

SLOUGH WELLBEING BOARD

REPORT TO: Slough Wellbeing Board

DATE: **26th March 2014**

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WARD(S): All wards in Slough.

PART II

FOR DECISION & CONSIDERATION

Baseline health profile for the upgrade to the Slough Trading Estate Multifuel site and recommendations for air quality updates for residents with respiratory conditions

1. Purpose of Report

The purpose of this report is to;

- describe the baseline health indicators around the existing incinerator site to support the environmental impact assessment
- describe what a health impact assessment (HIA) contains to enable the board to decide whether it requires a full HIA to accompany the environmental impact assessment
- provide the board with recommendations for promoting a low cost self care smartphone app which can be promoted to local residents to reduce respiratory admissions

2. Recommendation(s)/Proposed Action

This paper includes a desktop screening of the available baseline health and population data around the site and includes information on the wider impact of traffic related air quality on health outcomes.

The board is asked to;

- note the health risks of the proposal are low, will be controlled and monitored through the EIA process and through subsequent controls in the construction phase
- that the board may if it wishes request a full health impact appraisal as a consultee at this stage of the planning proposal
- that the literature review has revealed that the impact of traffic pollution on health outcomes can now be estimated. i.e the dose response relationship of particulates on key health outcomes such as respiratory and cardiovascular admissions, excess mortality and deaths from all causes.

- that the review has revealed there is scope for local practices, the hospital and community services to promote a low cost air quality alert system (already in place in Slough) to local residents with respiratory problems to reduce emergency admissions
- that the success of this approach would benefit from self care advice received from a leading research team in the US who has studied how behaviour change can be optimised through questions and answers attached to the alerts
- that there are opportunities to link with Thames Valley Childrens and Maternity services through the development of an evidence based app for asthma self care
- that a short task and finish working group will be established to scope the evaluation of the project

3 **The Slough Joint Wellbeing Strategy, the JSNA and the corporate plan**

The Wellbeing strategy contains two key themes to which this report directly relates – health and regeneration. The corporate plan has the following key themes to which this report relates to ‘improving customer experience’, ‘delivering high quality services to meet local needs’, ‘develop new ways of working’.

4. **Other Implications**

(a) Financial

The costs of the licence for the air quality alerts for Slough is £500 annually and with additional promotional costs of c £500 to promote the app within local healthcare settings and via the councils communication team.

Funding of £30-40K is being provided to SBC public health for the delivery of an asthma and viral wheeze app part of the behaviour change work programme for the Thames Valley Childrens and Maternity services.

(b) Risk Management

Recommendation	Risk/Threat/Opportunity	Mitigation(s)
That this report describes as many of the baseline health outcomes that can be collated without additional specialist data extracts from GP data - which could be requested if a full health impact assessment is requested	That the needs of the local population are not considered in the proposal	That the health and population data included in this report augments the EIA final report.
The air quality zones and vulnerable groups within these have been mapped in this report. There is an opportunity to promote best practice for those with respiratory conditions to access real time air quality monitoring whether or not the proposal goes ahead	That the key risks to health, as identified in the literature review are respiratory arising from the construction phase itself added to the background air quality issues in the town due to traffic pollution.	The Environment permit if approved will have conditions set to ensure robust dust, noise and traffic management plans throughout the construction period if the proposal is agreed

Inclusion of local residents in the detailed planning stages is best practice both prior to and during the development.	That residents may not understand the controls required at each stage of the proposal to assure them that their health and wellbeing is protected	Identify key health issues in this report and decide whether a subgroup of the planning committee should be set up to enable residents to be involved in future monitoring plans
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(c) Human Rights Act and Other Legal Implications

There are no Human Rights Act implications from this report.

The EIA has been prepared with due consideration to the:

- Town and Country Planning (Environmental Impact Assessment) Regulations 2011
- Department for the Environment Transport and the Regions (DETR) Circular 02/99 Environmental Impact Assessment
- Department for Communities and Local Government (DCLG) 2006. Environmental Impact Assessment: A guide to good practice and procedures
- Department of the Environment (DOE) 1995. Preparation of Environmental Statements for Planning Projects that require Environmental Assessment: Good Practice Guide
- Institute of Environmental Management and Assessment (IEMA) 2006. Guidelines for Environmental Impact Assessment (Ref. 2-5); and Office of the Deputy Prime Minister (ODPM) 2001. Environmental Impact Assessment - A Guide to Procedures

(d) Equalities Impact Assessment

The risks to protected groups identified in the Equality Act (2010) have been considered in this report. Specific groups which are more likely to be vulnerable to this proposal are; those who are very young, those who are older and those with long term respiratory and cardiac conditions.

(e) Workforce

There are no immediate workforce implications from the recommendations from the report.

For the multifuel site the board could instruct the Planning Committee to request that where possible local residents who are currently unemployed are given opportunities to work at the site - as a long term employment benefit arising from the proposal

The planning proposal, if agreed, will require monitoring by the councils external expert advisors (Atkins) and additional air quality monitoring will be integrated into the statutory functions of the Environment Agency and existing environmental health officers.

If a task and finish subgroup is established, this will be from existing resources.

5. Supporting information

5.1 Introduction

A draft environmental impact assessment (EIA) has already been presented to Slough Borough Council and other key stakeholders. The Board is asked to note that a range of stakeholders have already commented on the draft Environmental Impact Assessment and that air quality and noise impacts have been modelled. The Environment Agency is the responsible regulatory authority and Public Health England's specialist team at the Centre for Radiation, Chemicals and Environmental Hazards (CRCE) and the councils expert advisors (Atkins) have been consulted and have made recommendations to improve the proposal.

The Wellbeing board is a consultee in regard to this planning application and needs to be sighted on the plans, as there was considerable public interest when the first incinerator was built in the town. The board has the opportunity to recommend an additional health impact appraisal, prior to the planning approval stage but cannot modify the statutory planning approval process.

Once the application is finalised it will be taken to the Planning Committee. It is important to note that under the Town and Country Planning Act planning committees do not have to take into account a health impact assessment although they do have to consider the environmental impact assessment. The only response they can give is to approve or refuse the application, or request a deferred decision to allow more information to be gathered.

The Planning Committee may consider that sufficient information is described in the existing EIA to provide assurance or it may request further information to ensure that robust plans are in place to mitigate the proposal.

The literature review has identified a key position paper which reviewed the evidence together with examples of health impact assessments which provide assurance that modern well run incinerators have far less impact on air quality than traffic in general (see section 5.4)

In addition discussions (with leading researchers who have worked with children in the USA to reduce respiratory admissions) have revealed new opportunities to improve the health of local residents. The report also outlines the scope to link health and air quality monitoring programmes in future, as there are four air quality management zones in Slough – two of which are local to the site at Tuns Lane and Slough Town Centre.

5.2 What is the proposal?

The proposal is to upgrade the existing Trading Estate site and develop a new larger 50MW combined health and power (CHP) site in the same location over the area shown in Figure 1 overleaf. Residents in the area have already been invited to two open days to view the proposal – see consultations at <http://www.sse.com/SloughMultiFuel/ProjectInformation/>

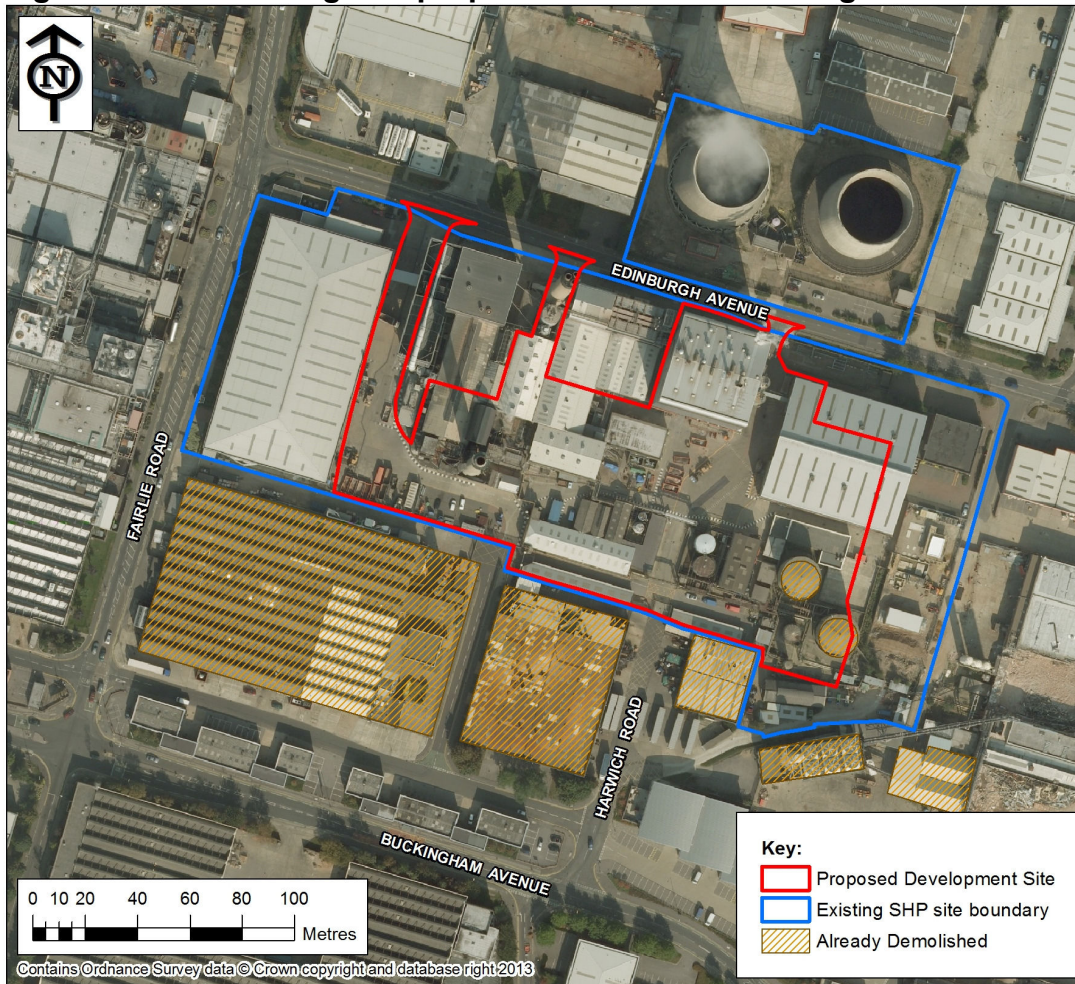
The Proposed Development will convert waste derived fuel (WDF) into low carbon electricity and heat, The WDF will be made elsewhere from Municipal Solid Waste (MSW), Commercial and Industrial Waste; and Non Hazardous Wood, including waste wood, but excluding hazardous (impregnated) waste, referred to as waste wood.

The site will supply 20MW of combined heat and electrical power to the Slough Trading Estate and up to 110,000 homes. To do this it will import waste from other areas to convert to heat and electrical power. It will also process local Slough waste aiding in the reduction of landfill costs.

The requirement for an Environmental Impact Assessment (EIA) is based on the likelihood of significant environmental effects arising from the Proposed Development and is either mandatory or conditional, depending on the classification of the development project. EIA applications are divided into Schedule 1 and Schedule 2 applications under the EIA Regulations.

The Proposed Development is considered to fall within the scope of Schedule 1, paragraph 10 of the EIA Regulations, "Waste disposal installations for the incineration or chemical treatment (as defined in Annex IIA to Council Directive 75/442/EEC under the heading D9) of non-hazardous waste with a capacity exceeding 100 tonnes per day" and therefore requires an EIA.

Figure 2 – the existing and proposed site on the Trading estate.



It is important to note that an EIA has many similar stages to those in a health impact assessment and there is now a drive to combine the two, hence the consultation with public health representatives as part of this application.

Scottish Energy and Power (SEPA) have updated their guidelines on thermal management of waste and in terms of the hierarchy of waste management this proposal fits with the recovery phase shown in Figure 2 (SEPA, 2013).

It is recommended that the EIA makes reference to how it will meet the targets in these guidelines to provide assurance that recycling is maximised before thermal treatment.

Figure 2 Waste management hierarchy



5.3 What is a health impact assessment? how does this differ from an environmental impact assessment?

The following guidance is sourced from [PHAST](#) (2011)

'Health Impact Assessment (HIA) is a combination of procedures, methods and tools by which a policy, programme or plan may be judged as to its potential effects on the health of the population and the distribution of those effects within the population' (1999, WHO consensus conference).

It is important to know what a full HIA contains;

Screening: a selection process which assesses policies, programmes and projects for their potential to affect the health of the population. It offers a systematic way of deciding whether a HIA is worth doing. Considerations during screening include:

- **economic issues-** size of the project and the population affected; and the costs of the project and their distribution
- **outcome issues-** nature of potential health impacts of the project; likely nature and extent of disruption caused to communities by the project; existence of potentially cumulative impacts
- **epidemiological issues-** degree of certainty (risk) of health impacts; likely frequency (incidence/prevalence) of potential health impacts; likely severity of potential health impacts; size of any probable health service impacts; likely consistency of "expert" and "community" perceptions of probability, frequency and severity of impacts.

Scoping a steering group is formed of key stakeholders and sets the boundaries for appraisal of health impacts. They will also agree the way in which the appraisal will be managed and allocate responsibility for decision making

Appraisal this is the main part of the HIA and can be rapid, intermediate or comprehensive. To ensure that the views of local communities are heard a comprehensive HIA is the most effective. Appraisal includes analysing the policy,

programme or project; profiling the affected population; identifying and characterising the potential health impacts, looking at the evidence base and making recommendations for the management of the impacts.

Presenting results unless total consensus is reached, results should be presented as a range of options.

Decision-making

The ultimate result will be an agreed set of recommendations made by the steering group for modifying the project such that its health impacts are optimised

Implementing, monitoring and evaluating impacts of HIA processes are monitored to enhance the evidence base for future HIAs. Outcome evaluation is constrained by the fact that negative impacts which have been successfully avoided due to the modification of the project will not be clearly identifiable. Other beneficial outcomes include better partnership working.

This paper is therefore a desktop screening of the available health data around the site and is not a full health impact assessment, as the proposal has not yet been approved by the planning committee.

5.4 Review of potential health impacts of incinerators

Public Health England's CRCE team have published a position paper about the health impact of emissions from incinerators (PHE/HPA 2009).

The HPA position paper notes that *'modern well managed incinerators make only a small contribution to local concentrations of air pollutants'*.

The position paper also notes that *'although it is possible that small additions could have an impact on health they are likely to be small and not detectable'*.

The paper notes the importance of controlling for other factors when conducting health investigations in a small area around point sources such as incinerators. This is especially true where risk factors such as; smoking, existing health conditions in the population, deprivation, ethnicity etc can 'confound' the results (in other words association is not causation). The report concluded that there was no detectable impact on child mortality from such sites.

The importance of traffic congestion as a contributor to air pollution in Slough has already been recognised in the Wellbeing strategy. A key statement in the HPA (2009) report relates to the DEFRA National Emissions Inventory which showed that in 2006 national waste emissions of PM₁₀ particles were 0.03% of the total compared to 27% and 25% from traffic and industry respectively. The 2009 report noted that figures were awaited from the Committee on the Medical Effects of Air Pollutants (COMEAP) on the relationship between air quality concentrations and health end points.

Since that report was published other areas have reported on the health impacts around incinerators. A good example of how an HIA is undertaken is that by Birley et al (2008). At the end of this extensive HIA the key impacts identified are as shown in Appendix 2 i.e additional traffic to the site, air quality controls for reducing emissions, reductions in population exposure etc. This table could be used as the basis of the report to the Planning Committee. Appendix 2 and summarises the likelihood and impact of the key risks associated with the proposal.

5.5 Estimates of the dose response relationship for air quality indicators and health outcomes

Since then COMEAP (2010, 2011) have published dose response indicators that can be used to monitor different air quality indicators that influence the health end points shown below.

Table 1 COMEAP concentration coefficients and relationships to health end points

Pollutant	Health endpoint	Coefficient	Time period
PM ₁₀	Deaths (all causes)	+0.75% per 10 µg/m ³ increase of PM ₁₀	24 hour mean
	Respiratory hospital admissions	+0.8% per 10 µg/m ³ increase of PM ₁₀	24 hour mean
	Cardiovascular hospital admissions	+0.8% per 10 µg/m ³ increase of PM ₁₀	24 hour mean
Sulphur dioxide (SO ₂)	Deaths (all causes)	+0.6% per 10 µg/m ³ increase of SO ₂	24 hour mean
	Respiratory hospital admissions	+0.5% per 10 µg/m ³ increase of SO ₂	24 hour mean
Nitrogen dioxide (NO ₂)	Respiratory hospital admissions	+2.5% per 50 µg/m ³ increase of NO ₂	24 hour mean
Ozone (O ₃)	Deaths (all causes)	+ 3.0% per 50 µg/m ³ increase of O ₃	8 hour mean
	Respiratory hospital admissions	+ 3.5% per 50 µg/m ³ increase of O ₃	8 hour mean

Calculating the burden of excess early deaths however is outside the scope of this report and involves modelling with wide confidence intervals.

COMEAP (2010) concluded that

Given that much of the impact of air pollution on mortality is linked with cardiovascular deaths, it is more reasonable to consider that air pollution may have made some contribution to the earlier deaths of up to 200,000 people in 2008 (in the UK), with an average loss of life of about two years per death affected, though that actual amount would vary between individuals. However, this assumption remains speculative.

5.6 Literature review of the impact of air quality apps on self care behaviour in asthma patients

Rates of paediatric admissions for a range of respiratory diseases are high in Slough (JSNA 2013). Thames Valley Childrens and Maternity network have funded Slough Public Health team to lead in developing a viral wheeze and asthma app and there is scope to use best practice in behaviour change to improve asthma management.

Results of local evaluations in London following the launch of Air text software (<http://www.airtext.info/>) show limited impact which they attributed to poor promotion of the app. However deeper insights have been obtained by behaviour change researchers at the University of Georgia (Yun and Arriaga, 2013).

Yun and Arriaga's research investigated whether a child actually links their symptoms with severity of their condition i.e whether they cannot sleep, couldn't exercise after lunch, etc. Through a randomised controlled trial they were able to show that at first there is no relationship between the app use and the asthma symptoms, however over a three month period as the child gets implicit (rather than explicit prompts) about their condition, in relation to questions about their symptoms, their knowledge of their symptoms improves, their inhaler use improves and their lung function and quality of life improves in a statistically significant way. The team concluded that daily text reminders supported by question and answer approaches on the app improves medication use.

They then explored whether quality of life improvements differed between children of different socioeconomic status and found no difference. Yet when they tested whether children living in deprived circumstances had an asthma plan, those that lived in the most deprived areas did not.

Developing and remote monitoring of asthma plans is a stated goal for the Thames Valley Child and Maternity Network and public health in Slough is being asked to lead on this. At the moment the Airtext software which Slough currently uses does deliver daily prompts and provides health advice. It does not yet include a question and answer (Q and A) approach which led to behaviour change. There is scope to develop the Q and A aspects of the app in conjunction with CERC the developers and a small working group would be set up to improve the delivery as part of this regionally funded work.

As a phase 2 development there is also scope (if funding permits) to test the use of sensors (such as the Asthmopolis) on the usage of asthma pumps in particular locations of the town in relation to peaks in particulate matter. As with the effects of cold on cardiac emissions the researchers warn that a peak in admissions, in response to poor air quality, may appear some three to four days after exposure.

5.7 The demography of the population surrounding the site

The spatial data shown in this report is collated from;

- the JSNA 2013 and ward profiles
- ONS population data for the zones around the site grid reference (SU 953 814), at the existing Edinburgh Road site. A series of buffers at 1, 2 and 3 km were mapped around the site.
- Public Health England (PHE) local health profiles

Table 2 Wards included in the 1. 2 and 3km zones around the site

GEOGCD	WARD NAME	Buffer
E05002342	Farnham	1km
E05002335	Baylis and Stoke	2km
E05002336	Britwell	2km
E05002338	Chalvey	2km
E05002339	Cippenham Green	2km
E05002340	Cippenham Meadows	2km
E05002344	Haymill	2km
E05002337	Central	3km
E05002347	Upton	3km
E05002348	Wexham Lea	3km

Table 3 Numbers of people resident in each zone

Buffer	Total	Males	Females	Occupied Households	Household Size
1km	11,584	5,787	5,797	4,080	2.84
2km	49,706	24,656	25,050	17,974	2.77
3km	34,148	17,227	16,921	12,692	2.69

Figure 3. The zones use to calculate the baseline health indicators

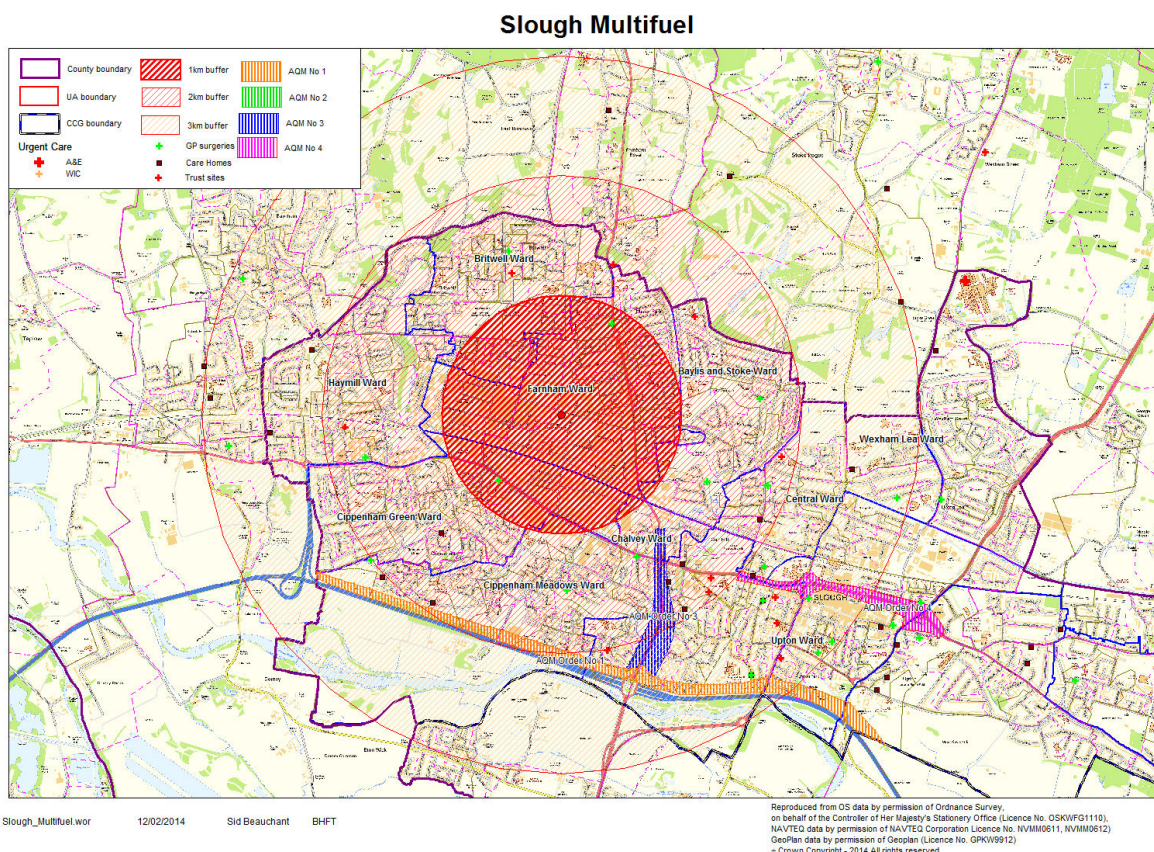


Figure 3 shows the zones from which the population figures in Tables 3 and 4 were collated.

Assessment of vulnerable groups

Estimates of vulnerable groups in the area include children, older people (who have higher risk of long term conditions) those with learning disability, dementia, or with long term conditions such as asthma, COPD etc.

Table 4. Children, older people and people with learning disability living within the zones around the site (ONS Census 2011)

Buffer	Under_5	Under_20	65_and_Over	85_and_Over	Learning Disability age related estimates
1km	1,142	3,632	1,010	84	230
2km	4,612	14,391	4,108	567	877
3km	3,133	9,648	3,701	493	664

Assessment of existing health risks in the area

The HIA guidance requires not only baseline monitoring of the short term effects on respiratory conditions such as asthma and COPD but also of the incidence of cancers. This data can be found in Appendix 4.

5.8 Other wellbeing outcomes that can be enhanced by the proposal

Other outcomes should also be considered when evaluating the health and wellbeing impact of proposals, such as the opportunity to increase employment in the area.

Ward profiles were produced for the JSNA and the following is a précis of relevant health and wellbeing outcomes ranked worse than the Slough average for Farnham

- Emergency admissions under 75 all causes, for coronary heart diseases and for heart attacks are higher than expected
- Deaths for all causes are as expected for the age and gender profile.
- Unemployment rates are higher than the Slough average at 5.6% of those aged 16-74
- Population density is 44.5 per hectare (*)
- 77% of the ward residents are BME – higher than the Slough average

It is important to note that whilst the overall ward population density is high the population density in the Trading Estate is in the lowest quintile as shown in Appendix 3, with less than 10 persons per hectare.

6. Comments of Other Committees

Subject to endorsement by the Wellbeing board this report will also be provided to the Planning Committee.

7. Conclusion

The board is requested to note

- that the board is not being asked to approve the proposal simply to comment on whether they wish a detailed health impact assessment to be undertaken, or whether the EIA process and this report provide sufficient assurance
- that experts from the Public Health England (PHE) specialist chemical, radiation, environmental (CRCE) team have requested some clarifications before the final EIA is produced. The agency is a statutory consultee whenever an environmental permit is requested. As a special assurance they have been involved in the pre-permit stage.
- that the HPA position paper notes that modern well managed incinerators make only a small contribution to local concentrations of air pollutants and that 'although it is possible that small additions could have an impact on health they are likely to be small and not detectable'.
- that detailed air quality and traffic flow modelling has already been produced in the EIA by Atkins the councils advisors
- that there is scope to draw wider wellbeing gains from this proposal as unemployment in Farnham ward is higher than other areas in Slough
- there is scope to make changes to improve the health of residents, whether or not the proposal goes ahead, as the research has identified a cost effective and clinically effective intervention for improving asthma management in children which can be promoted by the Wellbeing board partners.

8. Appendices Attached

Appendix 1 – Spatial planning checklist

Appendix 2 - Illustration of risks and mitigations from an HIA at an incinerator site

Appendix 3 – Population density map at lower super output area

Appendix 4 – Baseline health indicators around the existing Trading Estate site

9. **Background Papers**

APHO 2011. Spatial Planning and Health Group Checklist available at <http://www.apho.org.uk/resource/item.aspx?RID=116029>

Asthmapolis available at <http://propellerhealth.com/>

Birley et al (2008) A prospective rapid health impact assessment of the energy from waste facility in Jersey available at [https://www.liv.ac.uk/media/livacuk/instituteofpsychology/impactpdfs/impactreports/Energy from Waste Stage 2 - final.pdf](https://www.liv.ac.uk/media/livacuk/instituteofpsychology/impactpdfs/impactreports/Energy%20from%20Waste%20Stage%20-%20final.pdf)

CERC (2014). Air text site for London available at <http://www.airtext.info/>

COMEAP (2010). The mortality effects of long-term exposure to particulate air pollution in the UK available at <http://comeap.org.uk/component/content/article/39-page/linking/51-the-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-united-kingdom> Produced by the HPA for COMEAP.

COMEAP (2011). Coefficients for quantifying short term exposure to air pollution available at <http://www.comeap.org.uk/air/public-health-and-policy-development/100-quantifying-the-health-effects-of-air-pollutionslough-profile.aspx>

JSNA (2013) Farnham ward profile available at <http://www.slough.gov.uk/council/strategies-plans-and-policies/>

PHE (formerly HPA) (2009). Position paper on The Impact on Health of Emissions to air from municipal waste incinerators available at http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317140238599

PHAST (2011). The difference between environmental and health impact assessments available at <http://www.healthknowledge.org.uk/public-health-textbook/research-methods/1c-health-care-evaluation-health-care-assessment/health-environmental-impact-assessment>

SEPA (2013). Thermal treatment of waste guidelines available at <http://www.bing.com/search?q=thermal+guidelines+waste+management&src=IE-SearchBox&FORM=IE8SRC>

SEPA (2013) Incineration of waste and reported health effects available at <http://www.documents.hps.scot.nhs.uk/environmental/incineration-and-health/incineration-of-waste-and-reported-human-health-effects.pdf>

Slough multifuel public consultations available at <http://www.sse.com/SloughMultiFuel/ProjectInformation/>

Yun T. and Arriaga R. (2013) A text message a day keeps the pulmonologist away available at <http://www.cc.gatech.edu/~arriaga/YunArriagaCHI13.pdf>

Appendix 1 SPATIAL PLANNING AND HEALTH GROUP CHECKLIST

USE OF THE CHECKLIST

This checklist should be used in scoping to identify the potential health impacts of a proposal. It can be used in a process that involves a small group of stakeholders to bring different perspectives to the identification of the relevant issues.

It should also be used by those engaged in neighbourhood planning, to scope the potential impact of plans and proposals. The checklist should be used as part of the decision making process when considering planning applications. Reject plans and projects that do not take appropriate account of issues relating the health and wellbeing i.e. do not demonstrate application of health promoting design principles.

Spatial Planning and Health Group Checklist

Area	Questions to ask of strategies, plans and proposals
Mix of land use	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Provide a diverse mix of land uses? - Improve the availability, affordability and quality of housing? - Improve water management and reduce flood risk? - Promote diversity?
Street layout and connectivity and active travel	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Enhance neighbourhood attractiveness, layout and design? - Improve walkability and cyclability? - Promote physically active travel (such as walking and cycling) and general levels of physical activity? - Limit traffic speeds and traffic noise, and make the street environment safer and more pleasant for walking and cycling and community interaction? - Reduce or avoid steady flows of traffic preventing communal use of the street on streets where people live?
Access to public and other services	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Improve access to health care, education, employment, leisure facilities, and social, cultural and sporting facilities? - Increase access to services for marginalized groups?
Safety and security	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Increase the resilience of the area to the potential impacts of climate change? - Reduce crime and fear of crime?
Open and green space	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Provide open spaces and a green infrastructure (such as tree planting in urban areas)? - Preserve and enhance existing green infrastructure, for example with green roofs, green security, planted areas, living walls?
Affordable and energy efficient housing	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Reduce energy use? - Help the development of practices and/or technologies that are low-carbon or carbon neutral? - Reduce fuel poverty?
Food access	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Improve the location of food production and availability of local food outlets to meet local needs? - Improve opportunities for growing local produce such as allotments? - Provide for the control of outlets for unhealthy food?
Air quality and noise	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Enhance land, air and water quality? - Enhance pollution prevention and control?
Access to Employment	<p>Will the proposal:</p> <ul style="list-style-type: none"> - Influence investment, including the creation of employment and the development of employment skills, including for vulnerable groups? - Offer opportunities for training?

Appendix 2 – Illustration of outputs from an HIA at an incinerator site (source Table 16, Birley et al, 2008)

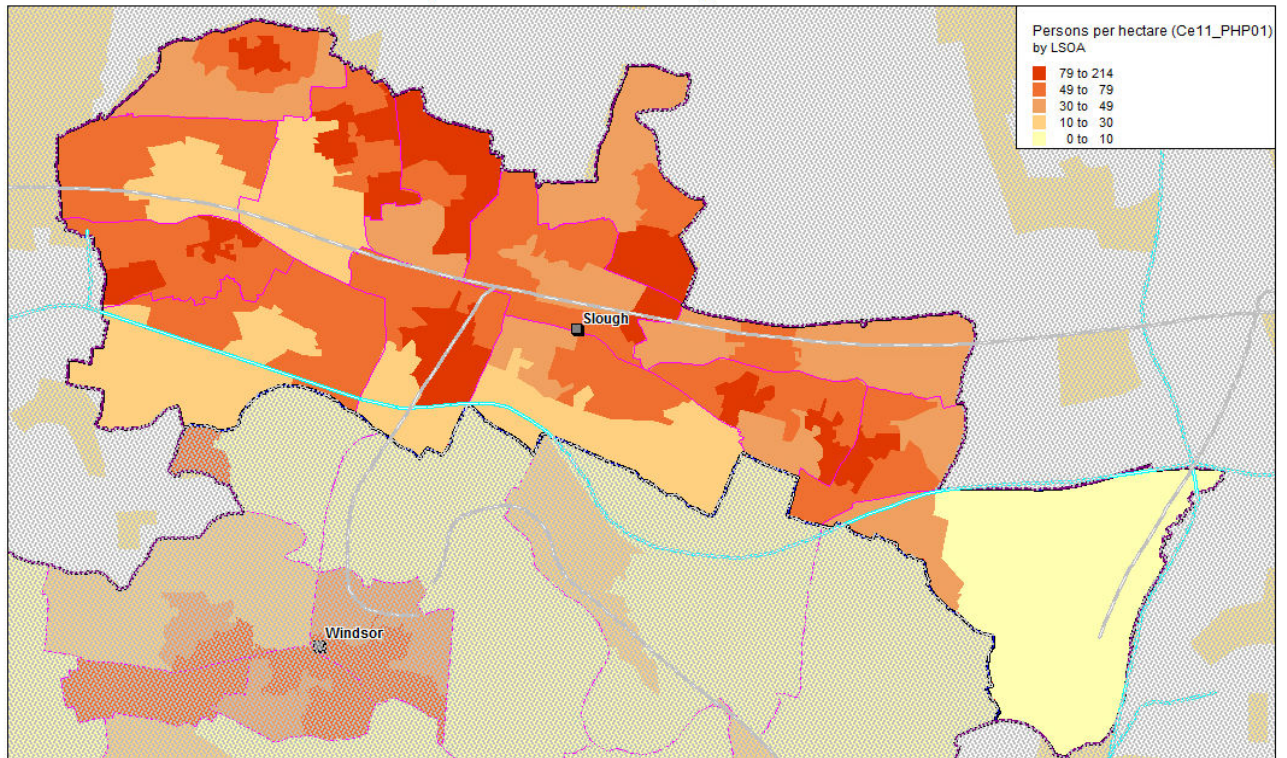
IMPACTS (section 8)	Current action	Future action	Additional Recommendations from HIA
<p>Air quality (AQ)</p> <ul style="list-style-type: none"> • Definite reduction in stack emissions from incineration and reduction in population exposure to emissions from incineration • Probable reductions in health risk associated with incinerator emissions, e.g., cardiovascular conditions • The population as a whole will definitely benefit from improvements in AQ 			
<ul style="list-style-type: none"> • Probable slight increases in traffic-related air pollution in La Collette associated with waste vehicles • Negligible health risks associated with waste vehicles speculated • Waste operatives will be most exposed to harmful pollutants • Other vulnerable groups include children, older people and people with existing conditions 	<ul style="list-style-type: none"> • Community Liaison Group established 	<ul style="list-style-type: none"> • Internet-based AQ information available • Regular public updates • Testing of vehicle emissions from waste vehicles 	<p>Mitigation</p> <ol style="list-style-type: none"> 1. Establish a management committee for La Collette to co-ordinate new developments & consider cumulative impacts, including impacts on climate change <p>Information/Engagement</p> <ol style="list-style-type: none"> 2. Publish & promote AQ data 3. Ensure information is accessible (plain English, Portuguese) and in different forms (JEP, website) 4. Regular reports to Community Liaison Group
<ul style="list-style-type: none"> • Probable slight increase in air pollution including dust in La Collette associated with construction process and traffic • Probable slight increase in population exposure to construction-related air pollutants • Negligible increase in health risks associated with exposure to construction-related air pollutants speculated 	<ul style="list-style-type: none"> • Air quality monitoring programme • Imposition of planning and contractual controls on Contractors • Traffic Management Strategy • Construction Environmental Action Plan 		<p>Monitoring</p> <ol style="list-style-type: none"> 5. Develop an AQ monitoring programme for incinerator & traffic, including for PM_{2.5} 6. Respond to local AQ results & recommendations with additional mitigation if necessary 7. Respond to emerging evidence on incinerator emissions & health with appropriate mitigation

IMPACTS (section 8)	Current action	Future action	Additional Recommendations from HIA
<p>Traffic</p> <ul style="list-style-type: none"> • Definite slight increases in traffic associated with waste vehicles and possible slight increase in congestion on local roads • Negligible increases in accidental injury risk associated with potential increase in road traffic accidents (RTAs) speculated • Possible increases in 'active transport' with associated physical and mental health & well being benefits • Negligible increase in risk of accidental injuries associated with dual use of coastal path speculated • People living and working in the vicinity of La Collette will be most negatively affected by the traffic increases • People most vulnerable to RTAs include children, older people, pedestrians, cyclist and lower socioeconomic groups • People from affluent socio-economic groups tend to benefit most from health promotion opportunities 	<ul style="list-style-type: none"> • Imposition of planning and contractual controls on Contractors • Traffic Management Strategy • Construction Environmental Action Plan • Implement enhancements to cycle lanes and foot paths within the approved design • Consult with emergency services on emergency access design 		<p>Mitigation</p> <p>8. Develop an island-wide road transport strategy for industrial users, including waste traffic management plan (WTMP) with new, standardised contractual arrangements, minimising impacts on schools residential areas</p> <p>9. Consider a 20 mph limit for waste transport vehicles as part of WTMP</p> <p>10. Consider the use of alternative fuels/hybrid vehicles for new /retrofitted industrial/commercial vehicles (as part of WTMP)</p> <p>11. Ensure EfW does not inhibit active transport (walking, cycling) through WTMP</p> <p>12. Develop construction Traffic Management strategy for EfW</p> <p>Monitoring</p> <p>13. Monitor traffic at construction and operational phases</p> <p>14. La Collette management committee to consider cumulative effects of traffic and emergency access needs</p> <p>Information/Engagement</p> <p>15. Publish & promote traffic plans during EfW construction</p> <p>16. Publish & promote WTMP</p> <p>17. Publish traffic monitoring data</p>

IMPACTS (section 8)	Current action	Future action	Additional Recommendations from HIA
<p>Visual amenity</p> <ul style="list-style-type: none"> Reduction in the visual amenity is possible and is speculated to affect the mental well being of a small minority of people Residents and businesses in La Collette area may be most affected by the change in environment 	<ul style="list-style-type: none"> Minimise the size of the facility through the design and planning process Appoint an independent design reviewer Community Liaison Group 		<p>Mitigation</p> <p>18. Minimise the size of the facility and assess the practicality of sinking part of the structure</p> <p>19. Use hard and soft landscaping to camouflage the facility</p> <p>20. Build consensus on design, i.e., contemporary versus traditional</p> <p>Information/Engagement</p> <p>21. Engage communities in order to build consensus on the design</p> <p>Mitigation</p> <p>22. Consider the visual amenity of the whole harbour area not just site</p>
<p>Health & safety</p> <ul style="list-style-type: none"> Reduction in waste operative ill-health and accidental injuries associated with improvements in the physical work environment speculated - reductions in worker exposure to physical and chemical hazards Increase in absolute number of construction- related ill-health & accidental injuries associated with EfW construction, but with rates comparable to major construction projects probable 	<ul style="list-style-type: none"> Design out hazards in accordance with Construction Design and Management best practice Implement good working practices and safe systems of work for Health and Safety for the new plant 		<p>Construction – mitigation</p> <p>23. Reduce potential for Sexually Transmitted Infections associated with migrant workers through contractor's health & safety briefings</p> <p>24. Ensure health & safety standards reflect the best available evidence to promote & protect health (more than minimum enforceable regulations), e.g., 'considerate constructors' standards</p> <p>Operation - mitigation</p> <p>25. Ensure health & safety standards for waste operatives promote & protect health</p> <p>Monitoring</p> <p>26. Monitor & enforce health & safety standards</p>

IMPACTS (section 8)	Current action	Future action	Additional Recommendations from HIA
<p>Social capital</p> <ul style="list-style-type: none"> • Probable increase in personal control, reductions in perceived risk and increased trust in institutions associated with increases in communication and engagement • Residents who actively engage will most likely benefit from this process. 	<ul style="list-style-type: none"> • Community Liaison Group • Communications strategy 		<p>Mitigation</p> <p>27. Manage perceptions of risk by involving and empowering communities, including in the monitoring and reporting of data, e.g., AQ</p> <p>28. Develop a communications & engagement strategy & plan</p> <p>29. Extend membership of the Community Liaison Group and review terms of reference, e.g., chair is community representative</p>
<p>Noise</p> <ul style="list-style-type: none"> • Probable slight increase in noise levels associated with waste vehicles and the operation of the EfW facility in La Collette vicinity • Negligible increase in noise exposure with no health risks associated with this • Increases in noise levels and exposure associated with construction adjacent to construction site at La Collette speculated • Probable negligible health risks associated with the construction noise exposure • People living and working close to the site will be most exposed to and affected by noise • Vulnerable groups include children, people with decreased personal abilities, people undertaking complex tasks, and people with a visual or hearing impairment 	<ul style="list-style-type: none"> • Imposition of planning and contractual controls on Contractors • Traffic Management Strategy • Construction Environmental Action Plan 		<p>Mitigation</p> <p>30. Avoid/reduce noise at its source, propagation and by the receiver e.g., waste traffic and incinerator operating regime, routes and speeds of waste trucks</p> <p>31. Ensure that planned mitigation measures for construction and operation are included in the planning consent conditions</p> <p>Information/Engagement</p> <p>32. Publish and promote the expected noise levels from the construction & operation of the EfW facility and the mitigation measures being taken</p>
<p>General</p>	<p>33. Ensure that if significant changes are made to the design components (e.g dry fly ash collection system) of the EfW facility potential health impacts of these changes are assessed.</p>		
<p>Health inequalities</p> <ul style="list-style-type: none"> • As described in above sections 	<p>34. Recommendations to reduce health inequalities need to be taken at those most likely to be adversely affected by these</p>		

Appendix 3 Population density by Lower Super Output Area - LSOA



Ce11_PHP01_PopDensity_LSOA_00MD.wor 22/08/2013 Sid Beauchant BHFT

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Appendix 4 Baseline health indicators around the Multifuel Site

Assessment of existing health risks in the area

The HIA guidance requires not only baseline monitoring of the short term effects on respiratory conditions such as asthma and COPD but also of the incidence of cancers. Without access to actual health records Table 4 has been constructed from CACI modelled estimates

Table 5. People with long term conditions estimated to be living in the zones around the site (CACI estimates)

Buffer	Dementia	COPD	Asthma	Hypertension	Diabetes	Depression
1km	60	234	1,718	1,844	545	433
2km	302	911	7,356	7,208	2,201	1,743
3km	259	732	3,668	3,773	1,178	849

The following table describes the incidence of all major cancer types in each ward

Table 6. Baseline incidence of respiratory diseases and cancers by type and ward

	Zone	<i>Incidence of COPD</i>	<i>Incidence of all cancer</i>	<i>Incidence of breast cancer</i>	<i>Incidence of colorectal cancer</i>	<i>Incidence of lung cancer</i>	<i>Incidence of prostate cancer</i>
Farnham	1	62.1	94.3	96.1	103.4	119.7	75.1
Baylis and Stoke	2	63.3	76.6	56	45.8	123.3	102.9
Britwell	2	162.6	104.3	78.3	90.3	125.3	112.7
Chalvey	2	79.9	86.7	69	66	101	71.2
Cippenham Green	2	60.1	80	81	114.5	84.2	101.6
Cippenham Meadows	2	69	85.5	90.3	123.8	121.1	54.6
Haymill	2	98.9	89.5	68.8	108.5	119.2	87.2
Central	3	133.9	65.9	69.2	30.2	39.4	78.2
Upton	3	48.4	68.8	75	75	55.5	70.2
Wexham Lea	3	123.8	78.7	59.2	92.2	84.8	112.1
Colnbrook with Poyle		105.6	110.1	130.9	137.6	121	
Foxborough		110.4	93.7	99.4	79.6	90.6	85.3
Kedermister		117.4	99.4	99.8	88.6	101.4	110.9
Langley St Marys		46.3	99.5	109.2	107.1	102.9	124.5

NB access to GP records would need to be approved to allow monitoring of actual levels of asthma and COPD in selected practices around the site. The types of cancer shown above are those most common cancers, other rarer forms associated with hazardous waste rather than household waste are likely to be small in number and unlikely to be interpretable.

Baseline incidence of cardiovascular outcomes by ward

With reference to the COMEAP guidance on air quality's contribution to early deaths from cardiovascular disease, the following table can be used as a baseline for air improving quality interventions across Slough, not just at the site.

Table 7. Elective hospital admissions by ward (Source local profiles)

	Zone	Elective hospital admissions for all causes	Emergency hospital admissions for CHD	Elective hospital admissions for CHD	Emergency hospital admissions for stroke	Emergency hospital admissions for Myocardial Infarction (heart attack)
Farnham	1	94	155.8	188.2	123.7	158
Baylis and Stoke	2	99.2	231.9	203.4	104.9	178.5
Britwell	2	113.7	178.8	181.1	89.3	113.8
Chalvey	2	94.5	240.4	184.8	190.8	185.1
Cippenham Green	2	94.9	114.5	138.3	94.2	107.8
Cippenham Meadows	2	92.7	184	172.8	78.3	150.9
Haymill	2	99.8	131.3	150.1	103.8	90
Central	3	93.4	235.6	254	105.1	212.3
Upton	3	81.4	129.9	160.2	83.6	123.7
Wexham Lea	3	103.6	170.5	211.9	85.3	118.8
Colnbrook with Poyle		105.3	162.9	149.6	112.8	184.6
Foxborough		107.9	163.7	163.9	103.4	126.6
Kedermister		103.5	141.6	108.5	94.2	109.1
Langley St Marys		107.8	133	190.2	98.6	105.7

Table 8. Baseline life expectancy and deaths from various causes

	Zone	Life expectancy at birth for males (years)	Life expectancy at birth for females	Deaths from all causes, under 75 years	Deaths from circulatory disease, under 75 years	Deaths from coronary heart disease, under 75 years	Deaths from coronary heart disease, all ages
Farnham	1	78.2	83.8	108.9	175.8	191.3	143.9
Baylis and Stoke	2	80	83.9	126.2	156.3	183.5	114.1
Britwell	2	79.9	82.6	116.5	117	127.2	86.7
Chalvey	2	74.5	77.9	150.2	186.8	203.4	165.1
Cippenham Green	2	80.4	85.2	88.7	75.8	84.5	107.6
Cippenham Meadows	2	80.7	84.6	95.6	108.3	137	103.4
Haymill	2	78	81.8	124.8	153.8	132.1	88
Central	3	78.3	81	109.6	161.6	194.2	175.4
Upton	3	78.5	85.1	94.8	120.2	157.9	111
Wexham Lea	3	77.9	82.6	111.6	135.2	116.2	116.2
Colnbrook with Poyle		73.7	80.3	130.2	111.7	118.7	145.9
Foxborough		83.1	85.4	108.6	131.1	145.3	125.5
Kedermister		79.2	83.8	110.9	115.5	110.9	99.4
Langley St Marys		83.2	85.4	83.1	100.3	101.9	79.1

