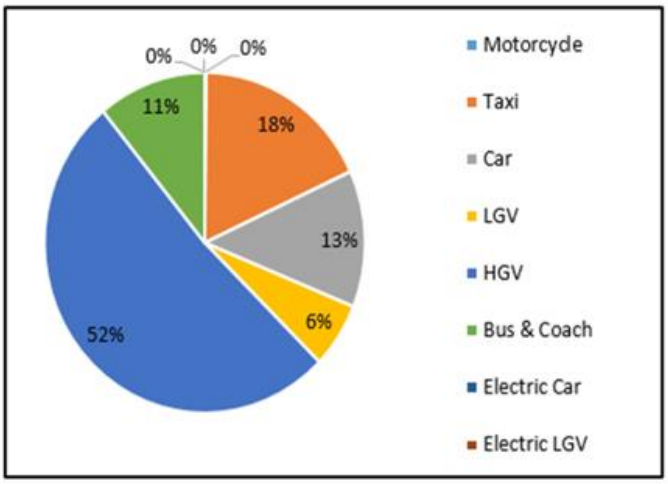
4.2.2. Briefly, the LAEI model provides mapped annual mean NO_x, NO_2, PM_{10} and $PM_{2.5}$ concentrations on a 20m x 20m basis for the whole of London from a base-year of 2013 for 2020, 2025 and 2030. The

LAEI uses air pollution emission estimates from a wide range of sources including transport, industrial, domestic and commercial combustion, agriculture and long-range transport using the most up-to-date activity data, emission factors and projection factors. Figure 5 shows the 2013 LAEI baseline annual mean NO_2 concentrations within the vicinity of Prior Weston Primary School. The contours (changes in colours) in Figure 5 show how the pollution gradient changes, with the higher concentrations around Beech Street to the south and lower concentrations around Prior Weston Primary School and Fortune Street Park.

4.2.3. Nearly 50% of NO_x emissions in London are from road transport. Vehicle emissions data for the LAEI modelled road links within 200m of the school, split by source, have been analysed to identify the key sources contributing to NO_2 in the vicinity of the school. The pie chart below shows that HGVs account for 11% of the total traffic but contribute 52% of the transport related NO_x emissions locally. Taxis are the next largest contributor of emissions at 18%, followed by buses and coaches at 11%.

Figure 6 – Road Transport NO_x Emissions and Volume

Road Transport Emissions – Split by Source Sector



Road Transport Emissions – Split by Type

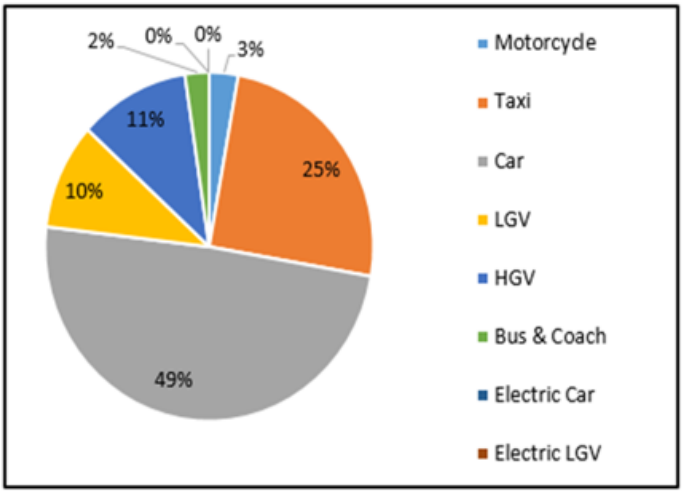
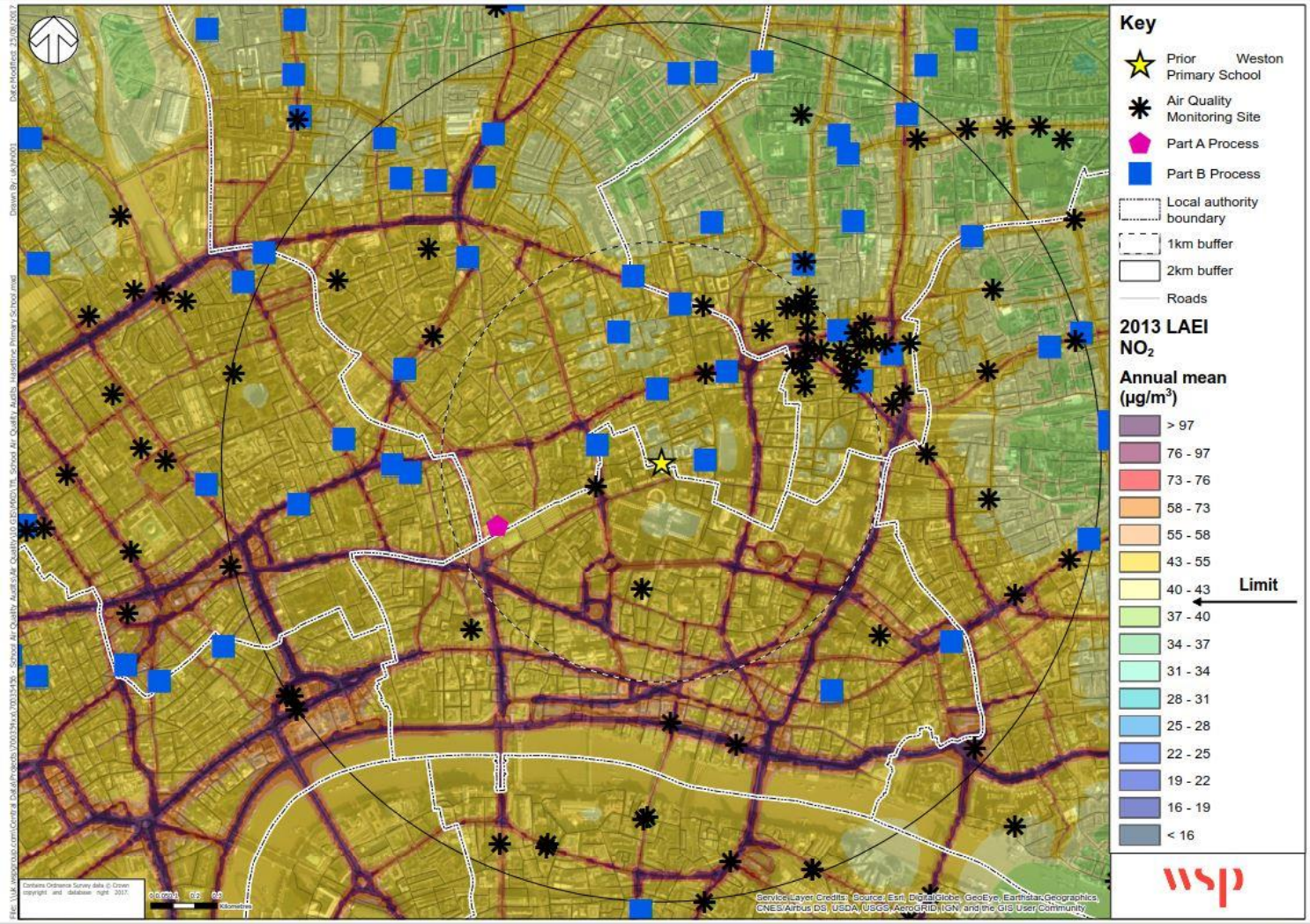


Figure 7 – Air Pollution in the surrounding areas



Note: Part A and B Processes include regulated industrial installations that have the potential to cause pollution and are required to have an Environmental Permit to operate, including facilities which carry out industrial processes, waste activities, mobile plant and solvent emission activities.

4.3 HIGHWAYS – KEY OBSERVATIONS

Pedestrian Activity and Amenity

4.3.1. The main pedestrian access to Prior Weston School is on Whitecross Street. There are two other entrances; one on Golden Lane (staff only) and the other is accessed through Fortune Park. The school entrance in Fortune Park is open from 7am every day from Monday to Friday. This is the main entrance used by pupils. At the end of the school day the Whitecross Street and Fortune Park entrances are open to parents and families picking up children.

4.3.2. The mode share for walking to school is really high at 85% (including scooting) which is very positive from a health perspective and also because it means very few children are getting driven to school (2%). As a result, there are no noticeable issues from school drop-off traffic activity. This means that the emissions generated from this source are minimal and also there are no associated road safety issues, which is a common problem for many schools.

4.3.3. Pedestrian connectivity to the school is good, with direct walking routes from the north via Golden Lane and Whitecross Street, and from the east and west via Dufferin Street and Fann Street respectively. The area to the south of the school is less permeable, due to the large expanse of the Barbican buildings south of Beech Street. However, it was noted during the workshop that many pupils live within the Barbican itself and they are likely to access the school via the raised walkways , only needing to drop down to street level when they reach the north side of Beech Street onto Whitecross Street and Golden Lane.

4.3.4. As well as the Barbican, the Golden Lane Estate to the north-west of the school is where many of the pupils live. The estate is home to approximately 1,500 people.

4.3.5. The pedestrian amenity on the streets adjacent to Prior Weston School to the east, west and north are good. Footways are wide (3-4m), are relatively uncluttered and the surfacing is good. Crossing demand is well catered for with zebra crossings on Whitecross Street, Golden Lane, Fortune Street and also on Beech Street, near to the junction with Whitecross Street.

4.3.6. With the crossings being zebras, this means that dwell time is low so exposure to emissions is minimised. During the site walk, it was reported that some children tend to exit through the Fortune Park gate on Golden Lane straight onto the zebra crossing without looking, which is a road safety concern.

Wide, uncluttered footways outside the school

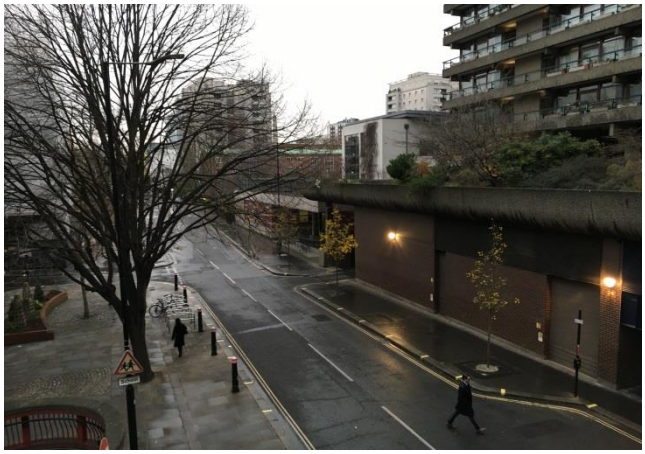
Fortune Park entrance to the school

4.3.7. The footways on Beech Street are relatively narrow (1.5m-2m) and are congested at peak times. As described below, pedestrians are heavily exposed to vehicle emissions within the covered section of Beech Street.

4.3.8. No staff members drive to school (there is no parking provision on site), and most get public transport so need to walk the last leg. 16% of staff cycle to work and cycle parking is provided outside the entrance on Golden Lane.

Greening

4.3.9. For such a dense city centre location, there are a lot of trees, planting and green space close to the school. Golden Lane has a number of street trees between the school and Beech Street. Fortune Park has an abundance of mature trees and planting. The only street immediately adjacent to the school without trees or planting is Whitecross Street. The raised decks that form part of the Barbican which face onto the school and Golden Lane also have planting and trees.



Golden Lane –street trees and greening at Barbican

Abundance of greening in Fortune Park

Traffic Movement

4.3.10. The volume of traffic on Whitecross Street is relatively low, with more vehicles using Golden Lane. This is a wider two-way road which provides more direct access to Old Street. Along the northern part of Whitecross Street a market operates daily from 11:30am-3:00pm. From anecdotal evidence, Golden Lane regularly experiences rat-running which is a consequence of congestion on the approach to the Old Street roundabout. Golden Lane has some construction traffic from local development projects. As well as additional emissions from rat-running, there may be speeding issues associated with this traffic. There is a school warning sign on Whitecross Street and on the northbound approach to the school on Golden Lane. However, there is no warning sign on the southbound approach on Golden Lane. This may lead to higher vehicle speeds.

4.3.11. The major source of traffic and localised emissions comes from Beech Street. It was reported at the audit workshop that this is a significant concern for many. Around 8000 vehicles a day on average use Beech Street, and a high proportion of the traffic is made up of higher polluting vehicles, mainly taxis and HGVs. The fact that it is a tunnel means that the emissions are not as easily dispersed. The average NO_2 levels on Beech Street in 2016 were over 80 µg/m3 (legal limit is 40 µg/m3).

4.3.12. An average of 700 pedestrians travel along Beech Street every hour so their exposure is very high. However, at the workshop it was mentioned that very few pupils use Beech Street to travel to school, therefore they are less affected by direct exposure to this high level of pollution.

4.3.13. On Golden Lane, the school is set back about 60m from Beech Street so there will be some dispersal of emissions. Also, the street trees on Golden Lane and planting (mostly evergreen) on the Barbican deck will help to block and absorb pollutants.

4.3.14. The Beech Street tunnel ends 50m before Whitecross Street. The 10-storey Barbican building blocks Beech Street from Prior Weston School between the end of the tunnel and Whitecross Street. The nursery playground on Whitecross Street is the closet point to Beech Street, at around 50m away. The proximity of the Barbican building to the school and the distance from the school to Beech Street minimises its direct exposure to the Beech Street emissions.

4.3.15. Whilst Beech Street is a major source of traffic emissions, it should be noted that the wider background emissions levels in the City of London are high and will also be a significant contributing factor to the poor air quality around Prior Weston Primary School.

Golden Lane – construction traffic

Beech Street is a major source of pollution

Parking, Deliveries and Servicing

4.3.16. The parking restrictions on Whitecross Street are No Loading Mon-Fri, 8:30-9:30am, 3-4pm. So this deters parking and traffic activity during the school start and finish times. Single yellow lines on Whitecross Street prevent stopping between 8:30am-6:30pm Mon-Fri. Staff on the audit noted that the restrictions are well adhered to.

4.3.17. There is daily parking and loading activity associated with the Whitecross Street market. There may be some issues with emissions from vehicles manoeuvring and idling. However, given the opening hours of the market, the overlap in this activity with the school start and finish times may be minimal.

4.3.18. The school has a small number of deliveries every week and these are made from the Barbican street level car park to the rear of the building. The school uses a community transport bus which uses this car park. Delivery drivers and bus drivers are made aware of the need to switch off their engines when stationary. There are two deliveries a day to the Barbican which are made from the rear car park close to the nursery playground. There are fewer deliveries now that the Exhibition Hall has been converted to a cinema. It was reported that there are no notable idling issues with these vehicles. Loading for the Waitrose supermarket takes place at the rear, away from Whitecross Street.

No Idling signs outside the school

4.3.19. There is an underground private car park for the Barbican's Ben Johnson House and Breton House off Golden Lane just south of Prior Weston School. There are around 150 bays and occupancy is relatively low at around 40%.

4.3.20. On Golden Lane opposite the school a residential development is underway. There is an agreement with the contractor that construction traffic can only start after 9:30am.


School community bus in car park at rear


School loading bays and delivery vehicles for Barbican

Summary – Key Issues

- Beech Street is a heavily trafficked road which has a high proportion of taxis and HGVs (which are high polluting vehicles). It is a major source of pollution, the impact of which is experienced to a degree around the school. This contributes to the relatively high level of background emissions in the area. However, the direct impact of the Beech Street emissions is minimised as the tunnel entrances are set back from the school. On Golden Lane, the space in between has some planting and trees on street and on the Barbican decks. The school is protected from the section of street between the tunnel entrance and Whitecross Street by the 10 storey Barbican building. The tunnel has narrow footways and provides poor amenity for pedestrians.
- Some rat-running reported on Golden Lane.
- Potentially some issues with emissions from Whitecross Street Market vehicles.
- Possible road safety issues from children exiting Fortune Street Park onto Golden Lane zebra crossing.

4.4 SCHOOL GROUNDS / BUILDING - KEY OBSERVATIONS

Heating and Ventilation

4.4.1. Prior Weston School was completely rebuilt and the new school site opened in 2008. The primary department, Children's Centre and Richard Cloudesley Special School are all housed within the same building.

4.4.2. The school has several playgrounds and open spaces, the main ones being the nursery children's playground at ground level facing the car park, the main first floor playground (and sports court) and the first floor playground facing Golden Lane. There are several planters and trees within the playgrounds which will help to block and absorb pollutants, particularly in the warmer months when all of the greenery is in leaf.

4.4.3. The school heating is powered by three gas boilers which are located within a single plant room. There is one large flue for all boilers. The boilers are 10 years old. They are maintained every 6 months and their condition is considered to be fair. There are no local heaters within the school.

4.4.4. The boiler flue comes up from the basement and terminates alongside the school perimeter wall alongside Whitecross Street within the north-east side playground. The flue is around 8ft above the playground level.

4.4.5. The school also has a hydro pool and the exhausts terminate close to those for the boiler alongside the perimeter wall. Next to these flues there are climbing holds which extend up to around 6 feet.

4.4.6. Within this playground there are three exhausts at around 3-5 feet high which come from the neighbouring property on Whitecross Street which contains flats.

4.4.7. During the site audit the school staff advised that this playground is rarely used. In the event that it does start to get used regularly, consideration should be given to whether children are being exposed to exhaust emissions from the neighbouring property. Also, observations should be made of whether vapour gets blown down in certain weather conditions from the hydro pool and boiler exhausts. This is particularly relevant if children are using the climbing holds.

4.4.8. Prior Weston Primary School is fully double glazed and these windows are not opened. The form of ventilation is from multiple air handling units and the school is air conditioned, which is used every day. This means that exposure to external emissions within the building is very low. The air intake is at roof level (so lower emissions) and the filters are changed regularly (every 6 months). The speed supply and extract is varied according to internal temperature.

Boiler flue in north-east playground

4.4.9. The water is heated from two gas boilers which have four burners each. The control system is based on a thermostat and timer.

4.4.10. From the site audit and information provided, the school appears to be well ventilated and heated, with the systems running efficiently. Exposure to external emissions is minimal.

Exhausts from adjacent property

Exhausts from hydro pool

Exposure in School Grounds

4.4.11. The nursery playground adjoins Whitecross Street and the Barbican car park. Set back from the car park perimeter wall (around 5ft high) there is a row of semi-mature silver birch trees. This type of tree is considered to be effective at trapping particulates, however it is less effective in the winter as they are deciduous. On top of the wall is a chain-link fence about 4ft high.

4.4.12. The other two sides adjoining the road/car park are separated by a high wall (about 8ft).

4.4.13. From the site audit it did not appear that vehicle movement in the car park, including the deliveries to the school and the Barbican, were creating a significant issue in terms of emissions. School staff reported that delivery drivers were informed about idling and respected this. However, if from current usage or potential increased future activity (e.g. from Barbican Cultural Mile development) it is felt that vehicle emissions are a problem then consideration should be given to introducing green screening along the chain-link fence. This will also provide privacy benefits from the Barbican properties and noise attenuation from the road and car park.

Silver Birch trees alongside nursery playground

4.4.14. Green screening can also be considered for the metal fencing around the first floor playground. This will block and absorb emissions from the nearby road and car park, as well as from general background pollution which is high in this area. Being on the first floor, the screening will provide even greater privacy benefits than for the nursery playground.

4.4.15. The playground facing Golden Lane is likely to have greater exposure issues than the other playgrounds given that traffic levels are higher and it is also closer to the central tunnel exit on

Beech Street. The playground is directly opposite the new Denizen residential development block. The developers have offered to fund and install a green screen around the playground perimeter fence. There have also been discussions between the School and the City of London about getting funding (£5k) to install a green screen around one of the playgrounds.

1st floor playground – potential for green screening

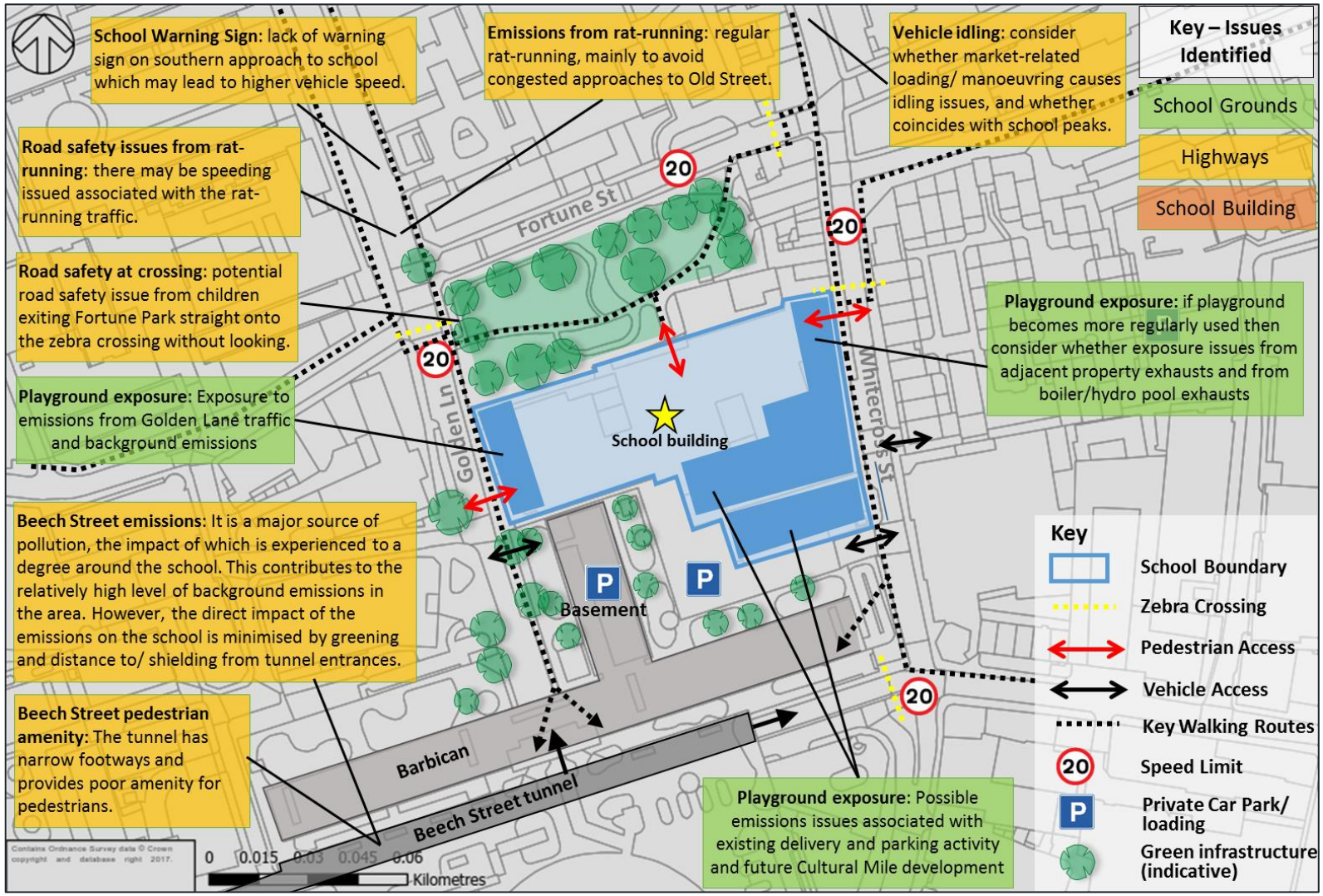
Golden Lane playground – potential for green screening

Summary – Key Issues

- Potential existing/ future exposure for playgrounds facing the Barbican car park (as well as privacy issues)
- Exposure for pupils using the Golden Lane playground (as well as privacy issues)
- Potential exposure from exhausts in north-east side first floor playground.

4.5 KEY OBSERVATIONS

Figure 8 – Summary Issue Map



Chapter 5 – Recommendations

5 RECOMMENDATIONS

5.1 DEVELOPING THE RECOMMENDATIONS

5.1.1. Based on the preceding desktop research, site audits and stakeholder feedback, a range of recommended measures and initiatives have been identified to deliver air quality improvements and reduced exposure to air pollution. The recommendations will not in themselves solve the air quality problem, but will each contribute directly or indirectly to helping improve the situation in and around the schools.

5.1.2. These recommendations are drawn from a comprehensive School Air Quality Audit Toolkit of Measures, researched and developed as part of the Mayor's Air Quality Audits project (see Appendix D for further details). The toolkit has been compiled from a review of best practice approaches and new technologies, including both well established and simple measures, and more innovative or harder hitting measures. The measures include both physical measures and softer behavioural measures.

5.1.3. The characteristics of the local area, school site and school building have then been accounted for in identifying and tailoring a suitable package of measures to address the issues identified in causing sources of pollution or exposure to air pollution. These recommendations have also sought to be cognisant of any relevant existing plans for the local and wider area around the school (see Section 3.2).

5.1.4. A key facet of this approach, and the palette of measures from which measures were identified, is that they represent a holistic approach, as promoted by the Healthy Streets approach, in seeking to address a broad range of factors which each influence how streets are used, how people travel and consequently how clean the air is in and around the school. As such whilst a number of measures are less directly related to air quality, they were felt to offer the potential for contribute indirectly, for example through creating a better and safer environment for travelling by sustainable modes.

5.1.5. Table 2 on the following page sets out the list of recommendations. For the purposes of this assessment they have been categorised as proposals associated with either Highways, school grounds or school building. In order to enable comparison of each measure, and to assist the school, borough and other stakeholders, in determining which measures to prioritise, each has been assessed against a series of key criteria:

- Potential Air Quality Improvement
  - Low – nominal measureable change but a tangible reduction in sources or exposure
  - Medium – a small measurable change in air quality
  - High – a large measureable improvement in air quality
- Wider Benefits
  - Such as improved safety, visual amenity, child health and welfare, improve learning environments, costs savings, promotion of sustainable transport, contributes to STARS or Healthy Schools London.
- Cost (Note these reflect the overall costs, but these may vary amongst difference stakeholders).
  - Low - <£10k
  - Medium - £10k-100k

- High - >100k

- Deliverability

- Quick Win – readily deliverable within 12 months
- Medium term – deliverable within 1-3 years
- Longer term – only deliverable in the longer term (i.e. over 3 years)

- Stakeholder Support

- Low – likely to be significant objections which could delay/prevent the scheme
- Medium – may be some objections and will require consultation but not significant delays
- High – likely to have strong support from key stakeholders

5.1.6. These are high level comparative analyses intended to offer a means of considering the recommendations against one another in relative terms. Further more detailed research and options development would be required to quantify these recommendations in greater detail, such as would be undertaken in a subsequent feasibility study. The implementation of the measures will be dependent on securing funding to enable delivery over time (see section 5.8), as well as undertaking feasibility assessments and scheme prioritisation.

Table 2 - Recommended measures for consideration

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
Highway (Key Stakeholder: Borough)																
1	Emissions from Barbican car park usage activity and idling	There are only two deliveries a day to the Barbican cinema which are made from the rear car park accessed off Whitecross Street (which borders Prior Weston Primary School). School deliveries are also made from this car park. It was reported that there are no notable idling issues. However, given that the car park is adjacent to the nursery playground and main playground, overall use and idling should be monitored through observations over time. This is particularly with regards to the planned changes to Beech Street and the Barbican as part of the Cultural Mile development.	Reduce sources of emissions	X			▪ Reduce noise	X			X					X
2	Rat-running on Golden Lane – emissions and road safety	Anecdotal evidence suggests that rat-running southbound along Golden Lane is regularly an issue with drivers taking an alternative route to avoid congestion on the approaches to Old Street. This should be monitored through surveys. Consideration should be given to whether the changes to the Old Street roundabout are likely to have a positive or negative impact on this situation. If rat-running is deemed to be a significant issue then consideration should be given to introducing access restrictions on Golden Lane. One option would be to introduce a point access restriction between Fann Lane and Fortune Street to allow northbound traffic only. This will still enable residents of the Golden Lane estate to travel south/east via Beech Street and will not hinder the southbound journey of bus route 812 along Golden Lane and Fortune Street. As well as increased emissions, the other issue with rat-running traffic is potential high	Reduce sources of emissions & exposure	X			▪ Road safety ▪ Visual amenity ▪ Awareness raising: visibility of school	X	X		X	X			X	

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
		vehicle speeds. There are no speed reducing measures currently on Golden Lane. The access restriction would provide a traffic calming measure. In addition, consideration could be given to raising the zebra crossing. With the traffic flow in the southern section of Golden Lane being much reduced the carriageway could be narrowed to one lane for a relatively short section (with one-way priority-working). This section could be raised to aid crossing movement and slow traffic. The additional width could be re-provisioned for more footway space and planting close to the school, to further soak up emissions coming from the Beech Street tunnel. As part of the Central Street Masterplan, Islington Council is looking to make improvements to Golden Lane. Therefore, the measures described above would need to be considered alongside these proposals. It was identified by staff/officers during the audit that there is a road safety issue due to children exiting Fortune Park straight on to the Golden Lane zebra crossing without looking. To mitigate against this, the entrance could be redesigned. An option for this is to set the railings back near the crossing to improve visibility. A short section of railing could be added opposite the crossing with gates either side. This will encourage more walking activity to school and improve road safety This measure does not directly reduce pollution or exposure and therefore is not added as a separate proposal. It is targeted more at improving road safety and as such would be subject to funding.															
3	Anti-idling and re-timing loading/ manoeuvring	Observations should be made regarding whether the loading and manoeuvring activity for the Whitecross Street Market is a notable source of emissions, and whether this	Reduce sources of emissions	X			▪ Road safety ▪ Reduce noise	X			X					X

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
	activity for Whitecross Street Market	coincides with the school peak travel times. If so, can the activity be retimed outside the school peaks and can idling activity be reduced? LB Islington already runs a successful anti-idling campaign across the borough. This campaign activity could include observations for the market and possibly an event to raise awareness of the issues with idling.														
4	School warning sign	Introduce a warning sign on the southbound approach to the school on Golden Lane. This will reduce vehicle speed and possibly deter unwanted parking and drop off activity around the school (albeit this is minimal). This measure is targeted more at improving road safety and as such would be subject to funding.	Reduce sources of emissions	X			▪ Road safety	X			X					X
5	Non-Road Mobile Machinery Audit	As part of the City Low Emission Neighbourhood, Construction & Non-Road Mobile Machinery Audits are being completed for construction sites within the LEN area to check compliance with GLA standards. Review whether this has been undertaken yet for the Denizen development. Ensure that this is completed for other construction sites within the area around the school, including after the current LEN funding programme ends in 2019.	Reduce sources of emissions	X			▪ Reduce noise ▪ Awareness raising	X			X					X
6	Support local and wider planning/ ongoing initiatives	The City of London is a heavily trafficked area and this is the main source of emissions around the school. There are many initiatives being undertaken or which are proposed by LB Islington, the City of London, TfL and others and whose primary aim is to improve air quality. Together, they are likely to significantly improve air quality around the school, so full support should be given to their implementation. The initiatives include: - Cultural Mile (with westbound traffic only on Beech Street)	Reduce sources of emissions & exposure	X	X	X	▪ Road safety ▪ Visual amenity ▪ Awareness raising ▪ Biodiversity ▪ Improve traffic flow ▪ Reduce noise	X	X	X	X	X	X	X	X	X

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
		- Roll-out of electric and hybrid buses - Requirements and incentives regarding Zero Emission Capable Taxis & Private Hire Vehicles - Ultra-Low Emission Zone - Smithfield Market redevelopment (will reduce HGV traffic) - City of London Low Emission Neighbourhood, including: • Ultra-Low Emission Vehicle street/s • Electric vehicle charging points City Fringe Low Emission Neighbourhood														
7	Healthy Streets approach, sustainable transport and roadspace reallocation from vehicular traffic	Promote the Mayor of London's Healthy Streets approach which aims to improve air quality, reduce congestion and help make London's diverse neighbourhoods greener, healthier and more attractive places to live, work, play and do business. Take a proactive role in endorsing the approach and supporting these initiatives.	Reduce sources and exposure			X	▪ Promotion of sustainable travel			X			X		X	
8	Control of Dust and Emissions during Construction and Demolition SPG	Introduce a requirement in planning conditions to manage dust and emissions associated with construction based on the Control of Dust and Emissions during Construction and Demolition SPG prepared by the GLA, which includes requirements for construction sites to monitor air quality and share the results with the borough council – https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and	Reduce sources of emissions	X				X			X				X	
9	Future planning conditions –	Future freight / construction vehicles associated with regeneration and development plans can be required to use only Euro 6 compliant vehicles and ULEVs as	Reduce sources of emissions	X			▪ Road safety ▪ Reduce noise	X			X				X	

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
	construction / freight traffic	they become available, with consolidation of trips and re-timing of deliveries to off-peak periods as part of planning permissions. Construction Logistics Plan (CLPs) guidance could ensure construction vehicles avoid school start / finishing times. The local area regularly experiences new development therefore it is important to be aware of these measures.														
School Grounds (Key Stakeholder: School/ Borough)																
10	Green screens	Green screens will be useful to block and soak up pollutants from traffic along Golden Lane, parking/servicing activity in the Barbican car park as well as background pollution in the area. The screening has additional benefits in terms of improving privacy, reducing noise and increasing biodiversity. Recent research has shown that green screening such as ivy can reduce exposure by over 20% - this is discussed in the Toolkit included in the main report for the School Air Quality Audit programme. The most effective types are generally those with a dense vegetation layer and a high leaf density, and/or waxy leaves (such as ivy). There are many precedents of green screening at primary schools in London, including Bowes Primary School (Enfield), Oxford Gardens School (Kensington & Chelsea) and Sir John Cass School (City of London). It should be noted that green screens need ongoing maintenance which has associated time/cost considerations which need to be borne in mind. Green screens can be introduced along the perimeter fencing of the playground facing Golden Lane, along the fencing for the nursery playground and 1st floor main playground facing the car park. The developer of the Denizen has offered to fund and install the screening along the Golden Lane playground.	Reduce exposure to emissions	X			▪ Visual amenity ▪ Security, privacy ▪ Biodiversity	X	X		X					X

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
		As part of their LEN programme, the City of London has offered £5k to match-fund the installation of screening. This could be for either of the other two playgrounds mentioned. It needs to be confirmed whether this funding source is still available. Match funding could potentially come from the Islington Sustainability Energy Partnership. This is a business partnership which can canvas funding opportunities from businesses in Islington.														
11	North-east side playground - flue exhaust extensions/ exclusion area	In the event that the north-east side playground starts to get used regularly, consideration should be given to whether children are being exposed to exhaust emissions from the neighbouring property. Also, observations should be made of whether vapour gets blown down in certain weather conditions from the hydro pool and boiler exhausts. This is particularly relevant if children are using the climbing holds. If exposure is an issue then consideration can be given to extending the exhausts higher, directing them away from the playground, or creating a zone around these to stop children from getting too close.	Reduce exposure to emissions	X				X			X					X
School Building (Key Stakeholder: School/ Borough)																
12	Air quality monitoring and information screen, Ecomonitors, and walking route maps	LB Islington has two TV screens linked to air quality monitors which are installed temporality in schools to provide real-time information on air quality and to provide information on ways to lower exposure. Parents can see this information at drop-off and pick-up time and it also raises awareness of pollution with pupils. The TVs can be linked to AirTEXT to provide wider London air pollution forecasts. A website is created for the TV display and this can be used by the school afterwards.	Awareness raising and behavioural measures	X			▪ Awareness raising	X			X					X

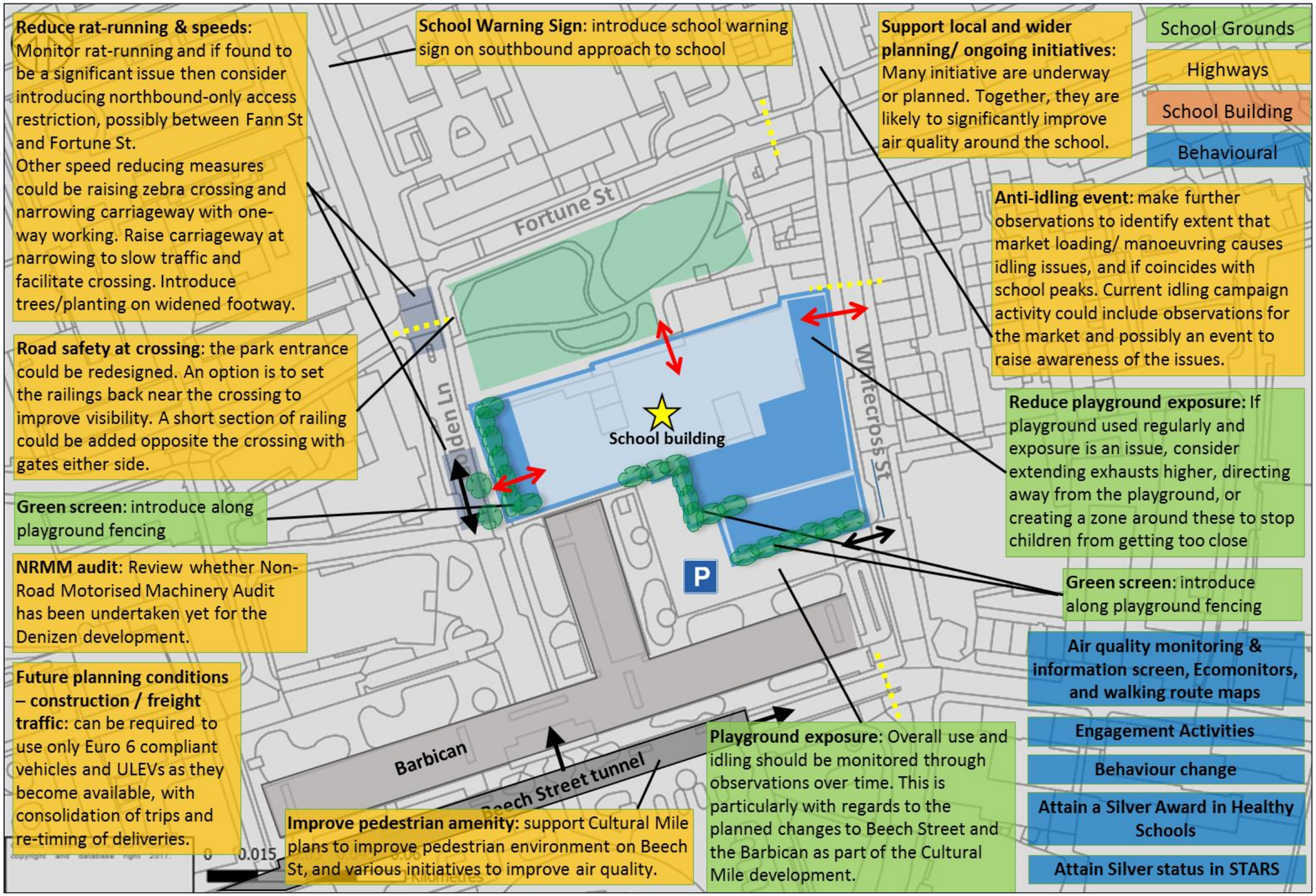
Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
		The screens are installed for one month then moved to the next school. We understand that Islington has now filled all the spaces for this project. However, the school should discuss with LB Islington if further funding can be provided to install a screen and monitors for Prior Weston Primary School. Installation of the screen and monitors can be used as a focus for other activities as well. These can include: - 'Ecomonitors' to report daily which cleaner air routes to take - Produce walking routes maps and related workshops. Children can be encouraged to approach the school via lower trafficked routes, minimising time walking on Beech Street, Old Street and the A1 by using alternative adjacent routes. The walking route maps and screens can contribute to help gain Silver STARS accreditation.														
Behavioural Measures (Key Stakeholder: School/ Borough)																
13	Engagement Activities	Deliver lesson plans with bespoke materials, poster and London school curriculum (see Appendix C), raising awareness of the issues and the type of measures that can have a positive impact on reducing poor air quality.	Awareness raising and behavioural measures	X			▪ Awareness raising ▪ Secure community buy-in for measures	X			X					X
14	Behaviour change	Prepare 'Welcome Packs' for new pupils / parents in multiple languages that includes the promotion of apps / sites such as 'www.walkit.com' to a) promote walking to / from school and b) promote the suitable walking routes to avoid air pollution hotspots.	Behavioural measures / reducing exposure to emissions.	X			▪ Awareness raising ▪ Secure community buy-in for measures	X			X					X
15	Attain a Silver Award in Healthy Schools	This will entail reviewing the school's practices in promoting health & wellbeing that must be evidenced (via a Review Tool). Once a silver award is achieved, the school should go on to ultimately strive for a Gold Award	Behavioural measures / reducing exposure to emissions.	X			▪ Awareness raising ▪ Promotion of sustainable transport	X			X	X				X

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
16	Attain Silver status in STARS	Attain silver status and strive for gold status beyond this. Doing this would entail achieving a range of measures promoting active travel and reduced emissions, also signposting additional initiatives and avenues of support. The framework also helps document and track progress, and implement recommendations. As mentioned earlier in the table, the walking route maps, TV screen, construction site compliance could count towards STARS progress and help the school attain the silver award. It should be noted that TfL funding comes up throughout the year for Silver or Gold STARS schools. It was noted at the audit workshop that LB Islington Ward improvement plan funding may also be available to improve school air quality-related measures. There was no commitment for funding at the time of the audit.	Behavioural measures / reducing exposure to emissions.	X			▪ Awareness raising ▪ Secure community buy-in for measures	X			X	X				X
Wider Measures (Key Stakeholder: Borough/ TfL/ GLA/ Central Government)																
17	Targeted scrappage scheme for polluting vehicles entering London	Engage with any future proposals or consultations regarding the introduction of a targeted scrappage scheme, aimed at more polluting vehicles recorded entering London regularly over an extended period, promoting a transition to ultra-low emission vehicles, in conjunction with measures to promote more sustainable transport.	Reduce sources and exposure			X				X			X	X		
18	Reform Vehicle Excise Duty	Lobby national government to reform Vehicle Excise Duty to reflect emissions of local pollutants as well as CO_2, and remove the ongoing incentivisation this lends to diesel vehicles.	Reduce sources and exposure			X			X				X	X		
19	Promote a transition to	Seek to promote the principles of 'an all-electric city', including reducing/eliminating	Reduce sources and exposure			X			X				X	X		

Measure		Description (reference scale)	Purpose	Potential Air Quality Improvement			Wider Benefits	Cost			Deliverability			Stakeholder Support		
				Low	Medium	High		Low	Medium	High	Quick Win	Medium Term	Long Term	Low	Medium	High
	electric heating and heat pumps	the use of gas in buildings, which city wide account for over 33% of emissions, by requiring or incentivising the use of electric heating/cooling via heat pumps in new buildings and major redevelopments.														
20	Reform Buildings Regulations to promote heat pumps	Support and promote dialogue at a national level concerning buildings regulations and how they're calculated to better account for local air quality issues as well as energy efficiency, and so promote wider deployment of technologies such as heat pumps.	Reduce sources and exposure		X				X				X	X		
21	Zero emission zones	Review the effectiveness of planned measures and develop an approach for introducing a zero emission zone in central London and town centres in the short to medium term, and larger inner London and London-wide zones in the longer term. To be developed in conjunction with other policies such as the creation of Liveable Neighbourhoods, reducing road danger and making more efficient use of the street network, including for freight and servicing. Any specific schemes would be subject to statutory consultation.	Reduce sources and exposure			X				X			X	X		

5.2 KEY RECOMMENDATIONS

Figure 9 – Summary Recommendations Map



5.3 PRIORITISED MEASURES FOR THE SCHOOL

5.3.1. To help prioritise what measures should be progressed for the school, borough officers and representatives of the school were asked:

'Based on the toolkit of measures and the findings of the observations and initial analysis, what are the top three measures you would prioritise for the school?'

5.3.2. The three measures identified as a priority were (in no particular order):

- Green screening
- Air quality monitoring and TV screen, and associated school engagement/classroom activities
- Minimise air quality impacts of Beech Street

5.3.3. It should be noted that there is really good awareness of air quality issues from staff and pupils at Prior Weston Primary School. The school has been pro-active in undertaking activities and engagement amongst the school community to improve air quality and promote travel by active modes. The number of children walking to school is really high at 85% (includes scooting) and travel to school by car is very low at 2%.

5.3.4. The school was recently re-built and as such appears to be well ventilated and heated, with the systems running efficiently. So exposure to external emissions is minimal.

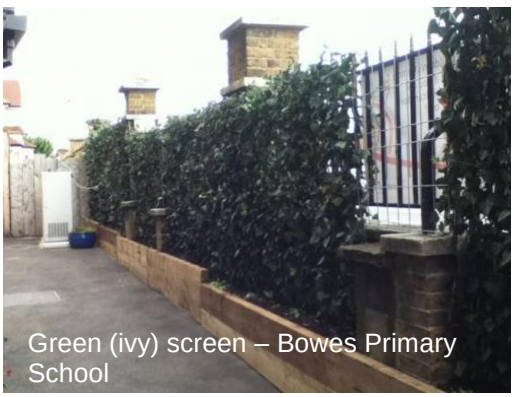
5.3.5. LB Islington is also pro-active in promoting and implementing measures to improve air quality, including being part of the London-wide behaviour change campaign 'Vehicle Idling Action', using monitors linked to TV screens at schools and helping to deliver improvements through the City Fringe Low Emission Neighbourhood. Also, the traffic management and parking restrictions on streets around the school minimises traffic-related issues and their associated emissions.

5.3.6. The issues which are common to many primary schools, such as prominent vehicle drop-off activity, poor pedestrian crossing provision, traffic queues on adjacent roads and a high volume of through traffic are not apparent around Prior Weston Primary School. Instead, the main issues with pollution largely relate to the major source of emissions from Beech Street traffic and relatively high background emissions from traffic and other sources across the wider area.

5.3.7. As discussed earlier, there are many ongoing and planned initiatives that will result in significant improvements in air quality in the area, including on Beech Street. With this in mind and noting that very few children use Beech Street to travel to Prior Weston Primary School, the third priority identified above has been replaced with the need to minimise rat-running on Golden Lane.

Green Screening

5.3.8. It was agreed that one of the key measures that should be progressed is the implementation of a green screen to better protect the playground facing Golden Lane and the nursery playground/ main playground on the 1st floor facing the Barbican car park.



Green (ivy) screen – Bowes Primary School

5.3.9. Kings College London has recently assessed the efficacy of green screens in preventing vehicle emissions from nearby roads reaching school grounds, through the installation of an ivy screen at Bowes Primary School in Enfield. In this instance the screen was found to be an

effective pollution barrier, once the ivy had started growing and a significant impact could be seen once the screen had matured. It led to a decrease in the pollution concentrations on the playground side by 24% for NO2 and 38% for PM10.

5.3.10. The developer of the Denizen has offered to fund and install the screening along the Golden Lane playground.

5.3.11. As part of their LEN programme, the City of London has offered £5k to match-fund the installation of screening. This could be for either of the other two playgrounds mentioned. It needs to be confirmed whether this funding source is still available. Match funding could potentially come from the Islington Sustainability Energy Partnership. This is a business partnership which can canvas funding opportunities from businesses in Islington.

Air quality monitoring and TV screen, and associated school activities

5.3.12. LB Islington has two TV screens linked to air quality monitors which are installed temporality in schools to provide real-time information on air quality and to provide information on ways to lower exposure.

5.3.13. Parents can see this information at drop-off and pick-up time and it also raises awareness of pollution with pupils. The TVs can be linked to AirTEXT to provide wider London air pollution forecasts. A website is created for the TV display and this can be used by the school afterwards.

5.3.14. The screens are installed for one month then moved to the next school. We understand that Islington has now filled all the spaces for this project. However, the school should discuss with LB Islington if further funding can be provided to install a screen and monitors for Prior Weston Primary School.

5.3.15. Installation of the screen and monitors can be used as a focus for other activities as well. These can include:

- ‘Ecomonitors’ to report daily which cleaner air routes to take
- Produce walking routes maps and related workshops. Children can be encouraged to approach the school via lower trafficked routes and minimise time walking on Beech Street, Old Street and the A1 by using alternative adjacent routes.

5.3.16. The walking route maps and screens can contribute to gaining Silver STARS accreditation.

Minimise Rat-Running on Golden Lane

5.3.17. Anecdotal evidence suggests that rat-running southbound along Golden Lane is regularly an issue with drivers taking an alternative route to avoid congestion on the approaches to Old Street. This should be monitored through surveys. Consideration should be given to whether the changes to the Old Street roundabout are likely to have a positive or negative impact on this situation. If rat-running is deemed to be a significant issue then consideration should be given to introducing access restrictions on Golden Lane.

Example of build out with planting & trees outside school in Walthamstowe

5.3.18. One option would be to introduce a point access restriction between Fann Lane and Fortune Street to allow northbound traffic only. This will still enable residents of the Golden Lane estate to travel south/east via Beech Street and will not hinder the southbound journey of bus route 812 along Golden Lane and Fortune Street.

5.3.19. As well as increased emissions, the other issue with rat-running traffic is potential high vehicle speeds. There are no speed reducing measures currently on Golden Lane. The access restriction would provide a traffic calming measure. In addition, consideration could be given to raising the zebra crossing. With the traffic flow in the southern section of Golden Lane being much reduced the carriageway could be narrowed to one lane for a relatively short section (with one-way priority-working). This section could be raised to aid crossing movement and slow traffic. The additional width could be re-provisioned for more footway space and planting close to the school, to further soak up emissions coming from the Beech Street tunnel.

5.3.20. As part of the Central Street Masterplan, Islington Council is looking to make improvements to Golden Lane. Therefore, the measures described above would need to be considered alongside these proposals.

5.4 STARS ACCREDITATION SCHEME FOR SCHOOLS

5.4.1. STARS is TfL's world leading school travel accreditation scheme, inspiring young Londoners to travel smarter and more sustainably, and should form the framework within which the behaviour change related components of the above recommendations are recorded.

5.4.2. Many of the recommendations would also serve to contribute towards the required 'travel activities' and 'support activities' required to attain Gold status – which should ultimately be the aim for the school.

5.4.3. Equally by embracing the STARS process, delivering sustainable travel activities, achieving modal shift targets and demonstrating effective community engagement, the school will have successfully delivered air quality improvements through reduced travel by cars. The framework of STARS enables the school and borough to document, track and share their continued progress, and embed and implement the recommendations throughout the school community.

5.4.4. Schools are encouraged to note any air quality related activity undertaken on their TfL STARS profile stars.tfl.gov.uk, and to help inspire other schools, they are required to tell their story for each activity they have delivered.

5.4.5. Table 3 outlines the requirements for achieving the Bronze, Silver and Gold accreditation. Prior Weston Primary School has Bronze accreditation.

Table 3 – STARS Scheme Accreditation Requirements

Bronze	Silver	Gold
– Complete 10 different 'travel activities' from the list of 80. Evidence is not required but it is recommended.	– Complete 20 different 'travel activities' from the list of 80. Evidence is required and must be submitted to the STARS website.	– Complete 25 different 'travel activities' from the list of 80. Evidence is required and must be submitted to the STARS website.

– Complete 6 different 'supporting activities' from the list of 40. Evidence is not required but it is recommended. – Complete a hands up survey (with a respondent rate of at least 90%) to get a baseline understanding of how pupils get to school – Set targets for a minimum of two modes	– Complete 10 different 'supporting activities' from the list of 40. Evidence is required and must be submitted to the STARS website. – Demonstrate that a shift away from the car has been achieved through hands up survey results – Record its staff travel patterns, through the same hands up survey method – Set up a School Travel Plan working group with student representatives – Present various bits of evidence of pupil, governor, staff and school council involvement (such as meeting minutes) – Conduct consultation with parents and show results of this – Carry out research and/or consultation	– Complete 15 different 'supporting activities' from the list of 40. Evidence is required and must be submitted to the STARS website. – Demonstrate that mode share has been shifted away from the car by at least 6%, or that 90% of travel is done by non-car modes – Demonstrate that the targets from the last academic year were achieved or exceeded – Demonstrate that residents and neighbours are aware of the school's plans to promote safer and more active travel – Demonstrate that the travel plan is an agenda item on at least one senior management meeting per year – Demonstrate that safe and active travel is part of the School Development Plan

5.4.6. Our recommended measures for the school include a number or initiatives that would also count towards gaining the Silver STARS scheme accreditation, including the walking route maps, TV screen and construction site compliance. STARS activity cards are available for these measures, as well as wide range of other topics https://stars.tfl.gov.uk/Explore/Idea.

5.5 HEALTHY SCHOOLS LONDON

5.5.1. The Healthy Schools London programme should also as framework for promoting sustainable transport measure that will contribute towards improved local air quality. To achieve the Healthy Schools London Bronze award, one of the criteria is that "*the school promotes active travel to and from school*", and provides a number of examples, including:

- By implementing a school travel plan and running active travel initiatives such as:
- walk/cycle to school days
- walkers/cyclers breakfast clubs
- cycling at break times
- pedestrian skills and cycle training

- active travel competitions
- accreditation programmes

5.5.2. The schools must complete the following statements:

- Active Travel is promoted by:
- School travel plan: Date awarded/reviewed
- Active travel initiatives including:

5.5.3. Our recommended measures for the school include a number or initiatives that would also count towards these criteria, including a variety of proposals to promote improved environments for walking, scooting and cycling, and initiatives to promote behaviour change and raise awareness of benefits of active travel.

5.6 AIR QUALITY ALERTS

5.6.1. When high and very high air pollution is forecast, air quality alerts are displayed at many public locations across London including 2,500 bus stop countdown signs and all Tube stations. Alerts and guidance are also available via social media, an app and a text alert service providing information and guidance on the alert level.

5.6.2. The Mayor has recently (January 2018) expanded his existing air quality alerts systems and appointed King's College London to continuously monitor air pollution using the existing air quality monitoring network and cutting-edge modelling tools, delivering alerts as required. They will also directly notify a wider group of stakeholders so that the alerts are disseminated more widely and targeted at Londoners who are most vulnerable to the impacts of poor air, including schools.

5.6.3. Each school has been provided with further information via email on what the alert means, and how to reduce pupils' personal exposure, and they can contact AirQualityLondon@london.gov.uk for more information.

5.7 ENGAGEMENT

5.7.1. Engagement activities to raise awareness of the issue of air quality amongst children and the school community are fundamental to achieving change.

MAYOR'S LONDON CURRICULUM PROGRAMME

5.7.2. The London Curriculum offers a wide range of high-quality teaching resources supporting most subjects on the national curriculum, CPD for teachers and events for children. Resources and activities are inspired by the city's diverse culture, heritage, science and technology, built environment, green spaces and rivers.

5.7.3. The Mayor of London's Air Quality Audits will be supported by a new programme of targeted activity delivered through the London Curriculum. The focus of the programme is to support teacher subject knowledge, and confidence to tackle air quality as a science subject recognising that this requires a

wide knowledge and skill base of science, statistics and mapping. Activities associated with the above is detailed in Appendix C, for delivery by the schools / London Curriculum during the spring and summer terms, and summarised below:

AUTUMN TERM

- WSP undertake school AQ audits
- London Curriculum engage with schools / school champion.
- By mid-October publish forward dates for spring term activity.
- Publish London.gov. web page which brings together the offer.

SPRING TERM – TEACHER FOCUSED ACTIVITY

- STEM Learning package of available cpd on air quality
- RGS primary school geography network meeting
- ESRI training on mapping software for schools
- GLA provides schools with results and recommendations from WSP's audits, including outputs to be used for lesson material to use in future projects / initiatives.

SUMMER TERM – PUPIL FOCUSED ACTIVITY

- Schools undertake project with pupils.
- National Clean Air Day June 2018.
- Support from IRIS/Science Learning Partnership/STEM Ambassador TBC.
- Schools recognition of air quality projects/celebration TBC.

HEALTHY EARLY YEARS LONDON (HEYL)

5.7.4. Building on the success of Healthy Schools London, Healthy Early Years London is an awards scheme funded by the Mayor of London that supports and recognises early years setting achievements in child health, wellbeing and school readiness. Healthy Early Years London focuses on the whole child and gives settings a framework for their activity with children, parents, carers and staff and the wider community. HEYL will help to reduce health inequalities by creating environments which support a healthy start to life and promote a whole setting and targeted approach across a number of themes including Sustainability-active travel and air quality.

5.7.5. HEYL complements and enhances the statutory Early Years Foundation Stage (EYFS) framework, providing further focus on children, families and staff health and wellbeing. There are 4 levels of Awards: HEYL First Steps, Bronze, Silver and Gold. HEYL can be used as an improvement tool to support practice in all Early Years settings including active travel:

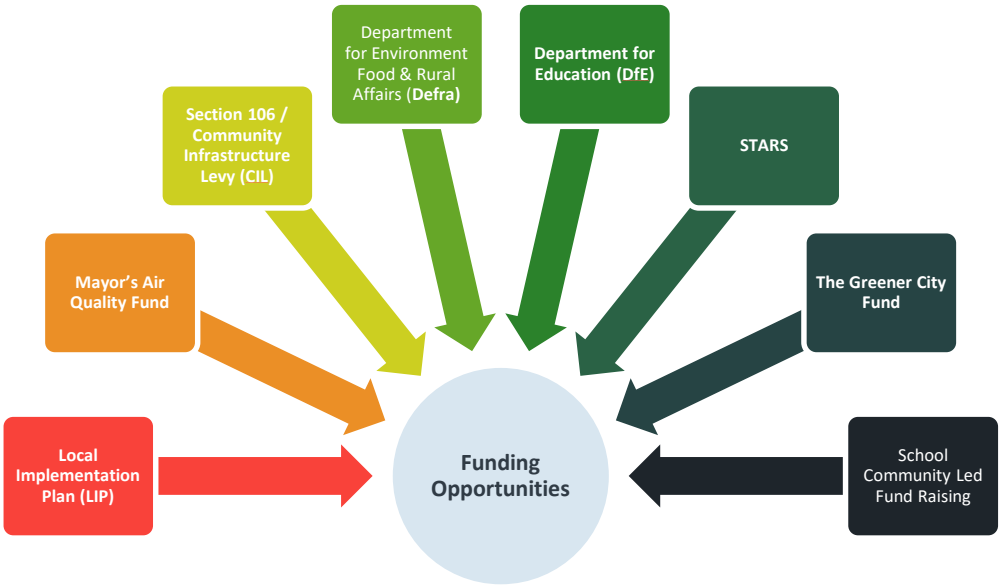
- Active travel is supported and encouraged, both for journeys to and from the setting and for trips (e.g. walking, scooting)
- The setting is signed up to receive air quality alerts from www.airtext.info/alerts
- There are activities and information available for parents and carers to support sustainability including: active travel, recycling or energy saving
- Practitioners are able to discuss and advise parents and carers on active travel

5.7.6. The full programme is due for official launch in spring 2018 which is intended to reach all 13,000+ settings and providers of childcare across London.

5.8 FUNDING OPPORTUNITIES

5.8.1. A wide range of potential funding sources are available and should be considered to progress some of the measures outlined above, as set out in the figure below.

Figure 10 – Summary of funding opportunities



5.8.2. Below, we discuss each of these in turn and set out the criteria associated with obtaining these funding opportunities, to enable the borough / schools to understand what measures they could progress with the funding opportunities that exists.

Local Implementation Plan (LIP)

5.8.3. A primary source of funding is linked to the Local Implementation Plan (LIP) 3 that will provide spending from April 2019 until April 2020, with bidding closing in October 2018. The guidance on bidding specifically references the need to improve air quality at schools:

> *'2.34 In the short- to medium-term, there must be a particular focus on action to reduce air, pollution, reducing exposure to it and tackling pollution hotspots, which boroughs should support through their LIP. Locations that have large numbers of vulnerable Londoners, such as schools, should be prioritised for action.* ***In particular, the boroughs have an important role in ensuring recommendations from the Mayor's school air quality audit programme are implemented, and LIP funding can be directed at both the audits and the delivery of measures****.'*

5.8.4. It is expected that recommendations from the audits can be implemented by the London boroughs using funding from TfL's Local Implementation Plan (LIP) funding stream, but this is subject to boroughs prioritising this area. It is ultimately at the discretion of the borough to follow this guidance and allocate money to fund the measures outlined above.

5.8.5. Whilst the Mayor has allocated funding for the first 50 audits, he expects the London boroughs to roll this out so that every school that is located in an area of high pollution can benefit from this approach. LIP funds are a source of funding for this, and guidance is being developed, alongside an audit toolkit and template, to be used locally to complete school air quality audits for other schools.

Mayor's Air Quality Fund (MAQF)

5.8.6. The MAQF is a £20 million fund, over ten years to support new projects by London boroughs to improve air quality. The first round of funding supported a wide range of projects, including: freight

consolidation, green walls, low emission vehicles, reducing pollution from construction sites and digital signage to reduce engine idling.

5.8.7. In summer 2018, the third round of MAQF funding will open for applications (for projects commencing in April 2019).

Section 106 / Community Infrastructure Levy (CIL)

5.8.8. Section 106 (S106) agreements and Community Infrastructure Levy (CIL) are potential sources of funding towards measures to address local air pollution.

5.8.9. S106 agreements, also known as planning obligations, are legal agreements made between local authorities and developers, and designed to address issues that new developments may cause or worsen on local infrastructure. The content of a S106 agreement is agreed during the consultation period of the planning application and the agreement is prepared by the council's solicitor.

5.8.10. A Community Infrastructure Levy (CIL) is a planning charge introduced by the government via the Planning Act 2008. It provides a means of ensuring that a new development contributes to the cost of the infrastructure that the development will rely on, such as schools and roads.

5.8.11. The levy applies to most new buildings and charges are based on the size and type of the floor space being created. The idea behind the CIL is that it's fairer, faster and more certain than the system of S106 planning obligations, which are negotiated on a case-by-case basis and that contributions can be sought in accordance with local policy objectives.

Liveable Neighbourhoods

5.8.12. A Liveable Neighbourhood scheme will deliver attractive, healthy and safe neighbourhoods for people and involves changes to improve conditions for walking and cycling and reducing traffic dominance – all of which can play a part in reducing air pollution. The types of measures that can be funded via this programme may include new pedestrian crossings, a network of good cycle routes, redesigned junctions, restrictions on motor traffic in town centres as well as wider improvements against each of the ten Healthy Streets Indicators.

5.8.13. The programme has a budget totalling £85.9m over the five financial years (2017/18 – 2021/22), excluding the funding for the remaining Major Schemes that will be completed during this period. Although costs will vary considerably from scheme to scheme, it is expected that TfL contributions for most schemes will fall within a range of £1m to £10m, with the majority probably under £5m.

Department for Environment Food & Rural Affairs (Defra) Air Quality Grant Scheme

5.8.14. Defra's air quality grant scheme provides funding to eligible local authorities to help improve air quality. The scheme helps local authorities to make air quality improvements and to meet their statutory duties under the Environment Act 1995. It has awarded over £52 million in funding to a variety of projects since it started in 1997.

5.8.15. It is noted that the applications for 2017 to 2018 has now passed (December 2017) but it is recommended that Local Authorities submit future applications to implement some of the measures outlined within this report. It is noted that LA's have previously successful applied for funding some behavioural / awareness raising measures. For example, the London borough of Islington was awarded £50,000 as part of a school focussed awareness and engagement campaign.

Department for Education (DfE)

5.8.16. There may be scope for delivering some of the measures identified through DfE funding for school buildings and land, including capital funding for schools and academies, such as the Condition Improvement Fund, Priority School Building Programme, Early Years Capital Fund.

5.8.17. Additionally, the Salix Energy Efficiency Loan Scheme provides funding for schools and colleges through DfE, to reduce energy costs through the installation of energy efficiency technologies. This funding would apply to measures designed to reduce emissions through improving building energy use – such as replacing an older boiler with a heat pump, or increasing building insulation. To receive funding a project would need to save energy as well as improve air quality, and energy savings would need to have a payback period of eight years or less. In addition, the project must not exceed a maximum cost of £200 per tonne of CO_2 saved.

Greener City Fund

5.8.18. The Mayor's Greener City Fund (www.london.gov.uk/greenercity) includes a range of programmes to create and improve green spaces and encourage tree planting in London. This is part of the Mayor's commitment to making a London a National Park City.

5.8.19. Two grant schemes, offering grants between £5,000 and £50,000 are open to applications from schools:

- Community Tree Planting Grants will support applicants to plant trees and help improve children's access to nature. This includes supporting tree planting in areas where there are currently low levels of tree cover, or where trees could help tackle issues such as air pollution. The next funding round will open in spring 2018 for projects to take place in the winter 2018/19.
- Community Green Space Grants aim to improve and increase green space across London, and can include greening playgrounds or routes to school, or natural play space for children. The next funding round will open in summer 2018 for projects to take place in 2019.

RE:FIT

5.8.20. RE:FIT London is jointly funded by the GLA and the European Union European Regional Development Fund, and is helping to achieve the Mayor's aim for London to be a zero carbon city by 2050. The programme is designed to help public sector organisations save carbon, energy and money by retrofitting buildings to make them more energy efficient, from simple measures like lighting and controls to solar panels. Since it was established in 2009 the programme has not only reduced carbon emissions, but also resulted in large guaranteed energy savings (typically around 15-25%).

5.8.21. The RE:FIT London Programme Delivery Unit is an expert team which provides free end to end support to deliver projects.

5.8.22. The RE:FIT framework of energy service companies saves time and resources for organisations that are procuring retrofit services and works and – because it is an energy performance contracting framework - guarantees energy and cost savings. Schools in particular benefit from being able to procure through this framework via a fast-track route. Further information is available at www.london.gov.uk/refit

TfL STARS Reward Scheme

5.8.23. Whilst there is no specific funding attached to STARS, as gaining STARS accreditation helps boroughs to achieve their targets for reducing school related car travel, and increasing cycling and walking, they often choose to link it to incentives – such as local grant funding through their LIP programmes and priority access to other opportunities.

5.8.24. It is important for boroughs to highlight that a possible benefit of getting STARS Accreditation is that it will potentially enable them to access funding for a variety of measures that contribute towards improving air quality and health. In broad terms, funding can be secured if the proposed measure:

- Promotes one aspect of safer and smarter travel choices (walking, cycling, scooting, safer / smarter driving, public transport and road safety).
- Helps the school reduce congestion (and pollution) in the vicinity of the school.

5.8.25. Ideas include, but are not limited to:

- Training – pedestrian skills, scooter safety, balance bike, cycling
- Cycling – storage, helmets, pool bikes, bike market, Dr Bike
- Resources – sustainable travel and road safety books, reflective and fluorescent products
- Staffing – supply cover to allow STP staff training and workshop attendance.

5.8.26. It is increasingly important that boroughs seek to create a portfolio of funding opportunities, and with that in mind other potential funding sources include:

- **Local Clinical Commissioning Groups.(CCG)** - https://www.nhscc.org/ccgs/
- **Health and Wellbeing Boards:** https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215261/dh_131733.pdf
- **Charitable Trusts**
- **Local business funding**
- **Consortium approach** – pooling funding with other boroughs and achieve economies of scale

Other Funding Sources

5.8.27. There are several grant funding bodies who may be interested in funding recommendations particularly if a borough links up with a community organisation - https://www.dsc.org.uk/category/fundraising/funding-sources/

5.8.28. Boroughs could also seek to influence the Joint Strategic Needs Assessment process undertaken by Health and Well Being Boards and Directors of Public Health. This is the process which looks at local clinical, health and well -being population needs, and on which CCGs base their funding priorities.

Other sources of funding for green infrastructure

5.8.29. Potential sources of funding for green infrastructure in schools include:

- The Tree Council's **Trees for Schools** programme offers grants between £100 and £700 to fund tree planting www.treecouncil.org.uk/grants/trees-for-schools
- The **Woodland Trust** offers free trees for schools www.woodlandtrust.org.uk/get-involved/schools/trees-for-schools/
- The **Gregg's Foundation Environmental Grants** offer up to £2,000 for projects that improve the physical environment in a way that will improve people's lives, including in schools where the project is accessible to the wider community www.greggsfoundation.org.uk/environmental-grant
- **Tesco Bags of Help** offer up to £4,000 to a wide range of projects, including environmental improvements to school grounds www.groundwork.org.uk/Sites/tescocommunityscheme
- **The Big Lottery Fund's Awards for All programme** offers up to £10,000 for a wide range of projects that "improve the places and spaces that matter to communities", including schools www.biglotteryfund.org.uk
- **Learning Through Landscapes Nature Grants Scheme** –grants will re-open in Spring 2018 www.ltl.org.uk/naturegrants
- **Trees for Cities** – are a charity able to match-fund the remaining shortfall after the financial contribution towards the project from the land owner. Their most notable schools programme is the Edible Playgrounds programme, which includes the design and creation of an edible teaching garden space within school grounds. Their other programmes include School Greening projects (mini forest style spaces, wildlife areas, biodiversity features) and Trees for Schools, a programme funded by Defra and delivered in partnership with the Woodland Trust. https://treesforcities.org/projects/schools/
- **Groundwork London** – are an environmental regeneration charity specialising in community based green interventions and behaviour change, with a team of Landscape Architects and community officers who can support schools in designing and implementing green interventions, supporting the curriculum and taking a 'whole school' approach to understanding air quality. They also manage programmes that could offer funding for schools in considering their interventions, and fundraising support. Contact londonairquality@groundwork.org.uk, www.groundwork.org.uk/london

School Community Led Fund Raising Initiatives

5.8.30. As well as the specific funding opportunities outlined above, there is an important role for the School, Ward Councillors, the Parent's Teachers Association (PTA) and School Governors, both in a lobbying and leadership capacity, and as vehicles for fundraising to support and promote particular measures and initiatives.

5.9 MONITORING

5.9.1. An important outcome of the school air quality audits will be in assessing the effectiveness of different schemes and initiatives implemented, so that the findings can be used to continually update and refine the toolkit of measures for use in future audits.

5.9.2. Whilst it will likely prove difficult to disaggregate the impact of a range of measures when implemented simultaneously, by recording this information across all participating schools in London, and pooling the findings, it will provide some useful overall insights into what types of solutions work best in practice amongst a given set of conditions.

5.9.3. In order to undertake these assessments and build on the existing evidence available, it will be essential to establish an effective baseline dataset, and plan a programme of monitoring post implementation of any measures. This monitoring may include a wide range of metrics including

surveys, traffic information, and air quality monitoring. The scope for monitoring should be proportionate to the extent of the problem and the scale of the investment.

5.9.4. Where possible such monitoring should cover:

- Key pollutants (NO_x, PM_{10}, $PM_{2.5}$), and/or
- a range of other suitable metrics (i.e. travel to school mode shares, STARS and Healthy Schools accreditations, traffic counts (as a proxy for road transport emissions), school buildings and boiler conditions, surveys and behavioural responses of parents/staff).

5.9.5. The Mayor recently announced the trial of new air quality monitoring sensors in hundreds of hot spots across London, including schools, as well as fleet of mobile sensors, which if successful may be used to monitor localised air quality around the school, in addition to the network of existing monitors when already located near the school.

5.9.6. The GLA will be seeking to maintain the dialogue with boroughs, and to facilitate the sharing of findings and experiences as different measures and initiatives are implemented following the audits. This will enable an assessment of their effectiveness in reducing sources of, or exposure to, local air pollution. It is envisaged this will take place 6-12 months after the audit programme is concluded.

Chapter 6 – Next Steps

6 NEXT STEPS

6.1.1. Based on our experiences in undertaking the audit, we found there to be a passionate group of individuals representing both the school and the borough council, who were eager to make a difference, and enthusiastic about delivering a range of solutions to improve local air quality for the children, and the wider community as a whole.

6.1.2. The borough and key stakeholders should investigate the scope for rapidly delivering key measures from the recommendations, in order achieve a combination of quick win improvements for the school, but also thinking more holistically about how some of the medium to longer term recommendations can be progressed, to deliver transformational change, to the lasting benefit of future generations.'

6.1.3. By participating in this audit the following steps have been completed:

- Identified the sources of outdoor air quality and potential exposure by primary school children.
- Engaged school communities, including in a review of their TfL STARS travel plan, educating stakeholders about the impacts of air pollution and providing recommendations on activities, initiatives and policies that the primary school could implement to further reduce emissions and/or exposure.
- Engaged with the borough to inform the feasibility of the proposed recommendations.
- Recommendations for the boroughs consideration and future implementation.

6.1.4. In order to take forwards the recommendations identified within this report, the borough council will need to continue to work closely with the school and local community, building on the relationships already in place.

6.1.5. A wide range of potential funding sources are identified within the report, and borough councils and schools are encouraged to apply for these where appropriate to maximise the potential for delivering the recommendations.

6.1.6. The School and wider school community, including School Governors, have an important leadership role in ensuring that measures to reduce exposure and emissions are included in the school's strategic plan.

6.1.7. STARS is an ongoing process, and the school should continue working towards the targets they have set, and continue adding to their air quality related activities, and uploading evidence to contribute towards achieving and sustaining higher levels of accreditation.

6.1.8. An important outcome from this project will be to build on our knowledge of how effective different measures prove to be over time, so that the findings can be used to continually update and refine the toolkit of measures for use in future audits.

6.1.9. We also hope that the borough and school will come together as part of a wider School Air Quality forum, to share their experiences with other boroughs and schools facing similar challenges.

6.1.10. A wide range of guidance and useful literature is available to support further studies, schemes or initiatives with the aim of improving local air quality:

- **GLA** – Local Authorities and Air Quality – A summary of action taken by London boroughs to improve air quality - https://www.london.gov.uk/sites/default/files/borough_air_quality_report_2017_final_2.pdf
- **GLA** – Updated Analysis of Air Pollution Exposure in London https://www.london.gov.uk/sites/default/files/aether_updated_london_air_pollution_exposure_final_20-2-17.pdf
- **British Lung Foundation** - Air Pollution Guidance for School Staff (https://neu.org.uk/system/files_force/publication-files/NEU%20BHF%20air%20pollution%20guidance%20FINAL.PDF?download=1
- **DfE** - Guidelines on ventilation, thermal comfort, and indoor air quality in schools
- **Better Places for People** (World Green Building Council) – Indoor Air Quality at School

Appendix A – The Mayor’s commitment to improving air quality: Key Documents

The Mayor's commitment to improving air quality: Key Documents

The Mayor is implementing a significant programme of measures to reduce London's deadly air pollution and protect the health and wellbeing of all Londoners, enshrined within the following key documents:

- **The London Environment Strategy** – a bold and ambitious strategy, with a particular focus on air quality. This is the first strategy to bring together approaches to every aspect of London's environment, including: air quality, green infrastructure, climate change mitigation and energy, waste, adapting to climate change and ambient noise. https://www.london.gov.uk/sites/default/files/london_environment_strategy-_draft_for_public_consultation.pdf

- **The Draft London Plan -** published in November 2017, places a considerable emphasis on air quality, with policy S|1 stating that London's air quality should be significantly improved, and exposure to poor air quality, especially for vulnerable people, should be reduced. https://www.london.gov.uk/what-we-do/planning/london-plan

- **The Mayor's Transport Strategy 2018 -** The Mayor has set out ambitious plans to improve transport in London over the next 25 years in his draft Transport Strategy. It includes record investment in new and improved rail, tube and bus services, an unprecedented focus on walking and cycling, and a commitment to make the entire transport system zero-emission by 2050. https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf

- **Expanding the Ultra Low Emission Zone (ULEZ) and tightening the Low Emission Zone (LEZ)** https://consultations.tfl.gov.uk/environment/air-quality-consultation-phase-3b/user_uploads/suporting-information-document-updated-12.12.17.pdf

A wide range of further information, guidance, funding and useful literature is available to support further studies, schemes or initiatives with the aim of improving local air quality, including, but not limited to:

- **Local Authorities and Air Quality** – A summary by the GLA of action taken by London boroughs to improve air quality - https://www.london.gov.uk/sites/default/files/borough_air_quality_report_2017_final_2.pdf
- **Updated Analysis of Air Pollution Exposure in London** – GLA https://www.london.gov.uk/sites/default/files/aether_updated_london_air_pollution_exposure_final_20-2-17.pdf
- **British Lung Foundation** - Air Pollution Guidance for School Staff (https://neu.org.uk/system/files_force/publication-files/NEU%20BHF%20air%20pollution%20guidance%20FINAL.PDF?download=1
- **Guidelines on ventilation, thermal comfort, and indoor air quality in schools** – DfE - https://www.gov.uk/government/consultations/ventilation-thermal-comfort-and-indoor-air-quality-in-schools
- **Better Places for People** (World Green Building Council) – Indoor Air Quality at Schools - http://www.worldgbc.org/sites/default/files/Better%20Places%20for%20People%20-%20Schools%20Briefing%20Notes%20-IAQ.pdf
- **Air quality alerts** - Each school has been provided with further information via email on what the alert means, and how to reduce pupils' personal exposure AirQualityLondon@london.gov.uk
- **Control of Dust and Emissions during Construction and Demolition SPG** prepared by the GLA, which includes requirements for construction sites to monitor air quality and share the results with the borough – https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and
- **The Mayor's Greener City Fund** - www.london.gov.uk/greenercity
- **RE:FIT London** - jointly funded by the GLA and the European Union European Regional Development Fund, and helping to achieve the Mayor's aim for London to be a zero carbon city by 2050 as part of the Mayor's £34m Energy for Londoners programme. The programme is designed to help public sector organisations save carbon, energy and money by retrofitting buildings to make them more energy efficient. The RE:FIT framework of energy service companies saves time and resources procuring retrofit services and works. Schools in particular benefit from being able to procure through this framework via a fast-track route. Further information is available at www.london.gov.uk/refit

Appendix B – Audit Template

SCHOOL AIR QUALITY AUDIT TEMPLATE

School Name:

Address:

Key Telephone Contact:

Key Email Contact:

Head Teacher:

School Staff (name/role):

School Staff (name/role):

School Staff (name/role):

Borough Name:

Sub-region:

Borough AQ Officer:

Borough TP Officer:

Borough School Transport Officer:

WSP Auditor/s:

Audit Date:

Audit Time:

Weather Conditions:

Any exceptional circumstances:

Notable Events/ Traffic incidents:

Background Information

1. Pupil Numbers:

2. Building Description

3. School Building Age
    a. Any extensions (building age)
    b. Any planned growth?
    c. BREEAM rating (if available)

4. Mode share and trip numbers, recent trends
    a. Walk
    b. Cycle
    c. Public Transport
    d. Car
    e. Other

5. STARS status:

6. Local Area Type
    a. City Centre b. Major Centre c. Metropolitan Centre
    d. Suburban e. Residential

7. Road Type
    a. TLRN Road
    b. Main Road
    c. Near Main Road
    d. Residential Street
    e. Cul-de-sac

8. Street Type (Movement/Place)

9. Proximity to Road

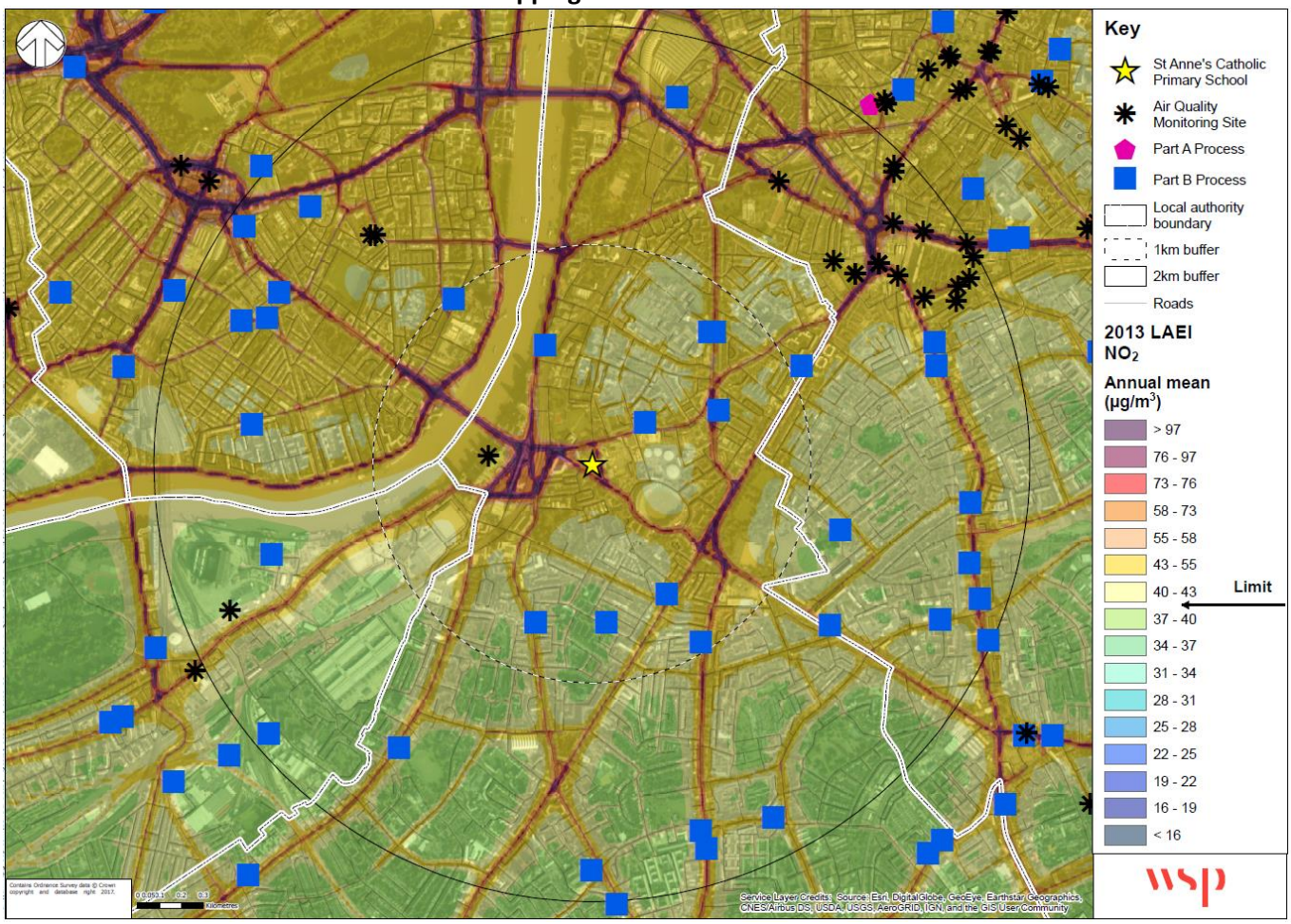
Distance to largest adjacent road (m):

10. Context Notes from School/Borough:

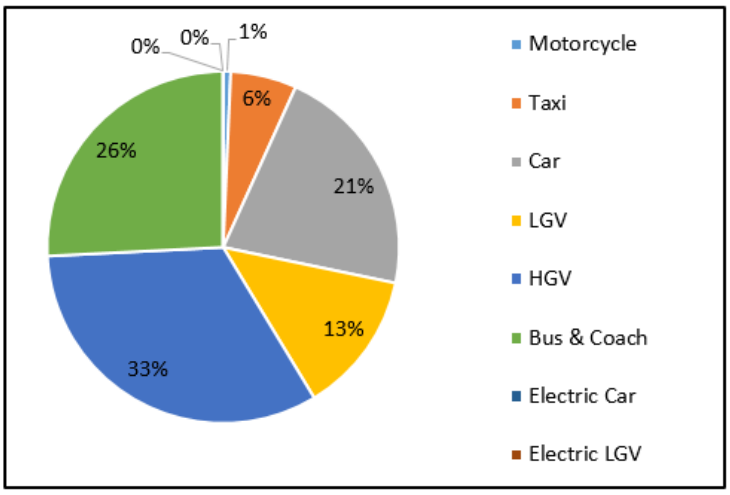
GREATER LONDON AUTHORITY Transport for London WSP

AIR QUALITY MODELLING RESULTS

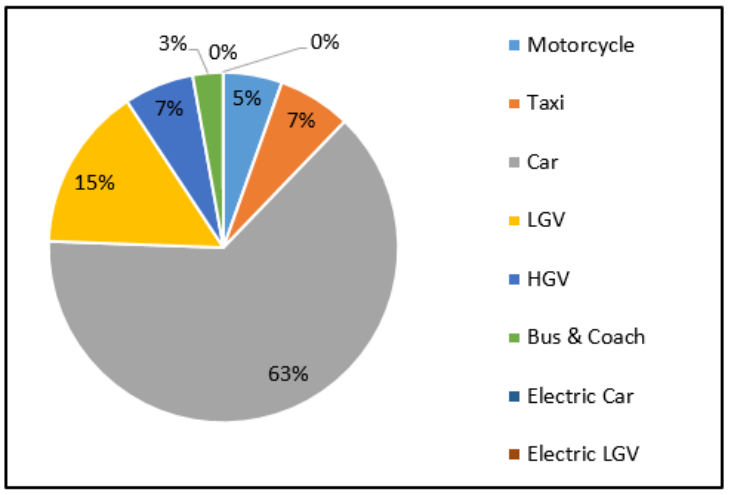
NO2 Mapping



Road Transport Emissions – Split by Source Sector



Road Transport Volumes (Split by Type)



GREATER LONDON AUTHORITY

Transport for London

wsp

SCHOOL GROUNDS AUDIT CHECKLIST

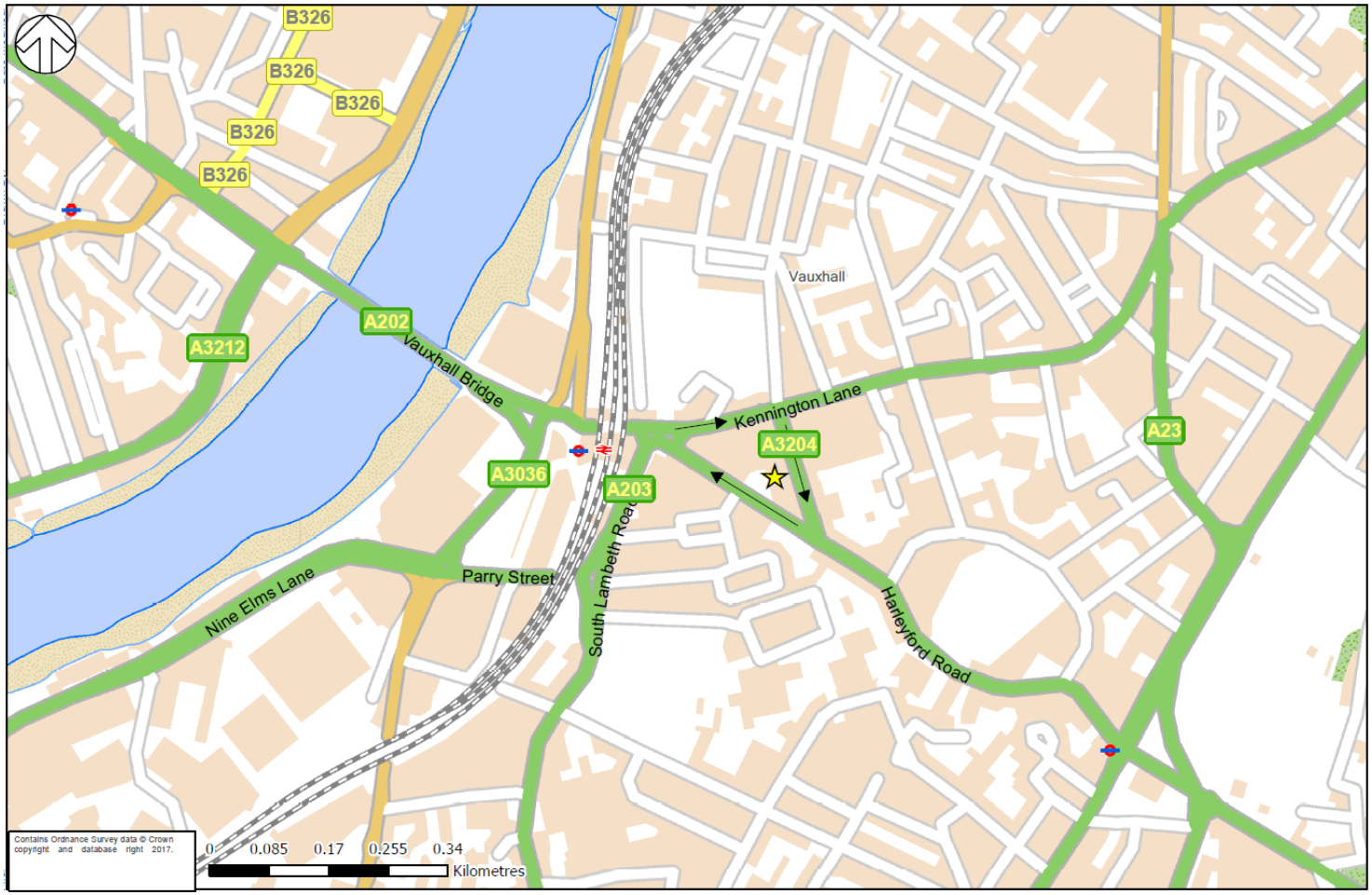
1) Work through checklist - Label each observation/issue with applicable letter (A, B, C)
2) Add number prefix if multiple (A1, A2)
3) Verify context plan – i.e. bus stop, tube station locations

School Grounds Checklist			
A	Vehicle access & egresses	S	School Visitor parking
B	Pedestrian access & egresses	T	School Staff parking
C	Key walking routes and pedestrian environment quality	U	School Vehicles (i.e. Minibus)
D	Pedestrian crossings/ School crossing patrols	V	Other Parking
E	Configuration and use of school outdoor space	Y	Cycling environment quality
J	Pick-up/ drop off activity	Z	Extent of Trees/ Shrubs/ Green barriers
K	Idling activity	*	Emissions from on-site energy generating plant
L	Road safety	+	Localised industrial sources
P	Enforcement	!	Construction activity
R	Delivery/ Servicing/ waste collection activity	#	Street canyons

SCHOOL GROUNDS OBSERVATION NOTES	**Source** (i.e. factors influencing output of harmful emissions)	**Exposure** (i.e. factors influencing movement of children through an area, or waiting in an area)	**Feedback Notes** (i.e. from consultations, during observations/brainstorming session)

SCHOOL APPROACHES AUDIT CHECKLIST

1) Work through checklist - Label each observation/issue with applicable letter (A, B, C)
2) Add number prefix if multiple (A1, A2)
3) Verify context plan – i.e. bus stop, tube station locations



School Approaches Checklist

C	Key walking routes and pedestrian environment quality
D	Pedestrian crossings/ School crossing patrols
F	Other pedestrian waiting spaces
G	Traffic volumes, flow and composition
H	Congested junctions
I	Road widths, speed limit and traffic calming measures
J	Pick-up/ drop off activity
K	Idling activity
L	Road safety
M	Road access restrictions
N	School Keep Clear hatching
O	Waiting and Loading restrictions
P	Enforcement
Q	Bus stops/ Coach stops
R	Delivery/ Servicing/ waste collection activity
S	School Visitor parking
T	School Staff parking
U	School Vehicles (i.e. Minibus)
V	Other Parking
W	On-street parking restrictions
X	Key nearby attractors/ traffic generators
Y	Cycling environment quality
Z	Extent of Trees/ Shrubs/ Green barriers
*	Emissions from off-site energy generating plant
+	Localised industrial sources
!	Construction activity
#	Street canyons

SCHOOL APPROACHES OBSERVATION NOTES	**Source** (i.e. factors influencing output of harmful emissions)	**Exposure** (i.e. factors influencing movement of children through an area, or waiting in an area)	**Feedback Notes** (i.e. from consultations, during observations/brainstorming session)

EXTERNAL CHECKLIST FACTORS – GUIDANCE FOR AUDITORS

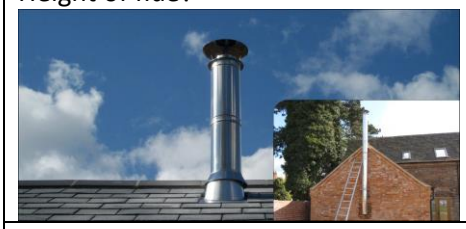
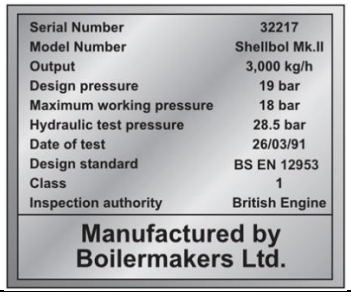
Checklist Factors		Description	School Grounds	School Approaches
A	Vehicle access & egresses	Level of activity (indic % of total movements)	x	
B	Pedestrian access & egresses	Level of activity (indic % of total movements)	x	
C	Key walking routes and pedestrian environment quality	Pedestrian Desire lines catered for? Footway widths (distance of peds from carriageway). Barriers/ obstacles to walking? Lighting? Public realm quality? Pedestrians from all walks of life? Shade and shelter? Places to stop and rest? Not too noisy? People feel safe? Things to see and do? People feel relaxed?	x	x
D	Pedestrian crossings/ School crossing patrols	Proximity to emissions sources? Safety. Convenience. Routed over crossing in proximity to traffic emissions? Wait time? Maintenance condition? Personal safety? Accessibility?	x	x
E	Configuration and use of school outdoor space	Playgrounds, outdoor spaces. Proximity to emissions sources, particularly where children are exposed for longer durations. Where do children spend time outside, during breaks, PE, queuing, off-site? Differ by age groups?	x	
F	Other pedestrian waiting spaces	i.e. outside the school gates, other areas children/parents wait		x
G	Traffic volumes, flow and composition	HGVs? LGVs? Taxis? ULEVs? Nature of flow – speed, stop-start?		x
H	Congested junctions	Congested - resulting in queuing vehicles, stop-start traffic and additional emissions?		x
I	Road widths, speed limit and traffic calming measures	Conducive to speeding, long crossing distances? Hostile/ unsafe?		x
J	Pick-up/ drop off activity	Drop off location/ activity	x	x
K	Idling activity	Where do vehicles idle, type, approx age, time, duration	x	x
L	Road safety	Illegal or undesirable manoeuvring, pedestrian accident data	x	x
M	Road access restrictions	Pedestrian Zones? No Motor Vehicles? Time based access restrictions?		x
N	School Keep Clear hatching	Where? Observed/ enforced?		x
O	Waiting /Loading restrictions	Single, double yellow lines? Kerb blips? Signage		x
P	Enforcement	How well are restrictions obeyed/ enforced?		x
Q	Bus stops/ Coach stops	Where do vehicles stop, type, approx age, time, duration? Which are used by children, where do children wait?		x
R	Delivery/ Servicing/ waste collection activity	Delivery to school or other site? Vehicle types, routing, timings, goods, locations	x	x
S	School Visitor parking	Where, how many, vehicle mix, active during visit	x	x
T	School Staff parking	Where, how many, vehicle mix, active during visit	x	x
U	School Vehicles (i.e. Minibus)	Where, how many, vehicle mix, active during visit	x	x
V	Other Parking	Nearby Resident/ P+D/ Business. Parking On-street/ off-street? Utilisation? Activity?	x	x
W	On-street parking restrictions	Resident Permit holder only? Business Permit holder? P+D? Unrestricted?		x
X	Key nearby attractors/ traffic generators	i.e. employment, supermarkets, shops, stations		x
Y	Cycling environment quality	Cycle parking? Evidence of demand? Cycle friendly/hostile? Cycle routes?	x	x
Z	Extent of Trees/ Shrubs/ Green barriers	Presence of planting and screening from roads	x	x
*	Emissions from on-site/ off-site energy generating plant	Gas-fired boilers and CHP Units	x	x
+	Localised industrial sources	Look out for additional part B sources not mapped – i.e. Dry cleaners, takeaway's etc. Car garages – painting cars	x	X
!	Construction activity	Are there any construction sites? Construction traffic routing? Visible dust? Visible dust suppression/monitoring in place?	x	x
#	Street canyons	Where building height on both sides of the road is greater than road width	x	x

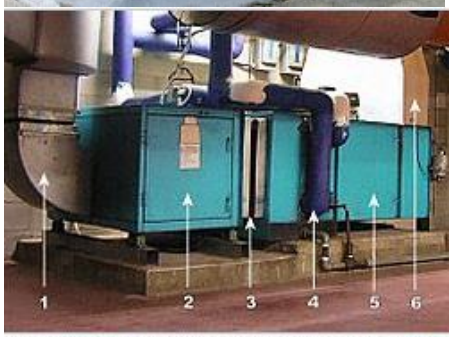
SCHOOL BUILDING AUDIT CHECKLIST

Mark on plant room (i.e. Boiler Room).

Internal Layout	
Layout of building – class rooms and other rooms and exposure to emissions sources	Mark onto map – classrooms/assembly hall/staff room i.e. you could have store rooms or staff offices nearer the roads rather than classrooms. Class room windows fronting onto main road?

Heating	
Heat source type	e.g. gas boiler, heat pump, biomass boiler (wood fired, pellet fired, bio-diesel). Back up diesel generator?
Number	e.g. 3
Heating only or heating & hot water?	
Central or Distributed	i.e. single plant room or smaller local boilers
If central, common flue	i.e. do all the boilers run into a single large flue, or multiple small flues

Height of flue? 	Take a picture Short - <1m (i.e. similar to domestic boiler length of flue) Medium – 1m to 2m (small to medium commercial boiler size of flue) Tall – >3m (for larger boilers)
Boiler age	
Boiler manufacturer	
Boiler model	
Boiler Rating (kW output)	
Insert picture of rating plate  	Take a picture – includes info on boiler age, manufacturer, model, rating.
Boiler condition	(fair, poor, excellent etc.)
Supply fan? Variable speed?	(Sending air into boiler)
Boiler control system	Advanced (digital, PC) or manual?
Air Conditioning?	If so is it used – at what times of year and how frequently?
Local Heaters?	Standalone heaters around the school?
Are these used?	(e.g. in sports hall)
If yes, what kind?	Convection (warm air blower), radiant?
Fuel source	Gas or electric
Flue system	I.e. flue to outside building?
Control system	Simple, or advanced (e.g. tied to PC)
Maintenance Regularity	

Ventilation	
Form	i.e. centralised (air handling units), passive (windows)
If windows then	Do any of the classroom windows which are regularly opened for ventilation or cooling purposes, front onto pollution sources (i.e. main roads)?
If centralised system then	i.e. air handling units?
Air Handling Units   An air handling unit; air flow is from the right to left in this case. Some AHU components shown are 1 – Supply duct 2 – Fan compartment 3 – Vibration isolator ('flex joint') 4 – Heating and/or cooling coil 5 – Filter compartment 6 – Mixed (recirculated + outside) air duct	Single or multiple?
Fed from boiler or direct fired?	
Filters in place and changed regularly	should have bag and screen filters, changed at least every 6 months or on pressure difference
Air intake location	roof level?
Air intake suitable	clear of other vents, heat sources, extract outputs?
General condition of system	appears in good condition, average, dilapidated?
Extract from classrooms?	
Recirculation of extract air?	If so how much.

Control system	manual, PC (i.e. building management system)
Variable speed supply & extract?	Speed control on internal CO2 basis or temperature?

Hot Water	
Same as above or separate system?	
If separate:	
Gas or electric?	
Central or local?	i.e. one large central system or lots of small local water heaters
Control system?	i.e. timer, thermostat?
Well insulated?	must be greater than 25mm, ideally around 50mm on tank and pipework

Kitchen	
Extract system in place?	most likely extract from e.g. hobs
Extracts to…	Should exit to roof
Filtered?	Should have local filters for great if above hobs
Control System	Always on? On timed control?

Internal Conditions	
Incidence of overheating	Occasional/regular/severe + temperature
Fresh Air	Does it feel "stuffy"? Need more fresh air?
Green plants within building?	If so, where?
Damp or mould present?	If so, where and to what extent?

Comments

STAKEHOLDER DISCUSSION POINTS:

1) Is there anything you would like to add or comment on regarding our recorded observations? Where do children spend time outside, during breaks, PE, queuing, off-site? Differ by age groups?

2) Any comments on recent trends/ issues regarding travel to school? Travel patterns of children and parents etc.

3) What do you feel are likely to be key sources of emissions in and around the school?

4) Where do you feel exposure to poor air quality is greatest in and around to school?

5) Key initiatives already underway to promote sustainable travel and reduce emissions? Which have worked well? Which haven't?

6) What more could the school do to lessen incidents of exposure and reduce sources of emissions?

7) Based on the toolkit of measures, and the findings of the observations and analysis, what are the top 3 measures you would prioritise for the school?

8) What sources of funding do you feel may be available to contribute towards localised schemes to address poor air quality at the school?

9) Is there any planned growth at the school (in terms of number of pupils or the school building/ grounds?

10) Are there any notable committed developments planned in the local area?

11) To what extent do you feel issues relating air quality are well understood by the children, parents, teachers, local community, borough officers and decision makers?

12) Are you aware of the air quality related lesson materials available?

13) Any other activities or behaviours not observed today you would wish to highlight?

14) Can you provide us with a copy of the deliveries log for the week of the audit?

STAKEHOLDER FEEDBACK NOTES:

Appendix C – Engagement Material

Supporting material for Air Quality related lessons

Bespoke material for each school is provided to add value to lessons with a focus on air quality and the environment, including:

- Map of air pollution at the school;
- Pie charts summarising the type of traffic near the school and how much air pollution is produced by which vehicles.

For example, this information could be used in conjunction with LSx Part 2: Investigating Air Quality whereby the objectives are listed as:

- Collecting scientific evidence
- Carrying out fieldwork investigations
- Making a labelled field sketch

The bespoke air quality modelling outputs for each school can add value to the lesson plan by being used to summarise the 'baseline' conditions prior to any measures being implemented and to identifying areas to target fieldwork investigations.

The pie charts illustrating the type of traffic near the school and how much air pollution is produced by which vehicles can contribute towards LSx Part 4: Action Planning whereby pupils learn about:

- How decisions and actions can affect the quality of people's lives
- Different ways in which people can improve their environment
- How to present a persuasive argument
- To make real choices and decisions

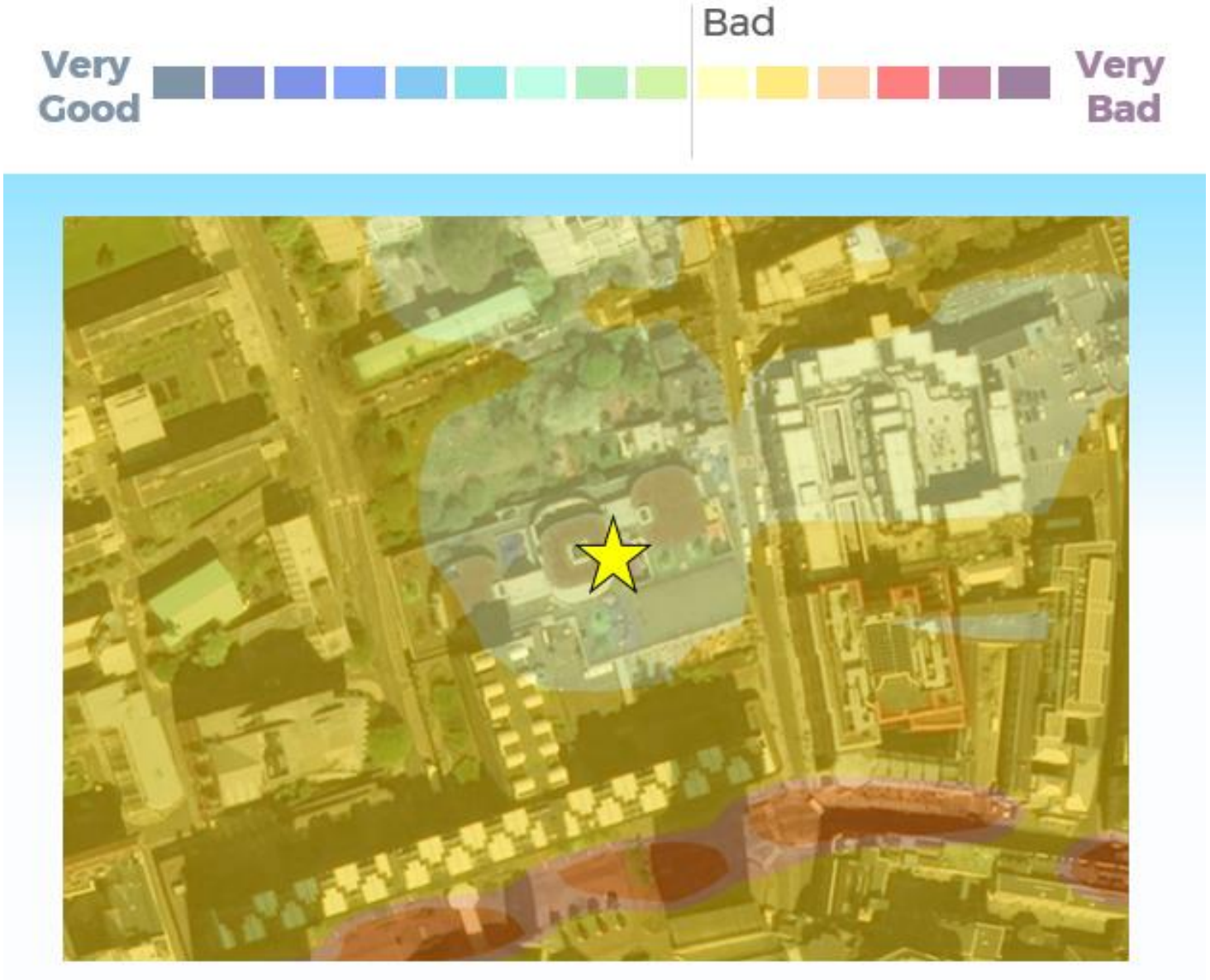
An understanding of how you travel to / from school (as well as other non-school related journeys) and the impacts it has on air quality can provide them with knowledge to travel via active means i.e. walking, scooting and cycling where possible.

The above can be linked to the National Curriculum, namely Science, Geography, PSHE / Citizenship and English Speaking and Listening. It is recommended that these lessons / materials are delivered by teaching staff as part of wider initiatives, such as National Clean Air Day.

Relevant Links:

- LSx: http://www.lsx.org.uk/get-involved/schools/
- National Clean Air Day: https://www.cleanairday.org.uk/
- London Curriculum: https://www.anewdirection.org.uk/what-we-do/london-curriculum

Prior Weston Primary School



Prior Weston Primary School

Chart 1 - Traffic near the school

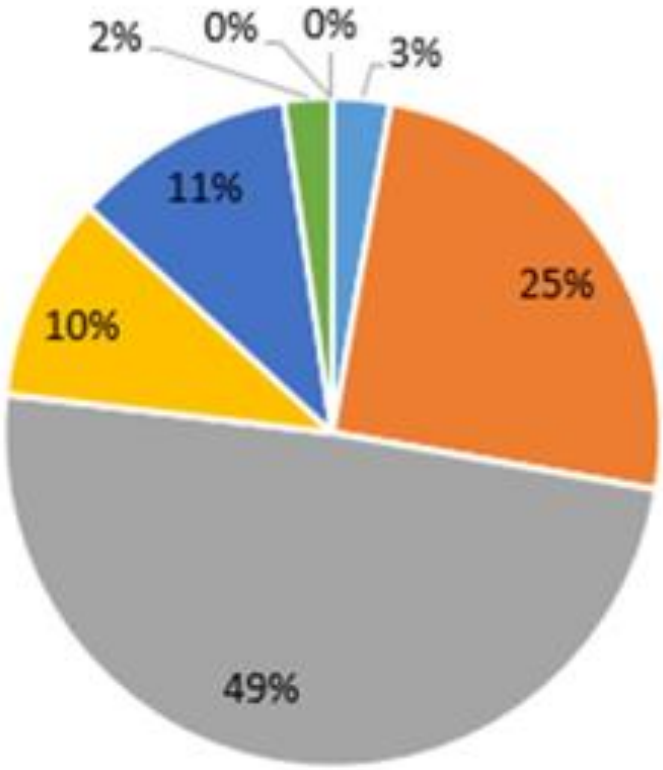
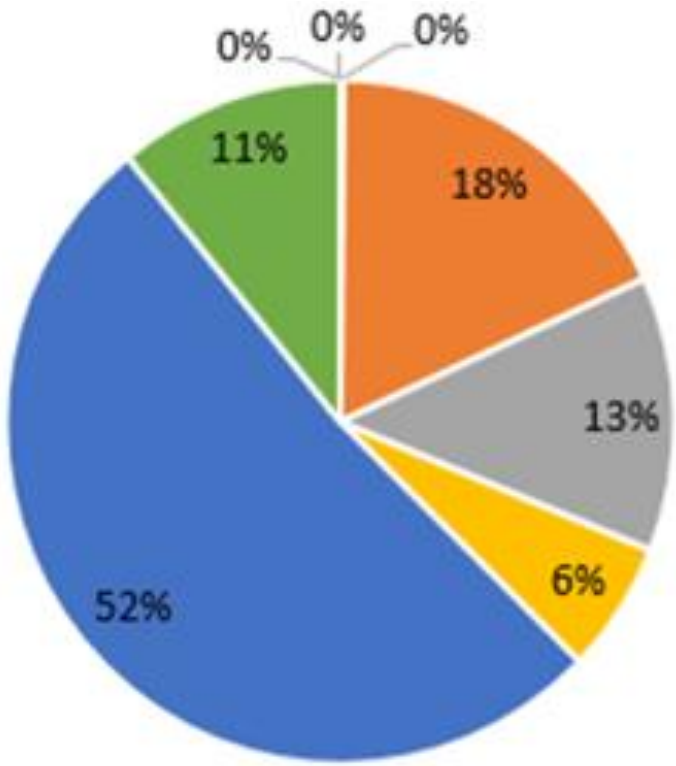


Chart 2 - Air pollution by traffic near the school



Key

- Motorcycle
- Taxi
- Car
- Vans
- Lorries
- Buses & Coaches
- Electric Car
- Electric LGV

Contact x@london.gov.uk to receive the accompanying PowerPoint slides for your school.

Introduction to air pollution (20-30 minutes)

- Interactive presentation highlighting the issue of poor air quality, the causes, the impacts, and the types of measures that can have a positive impact on reducing poor air quality.
- Suitable for KS1 and KS2, with supplementary points for KS2.
- Use the discussion questions on each slide to encourage the children to volunteer their own ideas.
- Then reveal the answers, see if they got them all, and explain any they may have missed.

KS1/KS2

- It can be hard to describe can't it?
- It is made up of fumes (gas or smoke) and dust in the air.
- Sometimes you can see it or smell it.
- They are made up of gases, and tiny particles too small to see with the human eye.

KS2

- Nitrogen Dioxide (fumes/ gases)
- 'Particulate matter' or PM. The two main types are PM_{10} and $PM_{2.5}$.
- Really small particles – you could fit 40 $PM_{2.5}$.particles across the width of a human hair.

KS1/ KS2

- Factories
- Power stations
- Boilers heating houses, businesses, the school
- Chemicals from cleaning products etc.
- Transport produces a lot of pollution:
    - Cars, Taxis,
    - Lorries, Buses
- Large vehicles like lorries and buses cause a lot of pollution.

KS2

- Diesel vehicles are bad as they produce more Nitrogen Dioxide and Particulate matter'.
- Lorries, buses, and vans and taxis are often diesels.

KS1/ KS2

- Cough
- Breathing difficulties
- Asthma – makes it harder for people with asthma to breath
- Makes us ill
- May need to see the doctor or go to hospital

- So it's a real problem we need to something about.

KS1/ KS2

- Can anyone tell me what this image is?
- It's our school – point out features like the playground and main roads to get bearings.

- Based on what we've talked about, and what the causes of air pollution are, which place do you think is most polluted by show of?
  - A
  - B
  - C

KS1/ KS2

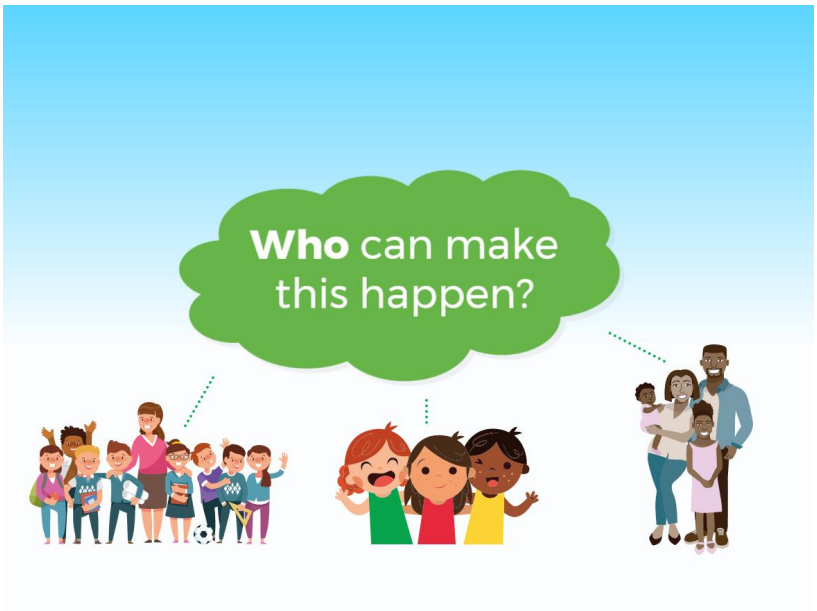
- Explain the bar along the top shows that areas in blue or green are good, areas in yellows/orange/red/purple are more polluted
- Well done to everyone who got it right
- Explain it's because all the traffic on the main roads is a major source of the pollution

KS1/ KS2

- We've seen what a big part transport plays in air pollution, so let's think about how we travel to school
- Show of hands
- Which is best in terms of air pollution?
- Why?

KS1/ KS2

- Key in the ignition = stopping engine idling (where people leave the engine running when parked).
- More travel by walking, scooting, cycling ….or public transport
- Though we know some people may need to travel by car
- Electric cars
- Planting trees to capture and absorb some pollution (particulates)



KS1/ KS2

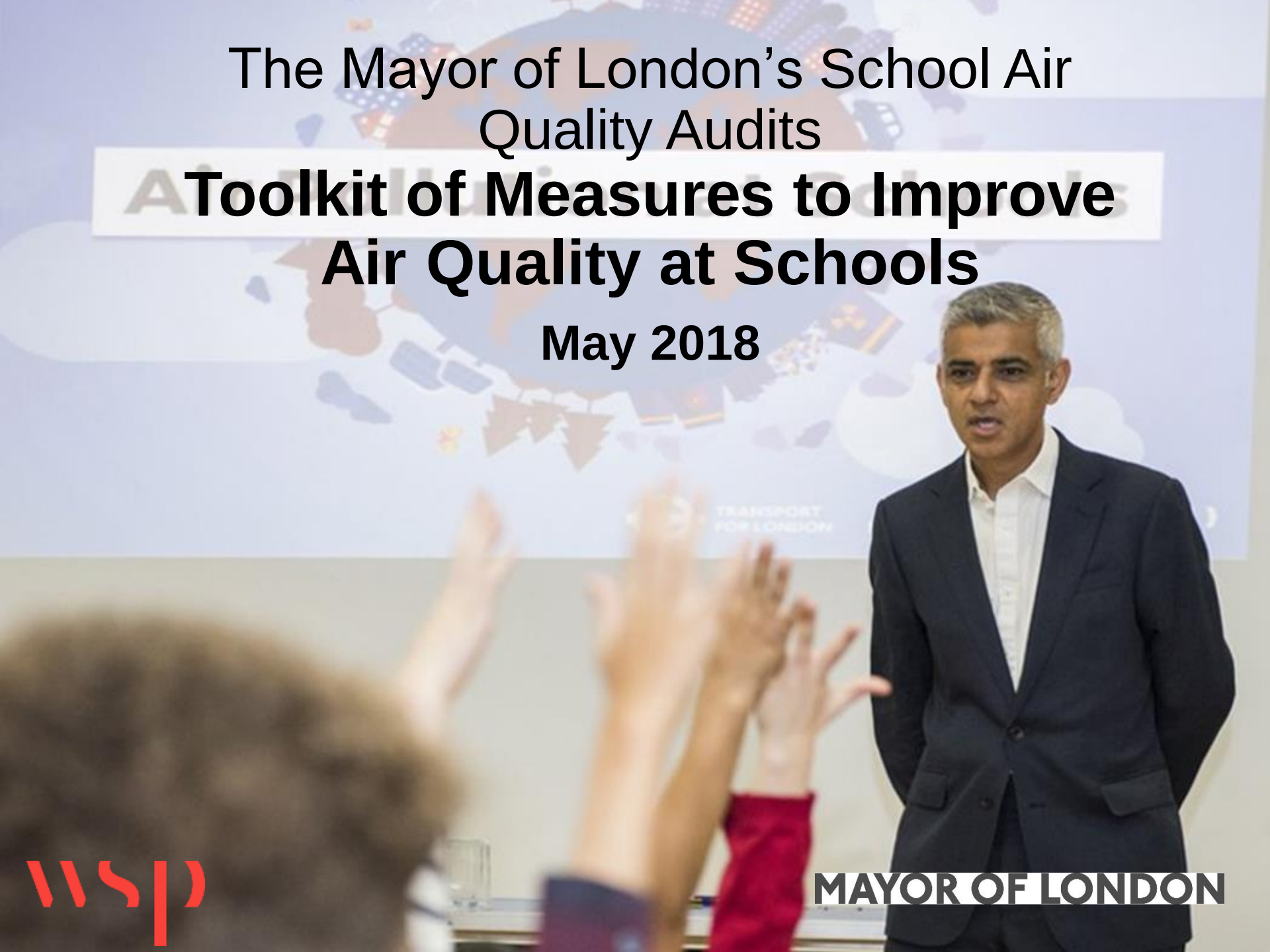
- Themselves
- Class mates
- Teachers
- Family
- Wider community
- The Council
- The Mayor
- Transport for London
- The Government
- ….everyone has a part to play

Appendix D – Toolkit of Measures to Improve Air Quality at Schools

The Mayor of London's School Air Quality Audits

Toolkit of Measures to Improve Air Quality at Schools

May 2018



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MAYOR OF LONDON

Summary of Measures

1. HIGHWAY MEASURES	
A	**Anti-idling**
A1	Fines
A2	Campaigns, including driver engagement
A3	Information signage
B	**Reducing traffic flow**
B1	'School Streets'
B2	Collapsible bollards
B3	'Play Streets' *(temporary measure)*
B4	Road closure
B5	Filtered permeability
B6	One-way streets/ No entry restrictions
B7	ULEV-only streets
B8	Width restriction (e.g. 7ft)
B9	Environmental weight limit signs
B10	Reallocate roadspace
B11	Weight restrictions
C	**Smoothing traffic flow/speed**
C1	Modify traffic calming
C2	Optimise traffic signals
C3	Junction improvements
D	**Reducing drop-off activity**
D1	Public Space Protection Orders
D2	School Keep Clear markings
D3	Double/single yellow lines
D4	Improve enforcement of restrictions
E	**Improved pedestrian and cyclist environment**
E1	Improved pedestrian environment - footway widening, kerb build-outs
E2	Improved crossing facilities on desire lines
E3	Traffic calming
E4	Improve Visibility of the School
E5	Cycle hangers
F	**Promote a switch to low emission vehicles**
F1	Ultra-low Emission Zone (ULEZ) & Low Emission Zone (LEZ)
F2	Comprehensive charging provision for ULEVs

G	**Parking/loading**
G1	Identify a Park & Stride site
G2	Remove or relocate parking/ loading bays and/or amend restrictions
G3	Introduce kerb blip loading restrictions
G4	Enforce parking restrictions
G5	Additional parking charges for more polluting vehicles
G6	Introduce or amend CPZ restrictions around school to restrict non-residents parking
G7	Parking rationalisations with ULEV car clubs
H	**Buses**
H1	Bus stop relocation
H2	Low emission buses
I	**Freight and Deliveries**
I1	Engage with local businesses to reduce freight/ delivery emissions
I2	Promote low emission vehicles for freight and deliveries
I3	Delivery Servicing Plans (DSPs) for new developments
I4	Re-time Borough commercial waste collection
J	**Construction**
J1	Planning conditions to reduce impacts of freight traffic
J2	Managing the impact of dust and emissions during construction and demolition
J3	Retrospective discussions with already permitted developments to lessen the impacts
J4	Non-Road Mobile Machinery Audit
K	**Planning Policy and Strategy**
K1	Healthy Streets approach, sustainable transport and roadspace reallocation from vehicular traffic
L	**Green Infrastructure**
L1	Green screens
L2	Trees, shrubs, planters
L3	Green Gateways
L4	Pocket parks

2. SCHOOL SITE MEASURES	
M	**School Grounds**
M1	Additional scooter/ cycle parking
M2	Staff car parking
M3	Anti-idling for deliveries
M4	Re-timing for deliveries
M5	Reduce number of deliveries, staff/visitor vehicle trips and/or use more sustainable modes
M6	Relocate pedestrian entrances
M7	Green screens
M8	Trees/ shrubs/ planters
M9	Green spaces
M10	Pupil & staff cycle parking
M11	Reduced waiting times to enter school grounds
M12	Relocate playgrounds and free flow spaces
M13	Co-ordinate start/ finish times with nearby schools
M14	Reconsider playground layouts to reduce exposure
M15	Sheltered waiting areas for parents/ guardians
School Building	
N	**School boilers/ heating**
N1	Upgrade aging boilers
N2	Install Optimising Compensator Control System for School Boilers
N3	Boiler flues and extraction equipment
N4	Reducing over-heating and tackling heat gain
N5	Replace aging radiators
O	**Improve product choice (e.g. cleaning products)**
O1	Improve product choice (e.g. cleaning products)
P	**Regular service & maintenance of appliances and equipment**
P1	Regular service & maintenance of appliances and equipment
Q	**Improve school building insulation**
Q1	Improve school building insulation
Q2	Upgrade windows
Q3	Replace temporary classrooms with permanent structures
Q4	Green Roofs
S	**Ventilation / Air Filtration**
S1	Installation of Air Conditioning Units
S2	Introduce Air Filtration Systems
S3	Install HEPA Filters in Air Handling Units
S4	Other air filtration systems - air purifiers
S	**Other**
S1	Air quality monitoring and information provision eco-monitors and walking route maps.

3. BEHAVIOURAL MEASURES	
T1	Attain improved STARS accreditation status, ultimately Gold status.
T2	Promote cleaner walking routes to school
T3	Promoting Park & Stride
T4	Promoting car sharing
T5	Walking Route Maps / Leaflets
T6	Parent and Public Workshops
T7	Prepare 'Welcome Packs' for new pupils / parents
T8	Deliver Air Quality focused lesson/s to children
T9	Awareness raising session amongst staff
T10	Daily monitoring of London Air website/ app
T11	Add Air Quality to Junior Citizenship Scheme
T12	Anti-idling campaign
T13	Attain an improved Award in Healthy Schools London, ultimately a Gold Award
T14	Awareness raising events amongst the wider community
T15	Cycle training and promotional initiatives
T16	Gamification to promote active travel
T17	Restrict or reduce personal deliveries
T18	CPD supporting teachers subject knowledge on air quality
T19	Walking Buses

4. WIDER MEASURES	
U1	Targeted scrappage scheme for polluting vehicles entering London
U2	Reform Vehicle Excise Duty
U3	Promote a transition to electric heating and heat pumps
U4	Reform Buildings Regulations to promote heat pumps
U5	Zero emission zones

Summary of Measures, including Assessment Criteria

Highway Measures

Air quality audit approach: A.) Air quality assessments and context plan preparation B.) Fieldwork – complete audit templates with input from the school and borough officers (air quality, school travel, transport planning). Use Toolkit as reference. C.) Review findings and identify key issues, sources of emissions and causes of exposure D.) Identify measures from the Toolkit to address these issues, informed by the audit findings E.) Identify funding sources and task owners F.) Establish an approach to monitoring the effectiveness of measures		**Purpose**		**Assessment Criteria**				**Wider Benefits**										**Suitability**		
		Reduce Sources	Reduce Exposure	Potential Air Quality Improvement	Cost	Deliverability	Stakeholder Support	Road safety	Promotion of sustainable transport	Visual amenity	Security, privacy	Noise reduction	Biodiversity	Improved learning environment	Reduced operating costs	Awareness raising	Support STARS and HSL objectives	Main roads	Minor Roads	Suitability for a trial
1. HIGHWAY MEASURES (Key Stakeholder: Borough/ TfL)																				
A	**Anti-idling**																			
A1	Fines	X		L	L	L	H										X	Y	Y	Y
A2	Campaigns, including driver engagement	X		L	L	L	H										X	Y	Y	Y
A3	Information signage	X		L	L	L	H										X	Y	Y	Y
B	**Reducing traffic flow**																			
B1	'School Streets'	X		L	M	M	M	X											Y	Y
B2	Collapsible bollards	X		L	L	M	M	X											Y	Y
B3	'Play Streets' *(temporary measure)*	X		L	L	S	H	X	X							X			Y	Y
B4	Road closure	X	X	H	L-M	S-M	L-M												Y	Y
B5	Filtered permeability	X		M	M	M	L	X	X										Y	Y
B6	One-way streets/ No entry restrictions	X		M	L-H	S-M	M	X	X										Y	Y
B7	ULEV-only streets	X		M	M	M	L		X										Y	Y
B8	Width restriction (e.g. 7ft)	X		L	L	S	M												Y	
B9	Environmental weight limit signs	X		L	L	S	M												Y	
B10	Reallocate roadspace	X		M	H	L	M		X									Y	Y	
B11	Weight restrictions	X		M	L	M	M	X											Y	
C	**Smoothing traffic flow/speed**																			
C1	Modify traffic calming	X		L	M	S	H											Y	Y	
C2	Optimise traffic signals	X		L	L-M	S-M	M											Y	Y	Y
C3	Junction improvements	X		L	M-H	M-L	L											Y	Y	
D	**Reducing drop-off activity**																			
D1	Public Space Protection Orders	X		L	M	M	M	X										Y	Y	
D2	School Keep Clear markings	X		L	L	S	M-H	X										Y	Y	
D3	Double/single yellow lines	X		L	L	S	M	X										Y	Y	
D4	Improve enforcement of restrictions	X		L	L	S-M	M	X										Y	Y	

Summary of Measures, including Assessment Criteria

Highway Measures

1. HIGHWAY MEASURES (Key Stakeholder: Borough/ TfL)																				
E	**Improved pedestrian and cyclist environment**																			
E1	Improved pedestrian environment - footway widening, kerb build-outs	X	X	L	L-M	S-M	H	X	X								Y	Y	Y	
E2	Improved crossing facilities on desire lines		X	L	L-M	S-M	H	X	X								Y	Y	Y	
E3	Traffic calming	X		L	L-M	S-M	H	X	X								Y	Y	Y	
E4	Improve Visibility of the School	X		L	L	S	H	X									Y	Y		
E5	Cycle hangers	X		L	L-M	S	M		X							X	Y	Y		
F	**Promote a switch to low emission vehicles**																			
F1	Ultra-low Emission Zone (ULEZ) & Low Emission Zone (LEZ)	X	X	H	H	M	M		X								Y	Y		
F2	Comprehensive charging provision for ULEVs	X		L	M	M	M		X								Y	Y	Y	
G	**Parking/loading**																			
G1	Identify a Park & Stride site	X		L	L	M	M												Y	
G2	Remove or relocate parking/ loading bays and/or amend restrictions	X		M	L	S-M	M										Y	Y		
G3	Introduce kerb blip loading restrictions	X		L	L	S	M										Y	Y		
G4	Enforce parking restrictions	X		L	L	S	M	X									Y	Y		
G5	Additional parking charges for more polluting vehicles	X		M	M	M	L										Y	Y		
G6	Introduce or amend CPZ restrictions around school to restrict non-residents parking	X		M	M	M	L	X									Y	Y		
G7	Parking rationalisations with ULEV car clubs	X		L	M	L	L		X								Y	Y		
H	**Buses**																			
H1	Bus stop relocation	X		M	M	M	L										Y			
H2	Low emission buses	X		H	H	M	M										Y			

Summary of Measures, including Assessment Criteria

Highway Measures

1. HIGHWAY MEASURES (Key Stakeholder: Borough/ TfL)																							
I	**Freight and Deliveries**																						
I1	Engage with local businesses to reduce freight/ delivery emissions	X		M	L	M	L	X												Y		
I2	Promote low emission vehicles for freight and deliveries	X		M	L	M	L		X											Y		
I3	Delivery Servicing Plans (DSPs) for new developments	X		L	L	M	L													Y	Y	
I4	Re-time Borough commercial waste collection	X		L	M	M	M													Y	Y	
J	**Construction**																						
J1	Planning conditions to reduce impacts of freight traffic	X		M	L	M	L		X											Y		
J2	Managing the impact of dust and emissions during construction and demolition	X	X	L	L	S	M												X	Y		
J3	Retrospective discussions with already permitted developments to lessen the impacts	X		M	L	L	L		X											Y		
J4	Non-Road Mobile Machinery Audit	X		L	L	S	M					X										
K	**Planning Policy and Strategy**																						
K1	Healthy Streets approach, sustainable transport and roadspace reallocation from vehicular traffic	X	X	H	H	L	L		X											Y	Y	
L	**Green Infrastructure**																						
L1	Green screens		X	L	L	S	H			X	X									Y	Y	
L2	Trees, shrubs, planters		X	L	L	S-M	M			X										Y	Y	
L3	Green Gateways		X	L	L	S	H			X										Y	Y	
L4	Pocket parks		X	L	M	S-M	H													Y	Y	

Summary of Measures, including Assessment Criteria

School Site Measures: school grounds

2. SCHOOL SITE MEASURES (Key Stakeholder: School/ Borough)																					
M	**School Grounds**																				
M1	Additional scooter/ cycle parking	X		L	L	S	H		X								X				
M2	Staff car parking	X		L	L	M	L		X												
M3	Anti-idling for deliveries	X		L	L	S	H														
M4	Re-timing for deliveries	X		L	L	S	M	X													
M5	Reduce number of deliveries, staff/visitor vehicle trips and/or use more sustainable modes	X		L	L	M	M		X												
M6	Relocate pedestrian entrances		X	L	L	S	M														
M7	Green screens		X	L	M	M	M			X	X		X								
M8	Trees/ shrubs/ planters			L	L-M	M	H						X			X					
M9	Green spaces		X	L	L	S	H														
M10	Pupil & staff cycle parking	X		L	L	S	H		X								**X**				
M11	Reduced waiting times to enter school grounds		X	L	L	S	H		X												Y
M12	Relocate playgrounds and free flow spaces		X	M	M-H	M	M				X	X									
M13	Co-ordinate start/ finish times with nearby schools	X	X	L	L	S	L	X													
M14	Reconsider playground layouts to reduce exposure		X	L	L	S	M														
M15	Sheltered waiting areas for parents/ guardians	X	X	L	L	S	M		X												

Summary of Measures, including Assessment Criteria

School Site Measures: school building

2. SCHOOL SITE MEASURES (Key Stakeholder: School/ Borough)																						
School Building																						
N	**School boilers/ heating**																					
N1	Upgrade aging boilers	X		L	L-H	S-M	M-H								X							
N2	Install Optimising Compensator Control System for School Boilers	X		L	L	S	H								X							
N3	Boiler flues and extraction equipment		X	L	L	S	M															
N4	Reducing over-heating and tackling heat gain	X		L	L-M	S	H							X	X							
N5	Replace aging radiators	X		L	M	S-M	M							X	X							
O	**Improve product choice (e.g. cleaning products)**																					
O1	Improve product choice (e.g. cleaning products)	X	X	L	L	S	H															
P	**Regular service & maintenance of appliances and equipment**																					
P1	Regular service & maintenance of appliances and equipment	X		L	L	S	H															
Q	**Improve school building insulation**																					
Q1	Improve school building insulation	X		L	L-M	S-M	M-H					X		X	X							
Q2	Upgrade windows		X	L	L-H	S-M	M-H					X		X	X							
Q3	Replace temporary classrooms with permanent structures	X		L	H	M-L	M							X	X							
Q4	Green Roofs		X	L	M	M	M			X			X									
S	**Ventilation / Air Filtration**																					
S1	Installation of Air Conditioning Units		X	L	L-H	S-M	M-H							X								
S2	Introduce Air Filtration Systems		X	L	M	M	M							X								
S3	Install HEPA Filters in Air Handling Units		X	L	L	S-M	M							X								
S4	Other air filtration systems - air purifiers		X	L	L-M	S-M	M							X								
S	**Other**																					
S1	Air quality monitoring and information provision eco-monitors and walking route maps.	X	X	L	L	S	H									X						

Summary of Measures, including Assessment Criteria

Behavioural Measures

3. BEHAVIOURAL MEASURES (Key Stakeholder: School/ Borough)																			
T1	Attain improved STARS accreditation status, ultimately Gold status.	X		L	L	S-M	H								X				
T2	Promote cleaner walking routes to school	X	X	L	L	S	H		X						X	X			
T3	Promoting Park & Stride	X		L	L	S-M	H		X						X	X			
T4	Promoting car sharing	X		L	L	S	H		X							X			
T5	Walking Route Maps / Leaflets		X	L	L	S	H		X						**X**	**X**			
T6	Parent and Public Workshops	X	X	L	L	S	H								**X**	**X**			Y
T7	Prepare 'Welcome Packs' for new pupils / parents	X	X	L	L	S	H	X	X						**X**	**X**			Y
T8	Deliver Air Quality focused lesson/s to children	X	X	L	L	S	H								**X**	**X**			Y
T9	Awareness raising session amongst staff	X	X	L	L	S	H								**X**				
T10	Daily monitoring of London Air website/ app	X	X	L	L	S	H							X	**X**				
T11	Add Air Quality to Junior Citizenship Scheme	X	X	L	L	S	H								**X**				
T12	Anti-idling campaign	X		L	L	S	H								**X**	**X**			
T13	Attain an improved Award in Healthy Schools London, ultimately a Gold Award	X	X	L	L	S-M	H								**X**	**X**			
T14	Awareness raising events amongst the wider community	X	X	L	L	S-M	M								**X**				
T15	Cycle training and promotional initiatives	X		L	L	S	M	X	X							**X**			
T16	Gamification to promote active travel	X		L	L-M	M	M		X							**X**			
T17	Restrict or reduce personal deliveries	X		L	L	S	M												
T18	CPD supporting teachers subject knowledge on air quality	X	X	L	L	S-M	M								**X**	**X**			
T19	Walking Buses	X		L	L	S	M		X						**X**	**X**			

Wider Measures

4. WIDER MEASURES (Key Stakeholder: Borough/ TfL/ GLA/ Central Government)																			
V1	Targeted scrappage scheme for polluting vehicles entering London	X		H	H	L	L												
V2	Reform Vehicle Excise Duty	X		H	M	L	L												
V3	Promote a transition to electric heating and heat pumps	X		H	M	L	L												
V4	Reform Buildings Regulations to promote heat pumps	X		M	M	L	L												
V5	Zero emission zones	X	X	H	H	L	L												

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