

Cleaner Air 4 Schools London Boroughs of Wandsworth, Richmond, Merton and Croydon March 2015 – December 2016 Final Report



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Report structure

The report provides overall project information, findings and conclusions as well as twelve individual school reports, which are provided alphabetically. For each individual school report, the following format is followed:

- Overview
- Beneficiaries
- Activities and Results
- Measurement of Air Quality Through Citizen Science Activities
- Communicating Findings Through Social Marketing Activities
- Travel Behaviour
- Travel Plan Analysis
- Conclusions and Recommendations
- Travel Plan Recommendations

1. PROJECT SUMMARY

CA4S is an innovative **citizen science** and engagement project to **educate, activate** and **encourage** pupils in air quality, March 2015 – December 2016

16 Schools engaged across 4 boroughs;

133.5 hours of citizen science and learning over 89 lessons with 1386 students,

10 green screens installed

Increased understanding and awareness of air quality issues among 1386 students

Bespoke Travel Plan recommendations developed for each school

Students additionally had the chance to experience the **interactive theatre show, 'The Pollution Solution'**

- 1386 pupils directly engaged in citizen science investigations and activities
- 3720 further pupils engaged through two whole school assemblies, or whole of KS2 assemblies in each school, led by both LSx and the pupils
- Parents engaged through interventions at summer fetes, parents evenings, PTA meetings, focus groups and through school newsletters/websites.

"We can make ourselves breathe less pollution by taking the side roads when we walk around." – **Eveline Day**

"It was really surprising how many cars there were" – **St Stephens Pupil**

"to discuss these things with children is important because we will be the adults from tomorrow driving those cars and making pollution" – **St Johns**

2. EXECUTIVE SUMMARY

The London Boroughs of Wandsworth, Merton, Richmond and Croydon commissioned London Sustainability Exchange (LSx) to deliver the Cleaner Air 4 Schools (CA4S) project in Primary Schools across the four Boroughs.

Cleaner Air 4 Schools is an engaging and creative educational programme that educates children about the causes and effects of air pollution on health and inspires them (and their parents) to be aware of the changes they can make to reduce both their contribution and exposure to air pollution by adopting more sustainable means of transport such as walking, cycling and taking quieter routes.

This curriculum linked programme gave the children an understanding air quality and had a positive effect on their travel aspirations. The initial programme was up and running in schools very quickly, but schools benefitted from the longer lead in period for the second year. Some schools were able to maintain momentum of the project throughout the year and this was very effective.

As well as documenting project activities and results, this report sets out the major issues and challenges at each school alongside an analysis of the current school travel plan and provides recommendations to improve performance and air quality.

Cleaner Air 4 Schools saw;

- **1386 pupils** engaged across 16 schools via project activities including citizen science, performance and action planning, visual communication
- 16 whole school assemblies reaching a further 3720
- Creation of visual media including banners and posters;
- Green screens installed in 10 schools
- **353** travel surveys responses from parents
- **3 focus groups** held to gain a deeper understanding of parents motivations

Engagement through the practical use of scientific equipment and taking science out of the classroom was greatly enjoyed by the children. Looking for Lichens and installing green infrastructure were similarly effective in creating an understanding of pollution. **Each school had a different set of challenges**, depending on the wider context in which it was located, such as the local geography; therefore bespoke approaches to encouraging sustainable travel appear to be more effective.

Children easily understood the concepts of pollution; this complimented their understanding of not littering or not smoking as other responsible actions which they have been taught about. **However children were more likely to take action if the citizen science results indicated that there could be a pollution problem in the area.** The use of analogies and highlighting wider implications of the challenge from the start are important to maintain momentum for change regardless of measurement results.

2.1 Travel Behaviours across the 16 schools

- Fun is a good motivation for supporting active travel – cycling and scooting are attractive to children and parents alike.
- Since parental networks are both desirable and strong in primary schools, there is scope to develop these networks in order to support car sharing and walking buses.
- Public transport is often seen as crowded and expensive by many of the parents and children in the schools visited.
- Teachers in these schools tend to travel long distances and their long hours also make active travel and use of public transport appear challenging.

2.2 Recommendations for future engagement

- A social marketing campaign establishing values, aspirations and values, customer segmentation related to specific travel behaviours would be effective.
- Some children and parents with fun as a motivator would benefit from support to scoot and cycle to school, and organising treasure hunts on the way to school.
- Time pressed parents could benefit from social infrastructure support in order to change their travel plans such as car sharing or walking buses.
- Safety was identified by some as a prime motivator, schools and councils could respond to these concerns with safety information and including parents in consultations when infrastructure developments are planned.
- Green barriers can create a good focus for schools and parents and can provide a small barrier to pollution for the school.
- Since driving behaviours can reduce pollution from cars by 10-15% parents and teachers could be encouraged to engage in behaviour change programme that involved driving behaviours such as idling.

2.3 Recommendations for the next phase of this programme

- **Engagement of the wider community** in the formation of a 'steering group' incorporating teachers, parents and community group representatives from the start of the programme would lead to more effective intervention outputs.
- Future programmes could benefit from a sharing between schools to create exemplars to inspire action from others.

Running the programme

- Lead-in times need to be **as long as possible** – most effective engagement occurred if we were able to talk at least two terms ahead of visiting the school, with better initial dialogue with classroom teachers to fit in to their curriculum planning. This would be more beneficial for teachers and result in greater engagement by the schools.
- A more **flexible** approach, offering options during initial meetings may be more attractive to schools, to reflect the prevailing culture and limitations of specific schools. It would also be additional support to be offered in schools that have specific needs.

Integrating other programmes

- **Indoor air quality** was a concern for some parents; given the geographical location of some schools (close to busy roads) some work on indoor pollution may be warranted.
- Schools that were engaging with the **TFL stars programme tended to be keenest**. Future programmes should be linked to the 'going for gold' activity.

3. ABOUT THE PROJECT

Aims of the project

Cleaner Air 4 Schools aims to educate pupils about the causes and effects of air pollution on health and inspires them (and their parents) to be aware of the changes they can make to reduce both their contribution and exposure to air pollution by adopting more sustainable means of transport such as walking and cycling. 'Active travel' has the additional benefit of helping to combat child obesity and improve health and wellbeing. Specifically, the project aimed to:

- Raise awareness and understanding of air quality issues
- Raise awareness and understanding of actions that can be taken to reduce air pollution emissions and personal exposure
- Collect information on pupil's travel behaviour through baseline and follow-up surveys and support renewal of School Travel Plans
- Support English and Art KS1&2 curriculums through creative activities
- Support geography and science KS2 curriculum through mapping of nitrogen dioxide gathered during field trips, and presentation of any survey data undertaken by pupils as part of the lessons
- Support learning of scientific and geographic enquiry skills including:
 - Making observations
 - Taking measurements and collecting data systematically
 - Mapping
 - Scientific analysis and data interpretation
 - Using scientific apparatus
 - Team-working
 - Handling materials

3.0 Background

3.0.1 The Challenge

Air quality is a serious health issue and projects such as this working with young people are important because growing lungs are more susceptible to the impacts of air pollution, and the pupils are in a good position to make change as they grow older. We know that work in schools is essential for developing change in polluted London neighbourhoods because:

- 10% of Londoners' journeys are related to education ¹
- Backgrounds suggests that developing the capacity of London's children to act as agents of change in their communities could be a worthy investment and potentially a key to making London a more sustainable world city. They have the power to influence their parents and wider community. ²

¹ London Travel Demand Survey 2011

² Behaviour Change Interventions: teenagers, technology and design
http://www.academia.edu/4394434/Behaviour_change_interventions_teenagers_technology_and_design

- A number of studies have recently established the link between poor air quality and health in urban areas – it is the case that long term exposure can contribute to the development of chronic diseases and increase the risk of respiratory illness³.
- Furthermore figures indicate that over one third of all the car trips made by London residents are less than 2km and could in fact be walked in 25 minutes, it is habit that strongly influences choice of travel mode⁴
- Finally compared to children living in households with vehicle access, children living in households without access to a vehicle are⁴:
 - 2.3 times more likely to walk to school
 - 1.4 times more likely to walk outside the school commute on a weekday during term time
 - 1.8 times more likely to walk during the summer or weekends

A number of South London Boroughs have sought to address this issue through action in a joint project aimed at promoting awareness of air quality amongst children, reducing exposure of children to poor air quality and attempting to improve air quality through positive actions such as reducing vehicle idling and a modal shift from cars to less polluting travel choice⁵.

3.0.2 Pollution in Croydon

- Since 1995 the government has required local councils to review and assess air quality in their area with reference to the pollutants specified in the **National Air Quality Strategy**.
- In 2003 the borough of Croydon was identified as not being likely to meet the **National Air Quality Objectives** by target dates and so was declared an **Air Quality Management Area (AQMA)**.
- Using the model designed by the Institute of Medicine⁶ it was estimated that around 205 Croydon residents prematurely die per year as a result of high pollution levels.
- In 2008 Greater London Authority's London Atmospheric Emissions Inventory (LAEI) showed that around 36% of the main pollutants emitted in Croydon were due to road traffic.
- According to TFL data as of February 2010 Croydon had the highest number of children travelling to school by car among London boroughs. Although it has the highest levels of travelling by bus and rail it has the lowest level of walking and cycling⁷.
- Figures show that each additional hour spent travelling in a car per day is associated with a 6% increase in the likelihood of becoming obese⁴

³ In June 2012 the International Agency for Research on Cancer confirmed that fumes from diesel engines are carcinogenic and exposure can cause lung cancer and possibly tumours to the bladder

⁴ Health impacts of cars in London – Executive Summary (Mayor of London, 2015)

⁵ 2013/4 Air Quality Progress Report for Merton Council (2014)

⁶ Report on estimation of mortality impacts of particulate air pollution in London 2010

⁷ Annual report of the director of public health 2012 <https://www.croydon.gov.uk/sites/default/files/articles/downloads/Croydon-aphr.pdf>

Croydon projects:

Since June 2005 as part of the national government legislation Croydon was the first borough in London to raise awareness of the contribution that idling vehicles can make to poor air quality. As such the borough has installed signage outside 20+ schools in 2011 instructing drivers to switch off their engines while parked⁸.

They also have implemented the Mayor of London's School Travel Plan (STP) programme which promotes sustainable travel for journeys related to schools. So far around 78% of schools in Croydon are STP approved.

3.0.3 Pollution in Merton

- In 2003 the borough of Merton was declared an Air Quality Management Area
- Emissions from road traffic have been identified as the major source of pollution in the borough of Merton.
- This is particularly problematic as Individuals who reside, work or go to school near busy roads are at particularly high risk of exposure to the health harms of pollution⁹
- For residents between 16 to 74 living in Merton, almost 1/3 (29.1%) will travel to work by car (RAC, 2013)
- Furthermore the National Travel Survey (2015)¹⁰ show that:
 - The proportion of children (5 – 16yrs) walking to school has steadily fallen since 1995/97 (by about 5%) while those going by car has seen a modest increase (3%) 46% of 5-10 year olds walk to/from school.
 - For journeys under 1 mile, 80% of 5-10 year olds walk to school. Traffic danger is a commonly mentioned reason for accompaniment.
 - For 11-16 the mode of transport is more varied, but the predominant method is still car with local or private bus being the next preferred choice.

Projects in Merton:

Quietways project – Quiet ways 4 going though Lambeth, Wandsworth and Merton – Each Quietway will provide a continuous route for cyclists – the routes hope to overcome barriers to cycling and will target those who want to use quieter low-traffic routes “providing an environment for those cyclists who want to travel at a more gentle pace”. (TFL, 2016)¹¹

⁸ Croydon Air Quality Action Plan 2012-2017 <http://lovecleanair.org/wp-content/uploads/2014/11/Croydon-Air-Quality-Action-Plan-2012-2017.pdf>

⁹ From Air Quality in Richmond: A guide for public health professional

¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/551437/national-travel-survey-2015.pdf

¹¹ <https://tfl.gov.uk/travel-information/improvements-and-projects/quietways>

3.0.4 Richmond in context

- In 2000 LB Richmond was declared an Air Quality Management Area
- A recent study by KCL for the use of Transport of London ¹²estimated that 842 people in South West London died from long term exposure to fine particulate pollution in 2010 making up almost a quarter of the deaths attributable to pollution in London
- In Richmond upon Thames especially, PM_{2.5} accounted for 84 deaths within the year 2010
- The main source of the pollution in the borough of Richmond is traffic related
- (RAC report) 33.9% of those 16-74 in the borough of Richmond travel to work by car, Richmond upon Thames ranks 11th within London for the most commutes by car

Projects in Richmond:

Richmond has actively promoted the Council Travel plan – many car journeys in Richmond are less than two miles, as such cycling facilities, including showers and changing rooms have been provided and staffs are encouraged to walk, cycle or use public transport for visits.

Pollution in Wandsworth

- In 2001 the borough of Wandsworth was declared an Air Quality Management Area
- In Wandsworth 199 people died of diseases related to air quality in the year 2010 (KCL, 2015) ¹¹
- It is the case that 15.1% of those living in the borough of Wandsworth travel to work by car , the borough ranks 23rd for journeys by car within the London boroughs (RAC, 2013) ¹³
- Transport is the main reasons for low air quality in Richmond - in 2011 a study was undertaken in Putney High Street ¹⁴– it showed that buses account for 68% of NOx emissions in the high street.

Projects in Wandsworth:

96 schools in Wandsworth (82%) have developed travel plans as of the end of 2014. The Council has actively supported schools running the sustainable travel initiatives. Events have been held to promote cycling and have hosted hundreds of visitors.

As mentioned previously Quietways 4 will be running through Wandsworth (as well as Merton and Lambeth), the project aims to encourage a safe journey for cyclists in London boroughs.

¹² Understanding the Health Impacts of Air Pollution 2015
https://www.london.gov.uk/sites/default/files/hiainlondon_kingsreport_14072015_final.pdf

¹³ The Car and the Commute – the journey to work in England and Wales (RAC, 2013)
http://www.racfoundation.org/assets/rac_foundation/content/downloadables/car-and-the-commute-web-version.pdf

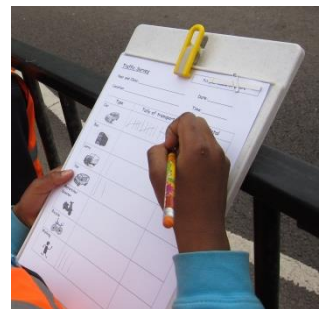
¹⁴ Air Quality Action Plan Progress Report (2015)

3.1 Project rationale & design

Cleaner Air 4 Schools has been designed around the National Curriculum 2014, and the core programme spans 3 lessons. CA4S supports pupils to; understand air quality issues, collect their own data through citizen science experiments, develop strategies to reduce their own exposure and emissions, and to communicate these along with their findings with the wider public.

The programme in each school, which was repeated over the two years included:

- 1 detailed classroom session covering the background of air pollution in London and exploring ways to reduce emissions and exposure
- 1 science lesson including citizen science methods (diffusion tubes, and traffic surveys). This data was transferred onto maps to be analysed with pupils to action plan for their area.
- 1 lesson looking at, understanding and communicating data
- 1 interactive theatrical experience – ‘The Pollution Solution’ provided by the Big Wheel Theatre company
- A poster competition, with a winner from each borough
- A report with bespoke travel plan recommendations sent to the school



In the second year we also delivered;

- Progression lessons with pupils who had previously taken part, revisiting what was learnt in the first year and extending the citizen science activities to cover the identification of lichen as an indicator species
- Green infrastructure lessons, including installing green screens in the schools to help reduce exposure to airborne pollutants in the playground, this was carried out in 10 schools chosen with a self-selecting process
- Focus groups with the parents in 3 schools to understand more deeply parents motivations and barriers to sustainable travel, participating schools were again chosen through a self-selection process
- Action Planning sessions with parents/PTA to turn our travel plan recommendations into action and incorporate the experiential knowledge of parents. (Several sessions have been carried out but more are planned for January)

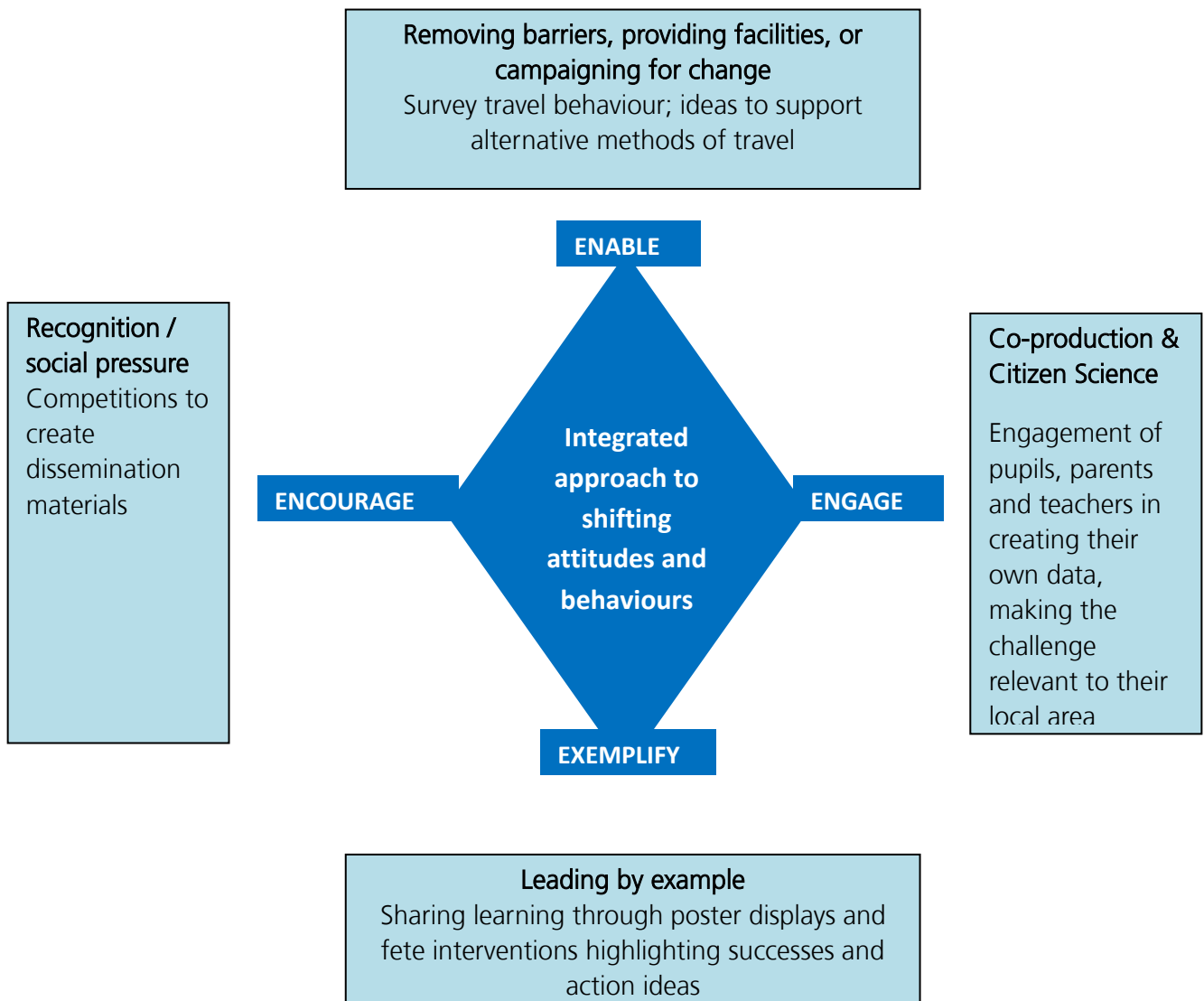


The project uses DEFRA's 4E's Behaviour Change Framework to place pupils as agents of change – see Figure 1. Complete lesson plans can be found in the Appendix.

Figure 1: DEFRA's 4E's model of behaviour change as applied to Cleaner Air 4 Schools

DEFRA's 4E's Behaviour Change Framework uses four main mechanisms for intervention,

- **ENABLING:** Make it easier to act - remove barriers/ ensure ability to act; Build understanding; Provide facilities/viable alternatives; Educate/train/provide skills; Provide capacity
- **ENGAGING:** Get people involved - work with trusted intermediaries; Use networks; Co-produce; Use insight to mobilise population groups (segment)
- **EXEMPLIFYING:** Demonstrate shared responsibility - lead by example; Demonstrate others are acting
- **ENCOURAGE:** Provide incentives and disincentives: Give the right signals to encourage, and ensure your target audience responds; Provide feedback.



4 HEADLINE RESULTS FOR EACH SCHOOL

Below are the headline results for each school involved in the project, some participated in both years and other just once. Full two page reports are available in the appendix.

Figure 2 – Participating Schools

Borough	School	Ref
Croydon	Monks Orchard Primary School	4.1.1
	Oasis Academy Byron	4.1.2
	St Cyprians Greek Orthodox Primary Academy	4.1.3
	Woodside Primary Academy	4.1.4
Merton	Cranmer Primary School	4.2.1
	St Johns Fisher RC Primary School	4.2.2
	West Wimbledon Primary School	4.2.3
Richmond	Darell Primary School	4.3.1
	Holy Trinity Primary School	4.3.2
	Sheen Mount	4.3.3
	St Stephens Primary School	4.3.4
Wandsworth	Eveline Day School	4.4.1
	Penwortham Primary School	4.4.2
	Sacred Heart Primary School	4.4.3
	St Marys CE Primary School	4.4.5

4.1 Croydon Schools

4.1.1 Monks Orchard Primary School

This school only participated in year 1 of the programme

- 60 pupils from all three classes in Year 4 and Year 5 were the key participants and received two lessons in the summer term of 2015.
- A wider audience was also reached through an introductory assembly

Significant results, year 1:

- 71 % of the pupils travel to school by sustainable means (walking, cycling).
- 14% of pupils are currently cycling to school
- Citizen science results around the school area showed very low levels of air pollution

Conclusions & Recommendations

- Considering the number of pupils would prefer scooting and cycling we could suggest the need for a better cycling network within community, and potentially provisions within the school for 'parking' bikes and scooters
- Organising cycling or 'walking buses' to school and eliminating the bus and car driving will provide a quieter roads, and result in further reductions in exposure to air pollution.
- According to the results from the measurement held with students around the vicinity of the school we can observe very positive results which may be aided by the number of the pupils walking and cycling, and travelling by rail to school instead of travelling by car.

4.1.2 Oasis Academy Byron

- All 60 pupils from Year 5 received two lessons in the spring term of 2016.
- This was following on from work during 2015 in which around 30 pupils from Year 4 and were the key participants and received two lessons in the summer term of 2015.
- 60 pupils also took part in a progression lesson in which they learnt to identify lichens.
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the summer fete

Significant results, year 1:

- 43 % of the pupils travel to school by sustainable means (walking, cycling and scooting).
- Observing the data obtained, it is explicit that there is no pupil cycling to the school.
- The pollution levels in the immediate area of the school are low, but on some roads nearby are quite high.



Significant results, year 2:

- The majority of students (82%) showed a preference for walking or cycling
- Not many people travel by sustainable mean because they have big hills around school. Students and their parents feel that they have no stamina to walk and cycle.
- People also don't like using their public transport, as the bus stops everywhere, and may make them late for school.
- Parent travel preference also indicates a wider use of *public transport* modes to get to school

"If you have to wait for the bus it can make you late for school" – **Student observation**

Conclusions & Recommendations

- Enable parents to car share; as there are big hills on the way to the school, it takes more effort for people to travel via sustainable methods (i.e. walking and cycling); therefore, car sharing would be a good alternative to reduce school traffic. A car sharing network could be instigated by holding meetings for parents to meet each other, finding a parent 'champion' to organise, or having mechanism on the school intranet or notice boards for people to post 'offers' or 'requests'.
- Encourage pupils to take public transport by campaigns dispelling concerns such as being late, or through gamification or incentives such as badges for those who go on buses (as well as those who choose active transport options.)
- Dedicated school buses could be a good option due to the location of the school, to ensure safety and timely arrival at school.

4.1.3 St Cyprians Greek Orthodox Primary Academy

This school only participated in the second year of the programme.

- All 90 pupils from Year 4 took part in 1 introduction & investigation and 1 art lesson in spring / summer 2016.
- 6 specially chosen pupils took part in a progression lesson in which they learnt to identify lichens
- 90 pupils from the following Year 4 (in autumn term of 2016) took part in 1 green infrastructure lesson and assisted in the installation of a green barrier in their school.
- 270 pupils benefited from an introduction assembly

Significant results, year 1:

- 35% of students travel to school using sustainable means (walking or cycling)
- 53% of students travel to school in cars or vans

- 41% of students favoured travelling to school by car, and a higher proportion of those preferred not to share cars (before learning about pollution)
- Almost a half of students (47%) showed a preference for walking or cycling
- In terms of staff travel, over a third (42%) travel by car, and over a quarter (29%) walk or cycle to school.
- Parents and local residents have been engaged through consultations about sustainable travel plans for the school. Speeding in the roads around the school has been highlighted as an issue.

Conclusions & Recommendations

- There is a rising culture of active travel within the school with more than 41% of pupils, walking, cycling or scooting and 72% preferring to. The school and its active travellers should be commended and recognised for the efforts to further encourage this.
- It is encouraging to see a number of parents participating in “park and stride” for those who live further from the school. Park and stride should be encouraged among all parents that drive to the school.
- By engaging and encouraging staff to travel more sustainably (68% would prefer), they would be great exemplars to pupils and parents.
- To facilitate more active travel, a number of walking buses could be set up to enable pupils and their busy parents to walk cleaner, safer routes.
- Green infrastructure such as green barriers around the playground would also help reduce students’ exposure to pollutants from the busier Northwood Road and Green Lanes.

4.1.4 Woodside Primary Academy

This school only participated in the second year of the programme.

- 12 Eco-leads from Year 4, 5 and 6 classes received two CA4S lessons in the spring term of 2016.
- 12 pupils also took part in a progression lesson in which they learnt to identify lichens, and assisted in the installation of a green barrier in their school.
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport and through interventions at the end of the school day.



Significant results, year 1:

- The majority of students (71%) showed a preference for walking or cycling
- 19% of students prefer travelling by car
- More people prefer cycling to school than those currently do (13% comparing to 1%)
- There was a strong preference from parents surveyed to cycle to school (four of five compared to none who currently do).
- Four of five parents / guardians reported that they now know more about pollution and air quality in London than they did in September.



Conclusions & Recommendations

- The data analysis shows that students and their parents have high awareness of air pollution; however, students have mentioned that it's too far away for some of them to walk to places. Therefore, still many people travel by car.
- Enabling the growth of networks for car sharing would reduce the amount of traffic around the school
- The same networks would facilitate walking to school buses to enable pupils and parents to choose their preferred modes of transport. Particularly in cases where children want to walk but parents are not able to take them .
- Many pupils and parents (38%) would prefer to cycle, however only 3% of them do. To improve this is it may be useful to target encouraging parents to cycle. One strategy could be having cycling campaigns and offering cycling activities (e.g. add that into sports day) to engage them, or offering cycling training as a family activity to help parents also gain confidence
- As many students live too far to walk, encouraging them to park and stride by highlighting the health benefits, or providing badges as incentives, could help reduce pollution around the immediate school area.

4.2 Merton Schools

4.2.1 Cranmer Primary School

- All 90 pupils from Year 5 took part in two CA4S lessons in the spring term of 2016
- This work follows on from work during 2015 in which around 20 pupils chosen from Year 4 were the key participants and received two lessons in the summer



term of 2015

- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the summer fete.

Significant results, year 1:

- 80% of pupils said they would prefer to travel to school by sustainable means (walk, and cycle) compared to 60% who currently do.
- 2 locations were shown to be over the EU legal limit for NO2

Significant results, year 2:

- The majority of students (66%) travel to school by using sustainable means, and 65% of them walk to school.
- More than a quarter of students (34%) showed preference for park and stride, which reduces the NO2 emission produced.
- 24% people prefer using public transport compared to 0% the year before
- The emission level outside the school is very low; therefore, students are less likely to be affected by the pollutants.
- In a follow-up survey seven out of ten parents reported that they knew more about air pollution now than they did in September.

Conclusions & Recommendations

- The project saw an uplift of 6% more students travelling to school by sustainable means, and encouraging uplifts in preference for sustainable travel choices such as car sharing therefore further encouragement through awareness raising could be recommended, potentially using the materials created during this project.
- Near the school is a busy road which the children walk down to arrive at the school, This can sometimes make them late, so to make the road less busy the students suggested that there is more incentive to cycle, such as award schemes, cycle safety courses or increased facilities within school like showers or cycle racks.
- Students would also like to engage their peers with healthy travel, perhaps creating award/passport schemes for sustainable travel and events such as walk to school week.
- Sharing resources like car/lifts and 'walking to school buses' will allow children to travel to school with their friends while reducing the strain on busy parents.

4.2.2 St Johns Fisher RC Primary School

- All 60 pupils from year 5 received two C4AS lessons in the spring term of 2016

- This was following on from work during 2015 in which all 60 pupils from the previous Year 4 were the key participants and received two lessons in the summer term of 2015.
- 60 pupils from the same class also took part in a progression lesson in which they learnt to identify lichens
- 60 pupils assisted in the installation of a green barrier in their school.
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the summer fete

Significant results, year 1:

- 63% said they currently travel to school by sustainable means (walk, scoot or cycle) in a hands-up survey.
- After learning about local air quality. %86 (%57 cycling, %29 walking) of the students prefer using sustainable means.



Significant results, year 2:

- 26% more people cycle to school
- Although more people (2% more) travel to school by cars, more people (10% comparing to 0% last year) are doing park and stride
- 20% more prefer walking to school
- There are two junctions just outside the school, and the waiting parents can contribute to slow moving traffic. Therefore, further encouragement of the park and stride scheme could be recommended to reduce the concentration of NO2 emissions.
- More than a half of the staff travel by car (52%); 44% travel by walking and cycling.

Conclusions & Recommendations

- The data analysis demonstrates the effectiveness of awareness-raising amongst staff and students; it also shows there is currently a strong culture for active travel within the school.
- An awareness campaign for drivers at the junction to stop idling at the junction outside the school, using the banners and materials created or potentially giving out flyers could be recommended.
- Due to the busy junction just outside the school green barriers could be recommended to reduce exposure to airborne pollutants.
- Encouraging park and stride would ease the concentration of cars in the immediate vicinity of the school and reduces the emission level near school.

- Enabling interventions, such as implementing a car sharing network, would reduce car-use. Especially when a lot of children who come by car said it's because they live too far away. By creating a network, it makes car-sharing easier, and encourages people to travel more sustainably.
- Students would like parents to stop driving them to places, so that they can walk more or car share with their friends.
- Recommend getting the bus to work and other forms of public transport, especially for journeys that are shorter or have easily accessible public transport routes

4.2.3 West Wimbledon Primary School

- All 60 pupils from Year 5 received two lessons in the spring term of 2016
 - This was following on from work during 2015 in which around 60 pupils from Year 4 were the key participants and received two lessons in the summer term of 2015
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the summer fete

Significant results, year 1:

- 68% travel to school by sustainable means
- 74% said they would prefer to travel to school by sustainable means (walk, and cycle) in a hands-up survey after learning about local air quality. (%22 cycling, %52 walking.)

"It's not polluted around our school as not many people drive to school"
- **Student observation**

Significant results, year 2:

- The majority of students (72%) showed a preference for using sustainable means.
- 27% more prefer cycling to school (22% in first year, 49% in second year)
- Although 8% more students prefer travelling to school by cars, they are more aware of car sharing and park& stride, which does less harm to the environment.
- In terms of the staff behaviour, nearly half of them (49%) travel to school by using sustainable means. 21% of them use public transport, which the transport method does not have as much effect to the environment.
- Safety was a major concern for pupils when considering cycling or walking to school to due to a large number of busy roads nearby.

"In Rayne's Park there's lots of traffic and therefore pollution"
- **Student observation**

Conclusions & Recommendations

- Structural interventions around the school such as segregated cycle lanes or lower speed limits would encourage more pupils and parents to cycle by improving road safety for cyclists.
- Enabling interventions, such as the network for car sharing can help enable parents and students to switch to a more sustainable mode of transport. This also helps maintain the habit of using more environmentally friendly ways to travel, especially for those pupils who live too far away to walk to school

4.3 Richmond Schools

4.3.1 Darell Primary School

- This school only participated in the second year of the programme.
- All 30 pupils from Year 5 received two lessons in the spring term of 2016.
 - This was followed by a further lesson in autumn 2016
- 30 further year 5 pupils also assisted in the installation of a green barrier in their school in autumn 2016
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the summer fete



Significant results, year 2:

- The majority of students (77%) showed a preference for walking or cycling
- There was a strong preference from parents to cycle to school (38% compared to the 0% who currently do).
- Pollution in the immediate area of the school was reasonable, but the nearby A316 has above average levels and should be avoided by children on their routes to school where possible.
- It was noted that there are 40 cycle parking spaces and 20 scooter spaces, which account for 17% of the overall population. According to the travel plan, 57% people prefer to travel by cycling and scootering. This means that the school should provide more space in order to encourage people to use them.

“We want to cycle but live too far away due to over-subscription in the schools. It’s tough to drop the kids off and get to work without using a car.” –
Parent observation

Conclusions & Recommendations

- Structural Interventions such as more cycle parking would assist in the uptake of cycling as a sustainable transport method for getting to school.
- Green infrastructure such as green barriers around the playground would also help reduce student's exposure to pollutants from the junction.
- Enabling interventions, such as the network for car sharing can help enable parents and students to switch to a more sustainable mode of transport. This also helps maintain the habit of using more environmentally friendly ways to travel, especially for those pupils who live too far away to walk to school
- Make quiet route to school maps and distribute them to parents to encourage them to avoid the nearby busy road, perhaps a treasure hunt or 'landmark spotting' trail could be put in place to encourage people to experiment with these alternative route

4.3.2 Holy Trinity Primary School

- All pupils (90) from Year 5 received two lessons in the spring term of 2016
 - This was following on from work during 2015 in which around 60 pupils from all three classes in Year 4 were the key participants and received two lessons in the summer term of 2015
 - 8 pupils also took part in the installation of a green barrier in their school as part of the Kingfisher after school club
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the end of the school days and at the summer fete

Significant results, year 1:

- 86% of the pupils currently travel to school by sustainable means (mostly walking); in a hands-up survey 72% showed interest in walking, 8% scooting and 6% to cycling.
- Air quality around the school was good, but Upper Richmond Road nearby was above average.



Significant results, year 2:

- More than half of students (61%) showed a preference for walking or cycling
- There was a strong preference from parents to cycle to school (38% compared to the 3% who currently do).
- 80% of parents / guardians reported that they now know more about pollution and air quality in London than they did in September.

- Nearby to the school there is a busy train crossing where idling cars cause high levels of pollution, an anti-idling campaign could be carried out there and it is recommended pupils avoid this crossing if possible or pass over the bridge to avoid waiting in the highly polluted area.

“We don’t walk to school or other places because it’s too far away for us to walk”
– **Student observation**

Conclusions & Recommendations

- Many pupils (38%) and parents (80%) would prefer to cycle, however only 3% and 0% of them do. To improve this it may be useful to target encouraging parents to cycle. One strategy could be having cycling campaigns and offering cycling activities as a joint family activity, or adding cycling to sports day to highlight it as a sport.
- Nearby to the school there is a busy train crossing where idling cars cause high levels of pollution, an anti-idling campaign could be carried out there and it is recommended pupils avoid this crossing if possible or pass over the bridge to avoid waiting in the highly polluted area.
- The students themselves also had ideas to pick friends up on the way to school and put reminders up to turn your engine up while in traffic on this road so there’s less air pollution.
- Structural interventions, such as the network for car sharing and walking to school buses can help enable parents and students to switch to their preferred mode of transport were also mentioned.

4.3.3 Sheen Mount

This school only participated in the first year of the programme

- Around 20 pupils chosen from Year 4 were the key participants and received two lessons in the summer term of 2015.
- All 60 year for pupils received part of the lessons
- a wider audience was also reached through an introductory assembly with the school and an intervention at the end of the school day whilst parents picked children up.



Significant results, year 1:

- In a hands up survey 87 % of the pupils travel to school by walking
- A high number of the students , 32% showed their interest in cycling, where only 2% cycle now.
- On the nearby Upper Richmond Road we found above average levels of pollution near a bus stop and crossing.

Conclusions & Recommendations

- Considering the number of pupils that would prefer cycling a suggestion could be made for better cycling networks and provision in the immediate area, and perhaps cycle safety training to be carried out in schools.
- Designing walking routes with pollution in mind would also result in reduction of exposure. (which is almost twice as much the EU level at some areas). 'Walking buses' could also be arranged to make it fun and safer for children to walk quieter roads; reduce exposure to airborne pollutants.

4.3.4 St Stephens Primary School

- 120 Year 4 and 5 pupils took part in six CA4S lessons over 2015-16
 - 60 year 4 pupils took part in one introduction and investigation and one art lesson in 2015
 - 60 year 4 pupils took part in one introduction and investigation and one art lesson in spring/summer 2016
 - The same 60, now Year 5 pupils took part in one lichen progression lesson and one green infrastructure lesson in autumn 2016
- 240 further pupils benefited from an introduction assembly
- Additionally parents, teachers and pupils received additional information about the project at the school fete, **5** parents took part in an quality focus group discussion & **6** parents took part in the citizen science investigation



Significant results, year 1:

- The majority of students (82%) use a sustainable travel method to get to school
- There was a preference from parents to cycle to school (16% compared to the 10% who currently do).
- Just outside the school there is a highway with high levels of pollution, therefore green infrastructure was recommended to reduce pupils exposure to pollution

Significant results, year 2:

- 82% of students travel to school using sustainable means (walking or cycling)

- The majority of students (90%) showed a preference for walking or cycling,
- 42% of parents/ guardians surveyed reported that they cycle to school.
- Parent travel preference also indicates a wider use of *public transport* modes to get to school
- There are 42 parking spaces for bicycles. This account for 9% of school. According to the travel plan, 10% students travel by bicycles, and 16% prefer to cycle to schools, which means that the parking space is insufficient and might put people off from travelling sustainably.



Conclusions & Recommendations

- Many pupils (38%) and parents (80%) would prefer to cycle, however only 3% and 0% of them do. To improve this it may be useful to target encouraging parents to cycle. One strategy could be having cycling campaigns and offering cycling activities as a joint family activity, or adding cycling to sports day to highlight it as a sport.
- St Stephen's could consider using the Winchester Road as the main entrance to access the school, the pollution levels there are considerably lower on the Chertsey Road, which is a concern to parents and pupils alike.
- There is a strong culture of active travel within the school with more than 75% of pupils, walking, cycling or scooting. The school and its active travellers should be commended and recognised for the efforts to further encourage this.
- It is encouraging to see a number of parents participating in "park and stride" for those who live further from the school. Park and stride should be encouraged among all parents that drive to the school.
- To facilitate more active travel, a number of walking buses could be set up to enable pupils and their busy parents to walk cleaner, safer routes.
- Green infrastructure such as green barriers around the playground would also help reduce students exposure to pollutants from the highway

4.4 Wandsworth Schools

4.4.1 Eveline Day School

- All 15 pupils form year 5 took part in two CA4S lessons in the spring term of 2016
 - This was following on from work during 2015 in which around 20 pupils mixed between the classes 4,5 and 6 were the key participants and received two lessons in the summer term of 2015

- A wider audience of parents and teachers was reached through an introductory assembly with the school discussing air quality and transport, and through interventions in the reception area in the morning whilst parents dropped children at school
- LSx set up a stall at the summer fair, enabling further engagement with parents

Significant results, year 1:

- 59 % of the pupils travel to school by sustainable means (walking and 11% cycling),
- Just outside the school there is an A Road which produces relatively heavy pollution at busy times; therefore green infrastructure could be recommended to reduce pupils exposure to pollution.

Significant results, year 2:

- The majority of students (93%) showed a preference for walking or cycling
- In the second year there was a 33% increase in preference for sustainable travel
- There was a strong preference from parents to cycle to school (49% compared to the 4% who currently do).



Conclusions & Recommendations

- Car sharing would be recommended, they in fact already have a scheme in place for people going to after school clubs – extending this to the school run would be recommended
- As Eveline Day Nursery is next to a main road Green infrastructure, such as green barriers, are recommended. It would help reduce student's exposure to airborne particulate matter from the nearby road
- Structural interventions such as segregated cycle lanes may be necessary to encourage the uptake of cycling, facilitating cycle training as a family activity can also help grow the confidence of parents.

“My dad needs to drive a car to get to work so it is easier for him to drive me first”
– **Student observation**

4.4.2 Penwortham Primary School

This school only participated in the second year of the programme.

- All 90 pupils from Year 4 received three CA4S lessons in the spring term of 2016.
 - 90 Year 4 pupils took part in 1 introduction & investigation and 1 art lesson in spring / summer 2016
 - 8 Green Team pupils also took part in 1 green infrastructure lesson in autumn 2016 and assisted in the installation of a green barrier in their school.

- A wider audience of **270** pupils from Years 4, 5, and 6, was reached through an introductory assembly with the school discussing air quality and transport and through interventions at the end of the school day.



Significant results, year 1:

- 84% of students travel to school using sustainable means (walking or cycling)
- 15% of students travel to school in cars
- Only 13% of students favoured travelling to school by car, and none wanted to use the bus or train
- 87% of students showed a preference for walking or cycling
- Immediately round the school there were low levels of pollution but nearby busy junctions had higher levels.

"I would cycle but my parents don't think it's very safe"
 – **Student observation**

Conclusions & Recommendations

- As Penwortham Primary School is close to a main road, **Green infrastructure** such as green barriers around the playground would also help reduce students' exposure to pollutants from the A road.
- **Structural interventions**, such as the network for car sharing, park and stride, and walking to school buses can help enable staff, parents and students to switch to their preferred mode of transport.
- Many pupils (45%) would prefer to cycle, however only 4% of them do. To improve this is it may be useful to **target encouraging parents to cycle**. One strategy could be increasing cycling training, having cycling campaigns and offering cycling activities (e.g. add that into sports day) to engage them.
- Safety was a major concern for pupils when considering sustainable travel, a campaign of road safety, or even structural interventions such as enforced lower speed limits immediately round the school would aide in reducing this concern and encourage more people to travel sustainably.

4.4.3 Sacred Heart Primary School

This school only participated in the first year of the programme

- Around 60 pupils from classes in Year 4 were the key participants and received two lessons in the summer term of 2015.

- A wider audience was also reached through an introductory assembly with the school and an intervention at the Summer Fete.

Significant results, year 1:

- 41% of the pupils prefer to travel to school by sustainable means (walking and 2% cycling)
- 39% of pupils said they'd prefer to walk to school and 2% said they'd like to cycle. The remaining pupils said they go by car and bus out of necessity.
- Nearby to the school we found high levels of pollution, including in a nearby hospital which was concerning.

Conclusions & Recommendations

- Considering the number of the pupils and parents that would prefer sustainable means (walking and cycling) to driving, better cycling and walking network within community should be urgently improved in order to avoid busier roads; exposure to airborne (which is almost twice as much the EU level at some areas). The number of the cycling pupil 2% shows us that there is an need for improved cycling lanes, training and awareness
- According to the results obtained from the measurement there is high exposure to the polluted air at the entrance and close vicinity of the school which might results from bus and car usage over sustainable means.
- Organising walking to school buses will allow pupils to walk to school safely along quieter roads, thereby reducing their exposure to air pollution.

4.4.4 St Marys CE Primary School

- All pupils from year 5 received two lessons in the spring term of 2016
 - This was following on from work during 2015 in which around 30 pupils from year 4 were the key participants and received two lessons in the summer term of 2015.
 - Pupils also took part in a progression lesson in which they learnt to identify lichens, and assisted in the installation of a green barrier in their school
- A wider audience was reached through an introductory assembly with the school discussing air quality and transport, and through interventions at the summer fete



Significant results, year 1:

- Majority of the of the pupils (81%) prefer travelling to school by sustainable means (walking and cycling).
- Although near to the busy Putney High Street, which has extremely high pollution levels, the pollution levels measured around the school were relatively low.

Significant results, year 2:

- The majority of students (93%) showed a preference for walking or cycling.
- Parents were quite encouraging of their children cycling to school (13% compared to the 2% who currently do).
- The overall air quality around the school is reasonable, but the air quality on Lower Richmond Road is noticeably worse, encouraging consideration of such hot spots when walking to school is recommended.

Conclusions & Recommendations

- Quiet route to school maps could be made in conjunction with pupils, highlighting pollution hot-spots as well as health benefits such as calories used walking or 'fun things' to spot on the way
- Organising a network for walk-to-school buses would make it safer for children to take the quieter route.
- The same network could be used for car sharing for those few pupils who live too far away to walk
- **An awareness campaign for drivers in the high street** to stop idling could be created, using the banners and materials created or potentially giving out flyers.

5 FOCUS GROUP CONCLUSIONS

London Sustainability Exchange (LSx) engaged 29 parents, from three of the participating primary schools, St John's Fisher (LB Merton), St Cyprians (LB Croydon) and St Stephen's (LB Richmond), in conversations about the perceptions and motivations for travel choice. We also held discussions with pupils during many classroom sessions, where further insights were uncovered. A general overview of the key findings and results are presented below.

5.4 Key Findings (Parents)

5.1.1 Parents acknowledge the importance of 'active travel' and identify that being healthy and being safe were the most important factors in travelling to school

- While it is common for parents to vary travel mode throughout the week, there is an acknowledgement that routine makes things easier
- Use of car, or to a lesser extent, public transport is seen as a practical and safe way to transport children to school
- The perceived safety of cycling is a major barrier for some parents.
- Parents also cited safety on public transport as being a concern, with a dedicated school bus as a favoured suggestion made by one group.

"It is easier if you do the same thing all the time, they just accept it, but they get fed up (with walking) if they have choices"

"We walk two days and drive 3 days because I have to get to work and it's in the opposite direction. I prefer to walk but it's not practical".

"Making our journeys active, keeping the children healthy"

- Parents also identified a number of practical barriers to cycling which range from having younger children, being able to carry everything (book bags, lunchboxes and occasionally musical instruments and sports bags) to knowing *where* they should ride i.e. on the road or on the pavement, neither provides an adequate resolution to the parents. Safeguarding was also an important topic.
- Scooting was a preferred option, as it's easier for parents to maintain control and feel safe with children next to a road.

"It's easier on a scooter because you can walk with them then, whereas on a bike you can't"

5.1.2 Pollution is a major concern among parents, despite a general lack of knowledge

- Knowledge, in terms of what they can do, and how they can avoid pollution, was a major concern for parents, i.e. *walking in pollution*
- Knowledge of how 'smarter driving' can reduce emissions was generally low among parents
- Parents were also concerned about indoor pollution and keen to understand what could be done to reduce this.

"Even it's a short walk you are behind these exhausts which cannot be good for you".

"You get a diesel car thinking it would be more efficient but is only for long car"

"I thought idling was considered to be staying there for 5 minutes or longer"

5.1.3 There is an appetite for walking buses among the participating schools, although parents acknowledge that the practicalities or logistics of this might prove challenging

Parents were generally open to the idea of a walking bus, however it was acknowledged that the administration involved may be a barrier. Further there was concern, especially from school representatives about the possibility of children being made late to school by others, again safeguarding was an important factor.

"Sometimes you will be waiting for your kids, other days you will be waiting for other people, I would find that quite stressful"

"If it was available, I would definitely use it"

5.1.4 The enjoyment and engagement level of the children in active travel is important for parents uptake

- Parents looked favourably on events such as 'walk to school week' – especially when there was a badge or incentive for the children which made them want to walk to school.

"It's easier to walk to school if the children aren't moaning all the way"

5.2 Key Findings (pupils)

5.2.1 Safety is really important to students

- 68.4% of pupils cited safety as their biggest consideration when travelling to school. Reasons stated were almost always related to traffic, particularly in schools with busy roads nearby. However it could also be seen that being safe was something that had been general pressed on to them by parents.
- Safety was a barrier to adoption of sustainable forms of transport, especially cycling.

"Where I live it's not safe because there are lots of traffic and lots of alleys" - Woodside

"I want to cycle but my parents don't think it's very safe" – Penwortham

5.2.2 Children are switched on to perceptions of cars being more convenient

- A commonly stated reason by pupils for driving to school was that parents had to go to work afterwards, the other was being late in the mornings

'My dad needs to drive a car to get to work so it's easier for him to drive me first' – Eveline Day School

"I normally walk but sometimes I'm late and I go in the car" – Darell School

"If it was late and you had to go to school by car you could make up for it by walking or cycling the next day" – Holy Trinity

5.2.3 Children want to have fun but be responsible

"It shouldn't be dangerous, but also not boring" – Eveline Day School

- As mentioned in 5.2.1 safety was a very important factor for children, with debates opening in many classrooms on the topic, and many children keen to share their thoughts on the dangers of roads. Therefore although options like cycling were seen as "quicker" and more "fun" they were not used due to this factor.
- Some pupils who did walk said it was enjoyable because they got to "chat with their parents"
- Others also highlighted the health benefits, and there was a high general level of perception that it was good to be healthy and get exercise.

"Walking is good to exercise your legs" – St Stephens

5.2.4 Public transport was commonly unflavoured by pupils

- Public transport was seen as "dirty, horrible, claustrophobic and crowded" with pupils complaining it was "smelly"
- It was also commonly perceived that public transport could make you late

"If you have to wait for the bus it can make you late for school" – Oasis Byron

"It stops everywhere" – Oasis Byron

- Public transport was seen as an expensive option for pupils in several schools. Possibly because they see the transaction taking place compared to the 'invisible' costs of cars. It may also be that they have picked this up from their parents as those who already pay for a car may not want to spend on bus fares as well.

"Maybe people don't want to take public transport because you have to use a bank card or oyster and it's expensive" – West Wimbledon

5.2.7 Cycling was the favoured option but has many barriers to adoption

- Pupils associated cycling with keeping fit and considered it better exercise than walking
- They also said that cycling made them feel more 'independent', however despite many preferring to cycle most did not for a variety of reasons, mainly; not owning a bike, because it takes too long, because their bike is broken or stolen, or because it's dangerous
- The practicalities of cycling with young children are not to be under estimated and some pupils stated they weren't able to cycle due to younger siblings.

"It's dangerous" – St Cyprians *"My dad doesn't have a bike"* – St Cyprians

"It takes too long for my dad to sort out his bike and my bike" – St Cyprians

"I've got a bike but it's broken" – Darell School

5 CONCLUSIONS & RECOMMENDATIONS

This curriculum linked programme gave the children an understanding air quality and had a positive effect on their travel aspirations. The initial programme was up and running in schools very quickly, but schools benefitted from the longer lead in period for the second year. Some schools were able to maintain momentum of the project throughout the year and this was very effective.

5.1 Conclusions

Travel behaviour across the 16 schools.

- **Cycling and scooting are the 'fun' preference;** In many cases the preferred method of travel is cycling, this is seen to be more 'fun', faster and pupils feel more independent. The biggest barrier to pupils cycling was safety, with not owning a bike or lack of cycling infrastructure the second most common. Engaging and gaining confidence in cycling from a young age will undoubtedly help shape the generation of the future and should be commended. **Scooting is popular with pupils;** it is also practical for parents, in that it is quicker than walking but does not have the safety concern of cycling.
- **Public transport is not seen favourably;** Pupils stated it is uncomfortable or crowded, and parents voiced concerns over the safety of sending their children on the bus by themselves. The most common concern from all parties was that it 'can make you late' Indicator boards and apps have helped with this of course.
- Parents felt more comfortable with the concept of bespoke school buses, than using public transport – this could be a result of a number of public schools in the area deploying their own school buses. Since successive London Mayors have conducted feasibility studies into this issue and found bespoke school buses to be inappropriate for London.
- **Teachers often live further away** from the school in each school leading to more than half of teachers travelling to school by car in many schools, further needing to get to school early and not wanting to 'be sweaty', and the need to carry materials and marking were barriers to teachers travelling by public transport or on a bike.
- There is **very little car/lift sharing** amongst the school communities, with various concerns for the practicalities voiced and a lack of underlying social infrastructure to facilitate them.
- **Idling was not perceived to be a huge problem outside of the schools,** although a number of schools did suffer from instances of it. However the high amount of general traffic around the school gates during drop off and pick up did cause concerns about safety and contribute towards pollution levels.

5.2 Recommendations for travel

Recommendations to influence travel behaviour

A social marketing campaign establishing values, aspirations and values, customer segmentation related to specific travel behaviours would be effective.

- Some children and parents with fun as a motivator would benefit from support to scoot and cycle to school, and organising treasure hunts on the way to school.
- Time pressed parents could benefit from social infrastructure support in order to change their travel plans such as car sharing or walking buses.

- Safety was identified by some as a prime motivator, schools and councils could respond to these concerns with safety information and including parents in consultations when infrastructures developments are planned.
- Green barriers can create a good focus for schools and parents and can provide a small barrier to pollution for the school.
- Since driving behaviours can reduce pollution from cars by 10-15% parents and teachers could be encouraged to engage in behaviour change programme that involved driving behaviours such as idling.

Infrastructure focused interventions

- **More provision of scooter and cycle parking** is needed for schools to reach their targets. Not all schools indicated that they had cycle and scooter parking.
- **Working with schools as part of the planning consultation process.** Especially when developing infrastructure such as segregated cycle lanes. School communities have practical knowledge of the roads and can offer a valuable contribution on this.
- LSx current research on **green barriers indicates that in isolated incidences green walls can be effective barriers. And thereby** in reducing pupils exposure to pollution. The systems implemented should be chosen to be low maintenance to not put a financial burden on the school.

Social network focused interventions car sharing or walking buses

- The growth of car sharing networks amongst the school community would be able to enable parents and teachers to develop more sustainable habits. However in some cases schools are not happy to take responsibility for organising this, due to safeguarding worries or pupils being late through the scheme – therefore providing tools or structured meeting places for organisation between parents may be preferred. This would have to be carefully navigated for children's safety, for example where parents vouch for each other or even DBS checks for volunteers.
- **Walk to school buses** require the same social network infrastructure as the car sharing, strategic growth of social capital within the local communities would be required as a first step as both rely on trust. However many parents do depend on such trust in relation for play dates or managing emergency support. Few schools reported actively getting involved in developing social capital, but actually many rely on it in order to support school activities – inset days, parents evenings, school fairs etc. The actual mechanism for facilitating the exchange could be as low tech as a sign-up sheet (as implemented in Eveline Day School), or could utilise the possibility of mobile phones with an online sign-up facilitated through the school intranet where it exists. Pupils may also enjoy the social aspect of walking with friends.
- Encouragements - Continued use of badge or points schemes to encourage active travel, extended to incorporate car sharing and park and stride could be implemented, parents reported these were useful to engage children and enthuse them to choose and enjoy active travel rather than complaining. The goal is for it to become the 'fun' choice.

Ideas that schools came up with to promote active travel

- **Encouraging - Including a scooting in** bike week and quantifying the benefits of this active travel method could encourage further uptake of sustainable travel. Especially as scooting is very popular at the moment.
- **Enabling** parent cyclists to gain confidence by providing cycle training as a family activity could aid raising the numbers of pupils able to choose this mode of transport. It also could kick-start a culture of cycling as a family activity.

- **Exemplar** parents and teacher cyclists could be effective to encourage a change in the travel culture of schools. As well as bike training the parents also highlighted the need for, bike and scooter storage. Parents also were concerned about 'bike or scooter 'my bike is better than yours 'competition', and wondered if schools or the borough could broker wholesale bike deals, and second hand bike swaps, sales and repair for cycling to be affordable.

Quiet Routes

- **Engaging** different travel behaviours– our work on **quiet routes maps** with parents and pupils from schools, with interesting things to look at on the way and the health benefits assisted in the reduction in exposure of pupils by encouraging parents to choose a quiet route. Pupils were aware that the 'nicer' routes to school took longer; this is relevant as being late was stated as one of the primary concerns, and often led to pupils taking the car rather than walking at all.
- Parents also stated that sometimes **quiet routes or back streets were unkempt or dirty**. Therefore in some cases a process of community engagement to turn these into pleasant routes is needed, the art or treasure trail creation could form part of this process.
- **Encouraging** experimentation of new routes by parents could also be stimulated by organising treasure hunts or art trails along quiet routes to school.
- **Creating awareness on driving behaviours** such as the reduction of non-parent idling through displaying banners or posters to raise awareness of the presence of a school in cases where there are busy crossings or junctions may also result in reduced pollution around the school. Parents and pupils had an appetite to learn about driving behaviours - talking about how speeding drivers were concerning, awareness of the school presence may also help reduce this and thereby increase safety. Schools could provide an ideal focus for supporting parents and teachers in better driving behaviours.

Creating exemplars

- Where schools have an eco-council '**champion' pupils could be appointed** to lead these schemes. We know that peer-to-peer is a much more effective route to engagement, these 'trusted messenger' pupils will be more likely to influence their friends to uptake sustainable travel.

5.3 Project Conclusions

Engagement with schools

- **Engagement through the practical** use of scientific equipment and taking science out of the classroom was greatly enjoyed by the children. Looking for Lichens and installing green infrastructure were similarly effective in creating an understanding of pollution..
- **Each school had a different set of challenges**, depending on the wider context in which it was located, such as the local geography, depending on the wider context in which it was located, such as the local geography; therefore bespoke approaches to encouraging sustainable travel appear to be more effective.

Engagement with pupils

- **Extending students citizen science activities** to include research interviews with parents was a successful in getting parents views.

- **Encouragement** - the competition element was a strong motivating factor for the children to work on their posters.
- **Children easily understood the concepts of pollution;** this complimented their understanding of not littering or not smoking as other responsible actions which they have been taught about.
- **Children were more likely to take action if the citizen science results indicated that there could be a pollution problem in the area.** The use of analogies and highlighting wider implications of the challenge from the start are important to maintain momentum for change regardless of measurement results.

5.4 Recommendations: For future phases

- **Engagement of the wider community** in the formation of a 'steering group' incorporating teachers, parents and community group representatives from the start of the programme would lead to more effective intervention outputs.
- Lead-in times need to be as long as possible – most effective engagement occurred if we were able to talk at least two terms ahead of visiting the school. , with better initial dialogue with classroom teachers to fit in to their curriculum planning. This would be more beneficial for teachers and result in greater engagement by the schools.
- A more **flexible** approach, offering options during initial meetings may be more attractive to schools, to reflect the prevailing culture and limitations of specific schools. It would also additional support to be offered in schools that have specific needs.
- **Engagement** in schools with more than two form entry would be more effective with a larger number of tubes/lessons, this would also be reflected and better managed within a flexible offer structure.
- **Indoor air quality** was a concern for some parents; given the geographical location of some schools (close to busy roads) some work on indoor pollution may be warranted.
- Schools that were engaging with the **TFL stars programme tended to be keenest.** Future programmes should be linked to the 'going for gold' activity.
- Future programmes could benefit from a sharing between schools to create exemplars to inspire action from others.

Engagement with pupils

- **Pollution discussions** could be extended to include showing video clips and the children creating their own video clips
- Building several **structured layers of engagement** will result in a more effective programme, this could include at least 3 layers; a core group of eco/air quality champion pupils, extending to whole class activities, then reaching out to the wider community.
- **Pupils engaging with their parents is key to consolidating behaviour change.** Children presenting their work to the parents in a structured way; for the best poster from each school to be displayed on the school notice board, or final assembly could be effective.
- **Consolidate learning:** since the project was extended over a reasonable time period, it could include child centred reminders of what the children have learned, such as a journal of the project or scientific report, would give more consolidate their learning.

[Full reports for each school are available as separate PDF's](#)