Environment and Sustainability Panel

Item **8**

29 November 2022

Report of	**Air Quality Engagement Officer**	**Author**	**Rosie Welch ' 507157**
Title	**DEFRA Air Quality Project Update**		
Wards affected	Castle, New Town and Christchurch		

1. Executive Summary

1.1 The purpose of this report is to provide an update to the Environment and Sustainability Panel on the DEFRA funded air quality behaviour change projects, covering roadside signage, the CAReless Pollution Campaign, the Homeburning Campaign and our new funding bid that is currently being considered by DEFRA. The report has not covered the sustainable transport, i.e walking and cycling, element of our air quality work as this will be covered in a sustainable transport update to the panel in January 2023.

1.2 Colchester City Council (CCC) received its first funding from DEFRA in 2019, to work with the local community to tackle pollution within its Air Quality Management Areas (AQMAs). CCC has had a further three successful bids totalling £746,163 for its work since then. By using an Asset-Based Community Development (ABCD) approach to tackling pollution, the work recognises that education and community "buy-in" is the most successful way of achieving long-lasting behaviour change.

1.3 The Council's first DEFRA grant was for the award-winning CAReless Pollution "no idling" campaign that has led to an increase in the number of drivers switching off their engines in key targeted areas, contributing to less harmful pollutants in the air. Figures from this year's Annual Status Report show pollution levels are on a downwards trend. A more focussed programme of work has now commenced with delivery drivers and takeaway outlets in the borough.

1.4 Our roadside signage trial (funded by the 2nd successful Defra bid) has come to an end, but has led to a 11% increase in engine switch offs on Brook Street and at East Gates. At East Gates alone approximately **260 additional** vehicles were switching off their engines **every week** preventing an estimated **91g** of Nitrogen Dioxide per week entering the air (based on a 5-minute wait). The findings mirror the results of short-term trials in Kent where signage has now been made permanent.

1.5 Following the study, the Council are making a recommendation to apply for planning permission to have the signage on Brook Street and East Gates put up permanently and to use the remainder of the DEFRA budget to identify and fund further locations within our AQMA's for signage.

1.6 Awareness of the health impacts of home burning (part of our 3rd successful bid) have increased and we are continuing the work this Winter following reports that an increased number of people will start burning at home due to the cost of heating their homes and current "cost of living crisis".

2. Recommended Decision

2.1 To note and review the content of this briefing and to provide feedback.

3. Reason for Recommended Decision

3.1 Air quality contributes to root causes of 1 in 20 deaths in Colchester. The City also contains 1 of the highest polluted areas in Essex, within our 3 designated Air Quality Management Areas

(AQMAs). The four successful funding bids the Council has made the DEFRA, with hopefully a fifth forthcoming, has allowed the Council to make meaningful differences to improve air quality and understand behaviour change better.

4. Alternative Options

4.1 None.

5. Background Information

5.1 Colchester has three Air Quality Management Areas (AQMA's) the biggest covering the area in and around the town centre with pollution levels on some roads exceeding national guidelines and proving particularly stubborn to tackle (see Air Quality Update below).

5.2 Colchester's narrow and historic roads weren't built to cope with the levels of traffic currently seen today. Brook Street alone sees over 100,000 vehicle movements a week as well as being home to hundreds of residents and the main walking route for children attending nearby primary schools.

5.3 Air pollution contributes to an estimated 36,000 deaths in the UK every year, or 1 in 20 deaths in Colchester, with a total estimated healthcare cost to the NHS and social care of £157 million (Public Health England Data). Disadvantaged communities are often more exposed to poor air quality because they tend to live in and around polluted spots, such as busy roads.

5.4 Even small reductions (a reduction of 1 µg/m3) in pollution (specifically Particulate Matter 2.5) in England in a single year can prevent around 50,000 cases of coronary heart disease, 16,500 strokes, 9,000 cases of asthma and 4,000 lung cancers over the following 18 years (information sourced from gov.uk). Thus, gaining community support around local issues, such as air quality, is a crucial way of making positive long-lasting change happen (Government paper: Inspiring communities, changing behaviours) which is why Colchester City Council (CCC) has taken an Asset Based Community Development Approach to delivering air quality improvements within the borough.

5.5 To date CCC has successfully received four rounds of funding totalling £746,163 from DEFRA for its air quality behaviour change projects. A bid for a further £310,770 in funding was submitted to DEFRA in September 2022 and the outcome will be announced in March 2023.

6. Air Quality Update

6.1.1 Colchester measures pollution levels, at 62 sites in Colchester. Diffusion tubes are used at 61 of the sites to measure for the pollutant Nitrogen Dioxide, and at one site in Brook Street a continuous monitoring station is located which also measures for the pollutant Nitrogen Dioxide Air quality in Colchester · Colchester Borough Council

6.1.2 The Council is required to submit to DEFRA an Annual Status Report (ASR) which includes all measurement results, and the actions taken by the Council against the boroughs Air Quality Action Plan. This report is appraised by external consultants, this year's Annual Status Report (ASR) 2022 has been submitted to and accepted by DEFRA and can be found in the above link.

6.1.3 Generally across the borough air quality is improving, however some hotspots remain and in 2021 three locations exceeded the 40 µg/m^3 air quality objective's these were Mersea Road, Brook Street and Osborne Street. All these locations are within the borough's declared air quality management areas. See above link for map of Air Quality Management Areas µg/m^3

Table 1 - 2021 Measured Exceedances above Air Quality Objective

Site ID	Site Address	Monitored Annual Mean Concentration (µg/m^3)	Annual Mean Concentration at Relevant Exposure (µg/m^3)
CBC3A / CBC3B / CBC3C	21 Mersea Road	46.4	44.7

CBC71	6 Osborne Street	40.2	40.2
CBC129	37 Brook Street	41.3	41.3

6.1.4 However, it should be noted that even within these areas, pollution levels appear to be on a downward trend.

Figure 1 – Trends in Diffusion Tube Annual Mean NO_2 Concentrations (Mersea Road Air Quality Hotspot)

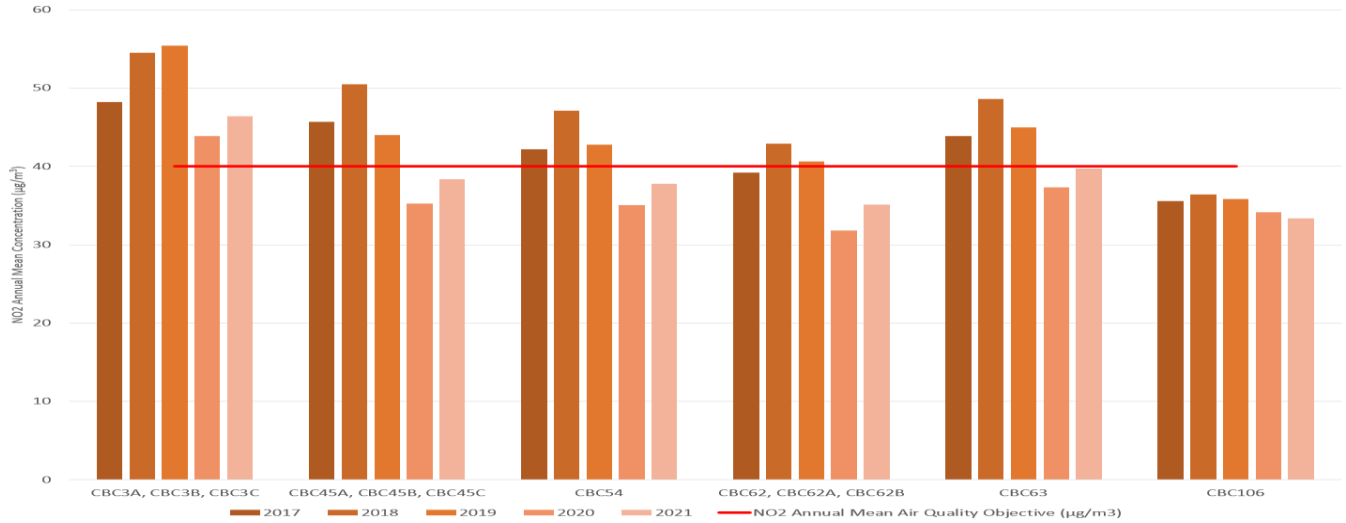
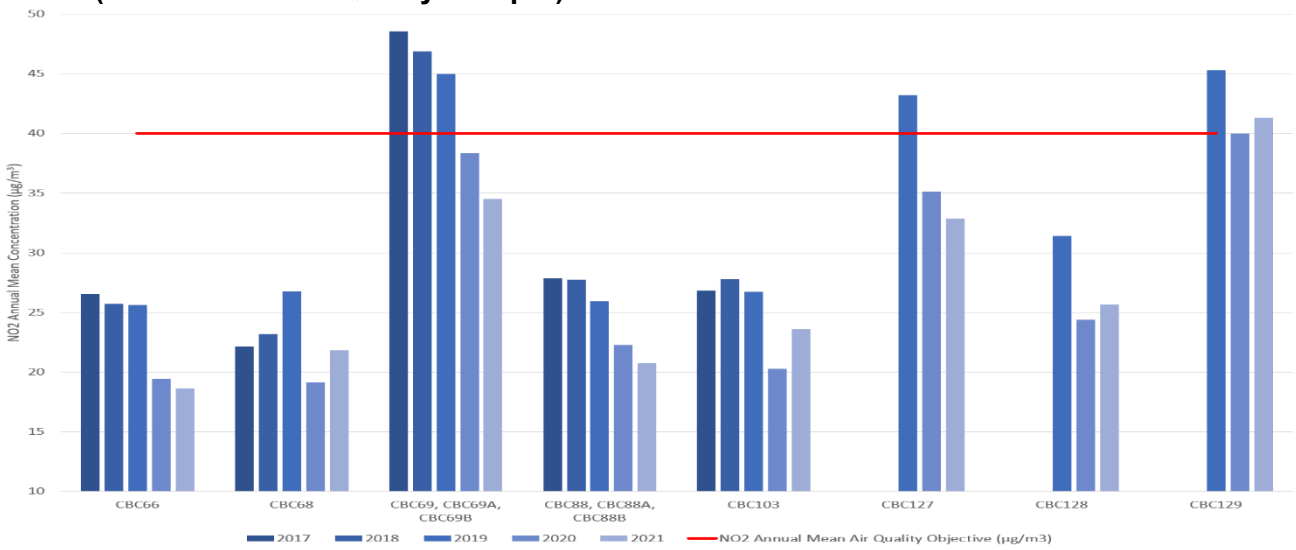


Figure 2 – Trends in Diffusion Tube Annual Mean NO_2 Concentrations (Brook Street Air Quality Hotspot)



6.1.5 The Council's priority for 2022/23 is to develop a new Air Quality Action Plan (AQAP) which will focus on direct interventions to improve air quality at pollution hotspots. This new plan will involve partnership working with Essex County Council, and Essex Highways.

6.1.6 The Council continues to seek air quality improvements, through initiatives including the Ecargo Bike Delivery Service, Shared Transport Hubs, Electric Car Club scheme and other sustainable travel initiatives, an update on which will be provided to Members at the January Environment and Sustainability meeting, along with the CAReless Pollution No Idling Campaign, Roadside Signage and Community Art Project, an update on which has been provided below.

6.2 DEFRA Funded Signage – Psychological Messaging

6.2.1 In March 2020, Colchester City Council (CCC) was awarded £34,785 in funding from DEFRA for a study into the use of psychological behavior change messages on road signs. The study was undertaken in partnership with the University of Essex and aimed to explore the impact of road signage on engine switch offs and subsequent air quality within Colchester's Air Quality Management Area.

6.2.2 Research carried out by Kings College London identified that widespread adoption of switching off engines can cut pollution by up to 30% and the effects are immediate. In addition, it was identified through our community engagement with over 3,000 residents, schools and businesses that roadside signage would encourage 45% of drivers to switch off. Roadside signage therefore seemed an obvious intervention to explore to lower pollution within our AQMA's.

Each message used on the Colchester road signs was grounded in a different psychological approach to social influence identified for their effectiveness in short terms trials carried out by the University of East Anglia and the University of Kent in Norwich and Canterbury.

6.2.3 The four messages tested in the study were:

- 'Join other responsible drivers in Colchester Turn off your engine when the traffic lights are red/ barriers are down' (Social Norms – Responsibility Approach)
- 'Turn off your engine when the traffic lights are red/ barriers are down. You will improve air quality in this area' (Self – Efficacy Approach)
- 'Think about your actions. When the traffic lights are red/ barriers are down please switch off your engine' (Self-Regulation – Reflection Approach)
- 'Exhaust fumes build-up in your car while you wait. Switch off your engine. Protect your health' (Health Threat Alleviation Approach)

6.2.4 The trial was split into three studies:

Study 1, which ran from 15 February 2021 to 17 May 2021, aimed to identify which of three psychological messages encouraged the largest number of drivers to switch off their engines and whether the effects lasted once the signs were removed.

Study 2, which ran from 7 June 2021 to 1 October 2021, aimed to explore whether rotating three psychological messages every 3 weeks is more effective at getting drivers to switch off their engines than having one message displayed.

Study 3, which ran from December 2021 to 30 September 2022, aimed to identify if driver fatigue is a factor leading to a decrease in switch off rates and if so at what point messages stop being effective.

6.2.5 The messages were tested in three locations in the Air Quality Management Area, East Gates level crossing and the north and sound end of Brook Street, the most polluted street in Colchester. Over the course of the trial, data was collected from **150,705** vehicles making this the largest study into roadside signage of its kind in the UK and over the longest period of time. It also saw a health threat alleviation message being tested for the first time.

6.2.6 The key findings from the signage study were:

1. Signage is a cost effective, low maintenance, measure that can achieve immediate results. Signage is proven, not just in this study but in trials in Norwich and Canterbury, to increase the number of engine switch offs which in turn reduces the level of harmful pollutants entering the air. Signage resulted in a peak average engine switch-off rate of 26% - an **increase of 11%** of drivers switching off their engines.

2. Some messages are more effective at encouraging behaviour change than others, the health threat alleviation and social norms responsibility messaging performed better than self-efficacy

and self-regulation messaging and led to a bigger increase in engine switch offs. Our research found messages performed better in certain locations, health performed best at East Gates and responsibility performed best at Brook Street.

3. Alternating signs is not more effective at encouraging behaviour change, our research found the opposite with the effectiveness of the messages reducing as the 4 signs rotated.

4. There is a positive spill over effect with people continuing to switch off their engines two weeks after the signage had been removed. This indicates that signs can be effective at forming habits.

5. Signs displayed for longer periods were more effective. Drivers did not get signage fatigue, on the contrary. The longer a sign is in place, the longer people are exposed to a message and the more powerful it becomes.

6. The University of Kent ran a trial testing similar psychological messaging on road signs. Their signs were up for 1 month (July – August) at 2 level crossings in Canterbury and they collected data from 6,000 vehicles. There findings mirrored the CCC findings with their social norms responsibility signs leading to a 11.5% increase in engine switch offs and a reduction in PM2 at the level crossings, they have gone on to make their signage permanent.

6.2.7 Following the study Colchester City Council are making a recommendation to apply for planning permission to have the signage on Brook Street and East Gates put up permanently and to use the remainder of the DEFRA budget to identify and fund further locations within our AQMA's for signage.

6.3 CAReless Pollution No Idling Campaign

6.3.1 Throughout 2021/22 the CAReless Pollution campaign has continued to build momentum in the community through work with residents, schools, businesses and community groups to tackle vehicle idling within the air quality management areas.

6.3.2 A schools' toolkit has been developed which includes learning resources, pollution monitors (loan only) pollution assembly, lesson plans, outdoor signage, postcards, posters and car stickers. We are currently working, to varying degrees, with 23 Colchester schools including St Thomas More and St James that sit within the Air Quality Management Area. Some of the work schools have delivered with our support can be found in our school handout in Appendix 1.

6.3.3 We have also been working with businesses including McDonalds, Bells School of Motoring, Driving Instructors Association, Knight West Estate Agents, Palmer and Partners, Ellisons Solicitors, Hiscox and St Helena's Hospice who have been receiving support on corporate no idling policies and have taken campaign materials to promote amongst their staff and stakeholders. St Helenas Hospice for example have put the CAReless Pollution engine switch off signs outside their retail outlets, donation centre, offices and the Hospice in Colchester. McDonalds have signage up at all 4 Colchester restaurants and have included the clean air films into their staff inductions.

6.3.4 We have taken an increased focus on takeaway firms and delivery drivers and have made contact with a number of takeways including McDonalds, Dolphin Fish Bar and Kimichi House and delivery firms including Just Eat and Deliveroo. On Wednesday 16 November officers met with Deliveroo who currently employ 90,000 delivery drivers working with 60,000 restaurants across the UK. Deliveroo have agreed to work with the Council to tackle idling and encourage drivers to choose more sustainable forms of transport.

6.3.5 A volunteer toolkit has been developed and has been used by a number of local groups to tackle idling in their neighbourhoods including St Marys Residents Association, Mill Road Patient Participation Group and Ardleigh and Dedham Surgeries.

6.3.6 Over the Summer months a clean air stand visited events including the Eco Festival, Anti Loo Roll Brigade Festival, Myland Fun Day, Monkwick Family Fun Day and the New Town Fun Day, hundreds of local people took away campaign resources.

6.3.7 After the first 12 months of the campaign 56% of drivers surveyed said they were switching off their engines more than they were before, and this increased to 65% amongst drivers outside schools. The campaign has been nationally recognised and was awarded Highly Commended in Edie's National Sustainability Leaders Awards 2022. It is currently funded until June 2023. The next phase of evaluation will start early in 2023 with the findings shared to the Environment and Sustainability Panel upon completion.

6.4 Home Burning Campaign

6.4.1 The Home burning campaign ran for four months from December '21 through to March '22. The aim was to raise awareness of the health impacts of pollution generated by home fires and log burners, specifically Particulate Matter (PM2.5) and provide information to help local 'burners' take positive action to reduce these risks and 'burn safe', 'burn better', 'burn clean' and 'burn less'. The campaign included public engagement events, social media, a home burning web page, and the development of resources including an information leaflet, posters, infographics and pull up banner. Through the course of the campaign there was:

- Over 900 face to face home burning conversations with local residents
- 10 home burning events delivered across 5 locations
- 178 visits to the Colchester.gov.uk/homeburning webpage
- 8 posts were shared across the Eco Colchester and Enjoy Colchester Facebook and Twitter pages with the potential of each post being seen by 26,500 residents
- 1 online article published
- Over 1200 materials distributed

6.4.2 In November 2021, prior to the launch of the campaign, 67% of people (based on 63 responses in our on-street polls) were aware that open fires and log burners generated pollution that could damage their health. In April 2022 the number of respondents who said they were aware of the health impacts had increased to 86% (+19%). In November 2021 73% of people (on-street poll) did not know that fires and log burners in the home produce the same amount of pollution as 18 family diesel cars. In April 2022 70% of respondents didn't know the levels of pollution from fires and log burners (+3% more aware).

6.4.3 We are re-running the campaign this winter targeting those that already use fires and stoves providing information on smokeless fuels and dry wood which are better for both the health and the environment. This year we will also be working with community colleagues and partners to reach residents who are thinking of using their home fires for the first time as we suspect that due to the energy crisis people might be tempted to open their blocked fires and burn anything they can get for free due to the high costs of heating, this is evidenced anecdotally and through posts we have seen on local social media.

6.5 Campaign Legacies

6.5.1 Community Art Project: In September 2022 the Council appointed local outdoor artist Adrian LeRoy to work with the community to design a clean air artwork. We have identified a number of suitable locations for the artwork including the Papa John's wall at the bottom of North Hill and three further locations in and around Brook Street. It is a requirement of the funding that the artwork relates to clean air and is located within an AQMA. Discussions have taken place with a number of local groups including Colchester Civic Society and North Residents Association around the potential Papa John's location and we have taken their feedback on board as we continue work to finalise a location and design for the artwork which will be a legacy for the project. The team are working

closely with the CCC planning department to ensure all planning regulations are met in regards to the location and design of the artwork.

6.5.2 Clean Air Colchester: Clean Air Colchester are a voluntary group who partnered with the Council in 2020 to help develop and deliver the CAReless Pollution campaign. Part of our funding commitments are to grow and support Clean Air Colchester so they are in a position to continue their work once the funding ends. Part of this has involved bringing Clean Air Colchester under EnForm to give them the status and support they need to apply for their own funding going forward. EnForm is also supporting Clean Air Colchester with its web hosting and funding has been set aside to cover website updates and hosting for future years. Over the last 12 Months (October 2021 to October 2022) the Clean Air Colchester group has grown from 101 members in 2020, 138 in 2021, to 193 in 2022. Members of the group have been organising their own clean air activities and the group met earlier this year to decide on what they would like to focus on collectively. Going forward we will be looking to create some more defined roles within the group that volunteers can step into to make it easier for people to take an active role.

6.6 DEFRA Bid 2022

6.6.1 In September 2022, CBC submitted a bid to DEFRA for a further £310,770 in funding to support its clean air work. The aim of our 2022/23 bid is to continue to tackle pollution levels within our air quality management areas by building on our successful work since 2019 in raising awareness of air quality, encouraging the community to switch off their engines, encouraging walking and cycling, providing shared transport options and an ecargo bike delivery service.

6.6.2 Through Essex County Council, the Town Deal funding, Levelling Up Bids and Town Centre Master Planning work, improvements in walking and cycling routes into the town centre are planned. However, our community engagement over the past year has identified gaps in support and understanding over and above the provision of high-quality infrastructure that still prevent people from adopting sustainable transport as a means for daily transport.

6.6.3 Our proposals seek to address this gap in knowledge and understanding through focused work with businesses, schools and local residents to co-design solutions that support a change in travel behaviour to low emission transport for journeys of up to 3 miles into the City Centre.

6.7 Knowledge Sharing

6.7.1 CCC has continued its knowledge sharing commitments providing information and advice to a number of organisations including Uttlesford District Council, Three Rivers Council, Ipswich Borough Council, Chelmsford District Council and the North East Essex Clinical Commissioning Group. The Council have also been asked to present at a range of forums including the Essex Air Group, Greener Practices Essex and Suffolk Forum and the Mill Road Surgery Patient Participation Group. Earlier this year the Council's CAReless Pollution no idling campaign received national recognition at the Edie Sustainability Leaders Awards receiving Highly Commended in the Consumer Engagement Campaign of the Year Category.

7. Standard References

7.1 There are no particular references to the Strategic Plan; consultation or publicity considerations or financial; community safety; health and safety or risk management implications.

Appendix 1: CAReless Pollution Schools Handout

CARELESS POLLUTION

CAReless Pollution is working with schools across Colchester to raise awareness of the importance of clean air, and the sources of air pollution. The campaign can support your school with ideas and materials. Here are some examples of the activities taking place in local schools which we hope will inspire your school to get involved.

St Thomas More's Primary School

Pupils have been making use of the **free loan of our portable monitors** to take air quality readings outside their school. They also took part in a **street demonstration** on Clear Air Day to raise awareness among passing vehicles

.

St James' Primary School

Pupils have hosted a Clean Air Day awareness raising event and put up the CAReless Pollution campaign **banner outside their school** to remind vehicle drivers to switch off their engines at drop-off and pick-up. They have also completed the Key Stage 2 activities, **made a pledge** about how they will help to bring air pollution levels down, **wrote letters** to their parents/carers and **planted trees**.

St John's Green Primary School

The school has been engaging with both pupils and parents, making use of **free campaign materials** by sending out a postcard in each child's book bag. They have used our template **social media graphics** to raise awareness on the school's Facebook page and put up an **outdoor banner** in the turning circle outside the school entrance.

Colchester Prep & High School

To mark Clean Air Day, in June 2022, the Headteacher used the **ready-to-go assembly presentation** in our Toolkit for Schools. In addition, members of the school's **Eco Club** have been monitoring air pollution in the streets surrounding the school and devising a range of solutions, notably planting urban vegetation, to help improve air quality. **Outdoor signs** have been placed at both entrances to remind visitors to the school to switch off their engines. The school has just been awarded the Eco Schools Green Flag.

Cherry Tree Academy

Pupils decorated the CAReless Pollution campaign emoji masks in a creative activity to explore how air pollution makes them feel. Pupils also participated in a **whole-school assembly** and undertook **air quality monitoring.**

St Mary's School

Year 8 pupils, all members of the school's **Eco Team**, used monitoring sheets and **portable air quality monitors** to measure air quality outside their busy Lexden Road site. The results were shared with other pupils at the school during a themed **assembly**.

Do you feel inspired? Our free Toolkit for Schools has everything you need to help pupils understand about air pollution and the actions they can take to improve air quality, including:

★ Assembly presentation
★ Short film
★ Class based activity sheets linked to the curriculum
★ Free loan of portable air quality monitors and monitoring sheets

You can download the Toolkit for Schools at **www.cleanaircolchester.org** in the 'For Schools' section.