

THE ROYAL BOROUGH OF KENSINGTON AND CHELSEA**PUBLIC REALM SCRUTINY COMMITTEE – 7 JULY 2015****REPORT BY THE DIRECTOR FOR ENVIRONMENTAL HEALTH****GREEN SCREEN PROJECT AT ST CUTHBERT'S WITH ST MATTHIAS
CHURCH OF ENGLAND PRIMARY SCHOOL**

Report on the research findings of a 'green screen' project at St Cuthbert's with St Matthias Primary School to reduce the impact of harmful vehicle emissions.

FOR INFORMATION

1. INTRODUCTION

- 1.1 The Committee is requested to note to the findings outlined in the report.

2. BACKGROUND

- 2.1 The Royal Borough of Kensington and Chelsea is a designated Air Quality Management Area under the National Air Quality Strategy. Accordingly, it is a requirement that we must demonstrate through an action plan how harmful emissions of Nitrogen Dioxide (NO₂) and Particulate Matter (PM₁₀) will be reduced.
- 2.2 As part of our action plan methods to reduce human exposure, in particular for the sensitive populations such as children, are being sought. One method is the installation of green screens to act as a barrier to the transfer of polluted air.
- 2.3 Research on urban vegetation suggests that it can help reduce the impact of pollution on people and buildings by acting as a pollution sink, especially for particles. In addition, the transport of pollutants from nearby traffic sources in urban areas can be effectively reduced by using green barriers.

3. THE Project

- 3.1 In November 2013 an ivy green screen was installed at St Cuthbert with St Matthias CE Primary School along a wall directly adjacent to the Warwick Road (A3220), Earls Court. Kings College London Environmental Research Group monitored the project on behalf of the Royal Borough.
- 3.2 Monitoring of Nitrogen Dioxide NO_x and Particulate Matter PM₁₀ sampled either side of the screen was undertaken for a period of 12 months from November 2013-November 2014. The difference in concentration between the busy roadside side and playground side of the screen was assessed as the green screen matured.

4. RESULTS

- 4.1 The screen was found to be an effective pollution barrier once the ivy had started growing and a significant impact could be seen once the screen had matured. The ivy screen led to a decrease in the NO₂ concentrations on the playground side of the screen by 24%, this was higher than the measurement uncertainty of 7% and was therefore significant. The decrease in the PM₁₀ concentrations on the playground side of the screen was 38%; this was higher than the measurement uncertainty of 15% and was therefore significant.
- 4.2 Comparing school hours independently a reduction in NO₂ concentrations of up to 36% and a reduction the PM₁₀ concentrations of up to 41% was found. This demonstrates that the screen is very effective during daytime hours, when both emissions and exposure are highest.
- 4.3 The reductions in NO₂ and PM₁₀ concentrations are broadly similar; the PM₁₀ reductions are slightly higher than those for NO₂ once the green screen has fully matured. This may illustrate slightly different effects that the screen is having on gases or particles. As the NO₂ concentration is lower than the PM₁₀ the gas may be passing through the screen while the particles are being filtered by the increased foliage.

5. CONCLUSION

- 5.1 The project has shown us that the introduction a green screen can have a significant effect in preventing the transport of pollution from the roadside, Further work would be required to assess the impact of the screen at greater distances from the road

6. RECOMMENDATION(S)

- 6.1 It is recommended that the Committee note the findings of the research.
- 6.2 It is clear that the screen has a significant effect in preventing the transport of pollution from the roadside into the playground.
- 6.3 The results of this research project provide an evidence base for the future use of greening initiatives within the borough to assist in the reduction of local air pollution from road side sources. This would be particularly beneficial to children and vulnerable members of the general public with medical conditions affected by poor air quality.

Nicholas Austin
Director for Environmental Health

Contact officer: Dr Davene Chatter-Singh **Tel:** 0207 341 5760 **E-mail:** Davene.Chatter-Singh@rbkc.gov.uk

Background Papers: 'Impact of green screens on concentrations of particulate matter and oxides of nitrogen in near road environments' prepared by Kings College London Environmental Research Group for the Royal Borough of Kensington and Chelsea.