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Wrexham County Borough Council

Wrexham Industrial Estate Access Road

Integrated Health Impact Assessment

Final Report – Issue 1

July 2009

CAPITA SYMONDS

CAPITA SYMONDS LTD

Project Title : **Wrexham Industrial Estate Access Road**

: **Integrated Health Impact Assessment Report**

Project Job No. : **ZCBY/CS000868**

Capita Symonds Ltd outgoing document reference number – CS000868/46

	Status Issue For Use			Date
	DRAFT	**WORKING**	**FINAL**	
Originator	**L Hartley**	**-**	**L Hartley**	10 July 2009
Checked By	**J Glaister**	**-**	**J Glaister**	14 July 2009
Approved By	**J Glaister**	**-**	**J Glaister**	14 July 2009

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EXECUTIVE SUMMARY

This Health Impact Assessment (HIA) has been commissioned by Wrexham County Borough Council and has been prepared in response to proposals to support the development of the Wrexham Industrial Estate (WIE) Northern and Southern Access Roads in Wrexham. WIE is a strategic employment hub providing employment for 7000 people and accommodating 200 businesses. It is one of the largest Industrial Estates in Wales and is a significant contributor to the local, regional and national economy.

The Council is investing in key infrastructure in the form of two access roads linking the WIE to the strategic highways network. There are a number of strategic objectives to be served by the roads:

- To provide direct northern and southern accesses to the Estate from the A483 (T) and A525 respectively, to support economic development;
- To achieve significant environmental benefits for local residents at Llan-y-Pwll, Cross Lanes and Hugmore Lane by the removal of through traffic;
- To achieve significant road safety benefits, particularly on the section of the A534 at Llan-y-Pwll and Hugmore Lane;
- To create a commodious route around the east side of Wrexham.

There are very clear health impacts related to these objectives not least the improvements to road safety and environmental quality. This HIA seeks to demonstrate that a consideration of health impacts extends beyond direct physiological and physical benefits to a person or persons. The environment, income, employment, education, the organisation of transport, the design and condition of houses, crime, and the social and physical condition of local neighbourhoods all contribute to good and poor health. These factors are often called the determinants of health.

There is no statutory or standardised approach to undertaking HIA, However they are increasingly recognised as having an important contribution towards establishing the potential impacts and benefits of schemes, designs and policies.

The approach and focus of this HIA complies with guidance issued by Welsh Assembly Government (WAG) Welsh Transport Planning and Appraisal Guidance (WelTAG) (2008) and Guidance on producing HIAs issues by WAG and the Welsh Health Impact Assessment Support Unit (WHIASU).

We were able to draw upon the support of the Welsh Health Impact Assessment Support Unit (WHIASU) in reviewing draft versions of this report, sign-posting towards best-practice examples and guidance and the facilitation of a “Rapid HIA Workshop” with key local stakeholders.

The following key issues emerged from the scoping exercise as forming the basis of the HIA.

- Air Quality: Impacts on existing air quality levels during the construction and operational phases.
- Noise: Impacts on existing noise levels during the construction and operational phases.
- Community Severance: Provision of public footpaths, cycle routes and access to facilities
- Road Safety: Reduction in road traffic accidents.

- Employment: Improved access and attractiveness of the WIE. Impacts on local farms.
- Biodiversity: Removal of existing vegetation and introduction of man-made elements into primarily rural landscape and reductions in agricultural land.

The main health impacts arising from the construction and operation of the WIEAR scheme that were identified were:

- Congestion will be lowered leading to greater free-flow of traffic and reduction in emissions arising from vehicles having to wait in situ on local roads.
- Measures to reduce or improve air quality have been factored into the design, development and construction process
- The local population will have improved access to footpaths and cycleways to encourage modal shift and divert pedestrians away from roads with heavy vehicle usage.
- If the scheme did not go ahead and current vehicle levels on the roads were maintained or increase then noise nuisance would be a greater problem on a much wider scale.
- Crossings will be safer and trips to various facilities will be shorter and more pleasant
- Traffic volumes will be diverted from highly populated areas onto the new access roads thereby improving community and road amenity
- Reduced traffic volumes will be experienced in the surrounding villages and area, therefore decreasing associated numbers of traffic accidents and improving road safety for all

On balance, the evidence that this HIA has drawn upon, the outcome of the Rapid HIA Workshop and the subsequent analysis has shown that the WIE access road schemes will have an overall **Moderate Beneficial** impact on health, quality of life and wellbeing within the study area.

INTRODUCTION

1.1 Capita Symonds Ltd has been commissioned by Wrexham County Borough Council (WCBC) to undertake an Integrated Health Impact Assessment (HIA) on the proposed Wrexham Industrial Estate Access Road Scheme (WIEAR).

1.2 Capita Symonds understands that when attempting to appreciate the potential health impacts and outcomes of a development or plan, we need to consider the wider social, environmental and economic factors that they are embedded in. There is much recent research to suggest that our environment and our lifestyle have a considerable bearing on our health and general wellbeing.

1.3 By narrowing our focus to considering the potential health issues alone, without recourse to wider factors, we are only telling part of the story and, therefore, can only mitigate part of the risk.

1.4 These wider factors are collectively termed as "determinants of health" and the purpose of a Health Impact Assessment is to understand how a development or plan will affect these determinants and impact on the health of a group or population.

1.5 This is in accordance with guidance on undertaking Health Impact Assessments issued by Welsh Assembly Government; "Improving Health and Reducing Inequalities: A Practical Guide to Health Impact Assessment" (2004), which advocates addressing wider social, environmental and economic issues as well as practical health consequences when assessing health impacts.

1.6 Welsh Assembly Government Welsh Transport Planning and Appraisal Guidance (WelTAG) (2008)[1]explains that a Health Impact Assessment is defined as *"A combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population. In other words it is a process that considers the wider effects of local and national policies or initiatives and how they, in turn, may affect people's health."*

1.7 In addition to specific guidance on HIA's, WelTAG points to the need for the appraisal process to consider issues that are meaningful to people's lives including health and social inclusion.

1.8 WelTAG also acknowledges the inherent challenge of measuring health and social impacts given that *"for now, and for the foreseeable future, many social impacts of transport proposals show no sign of being monetised, and some are even difficult to quantify. Under the social impact area are some of the less well-established and less quantifiable criteria in transport appraisal."*

1.9 However despite these recognised difficulties with Health and Social Impacts being less quantifiable than Environmental or Economic Impacts, it is still possible to provide important insights into secondary and interrelated effects of a scheme that may not be identified in other appraisals.

1.10 The Integrated Health Impact Assessment (HIA) approach is designed to draw out the likely key impacts of the WIEAR scheme on the health, wellbeing and quality of life of its potential users and neighbouring users.

[1] http://new.wales.gov.uk/docrepos/40382/4038231141/403821125/TransportPublications/2307729/WelTAG_v7.1_Guidance.pdf?lang=en

1.11 We have used a series of recognised health, sustainability and equalities indicators to guide the assessment towards measuring the likely impacts of the scheme. The assessment will provide recommendations on enhancing positive impacts and dampening any negative impacts.

1.12 Capita Symonds has identified the impacts that this scheme is likely to have on the environment through the production of Environmental Statements for both the northern and southern access routes.

1.13 As part of the HIA, Capita Symonds aims to identify the impacts the proposed scheme is likely to have on the health and wellbeing of those who will potentially be affected by the proposed scheme. The aim of the HIA is to identify the ways in which any negative impacts on the health, quality of life and wellbeing of those affected can be alleviated and resolved.

Wrexham Industrial Estate Access Road Scheme

1.14 Wrexham Industrial Estate (WIE) covers approximately 550 hectares and in geographical terms is one of the largest industrial estates in Wales. It accommodates over 200 businesses, employing over 7000 staff, and creates a livelihood for Wrexham and North East Wales. In addition to these businesses, there are 90 Local Authority houses and approximately one hundred private dwellings within the confines of the estate together with a number of retail outlets.

1.15 Despite its strategic importance as a major employment hub, WIE is in fact poorly served by links to the strategic highway network. The existing access to the Estate is via narrow country roads and residential areas, which can become heavily congested at peak times.

1.16 In addition to the problems caused by the inadequacy and capacity of these existing roads are concerns over safety. The A534 in the Llan-y-Pwll area has a particularly poor accident record, with two fatal, three serious and twenty-three slight accidents between 1998 and 2002.

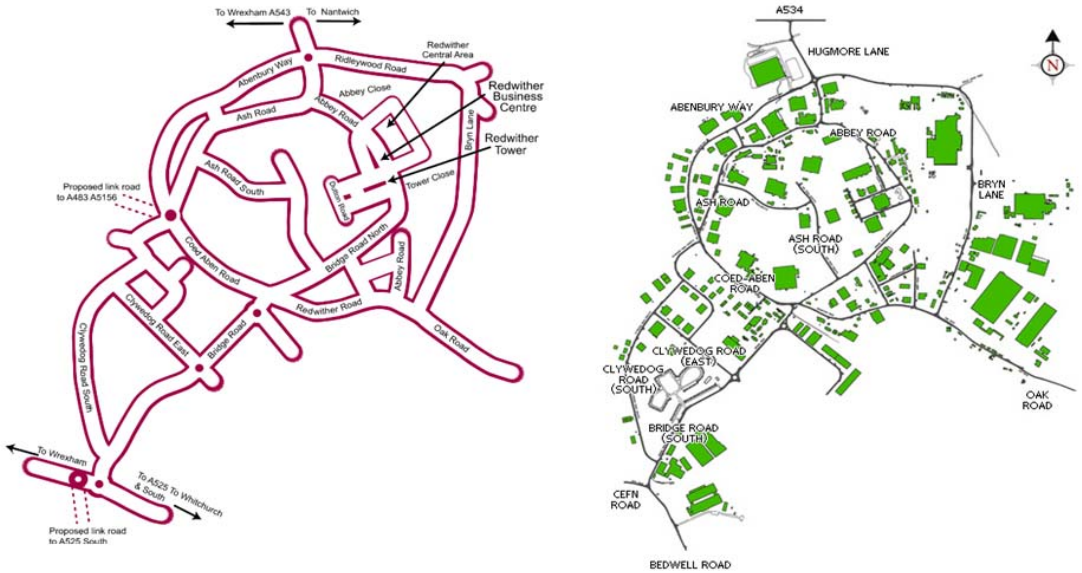


Figure 1: Current Road Map and Site Plan of Wrexham Industrial Estate

1.17 To enable the WIE to compete effectively with other major employment sites in the region, and to encourage economic development, it is essential that high quality, direct and convenient access to the strategic highway network is provided. As a response to this need, Wrexham County Borough Council (WCBC) is promoting a scheme involving the development of two access roads to the north and south of the WIE.

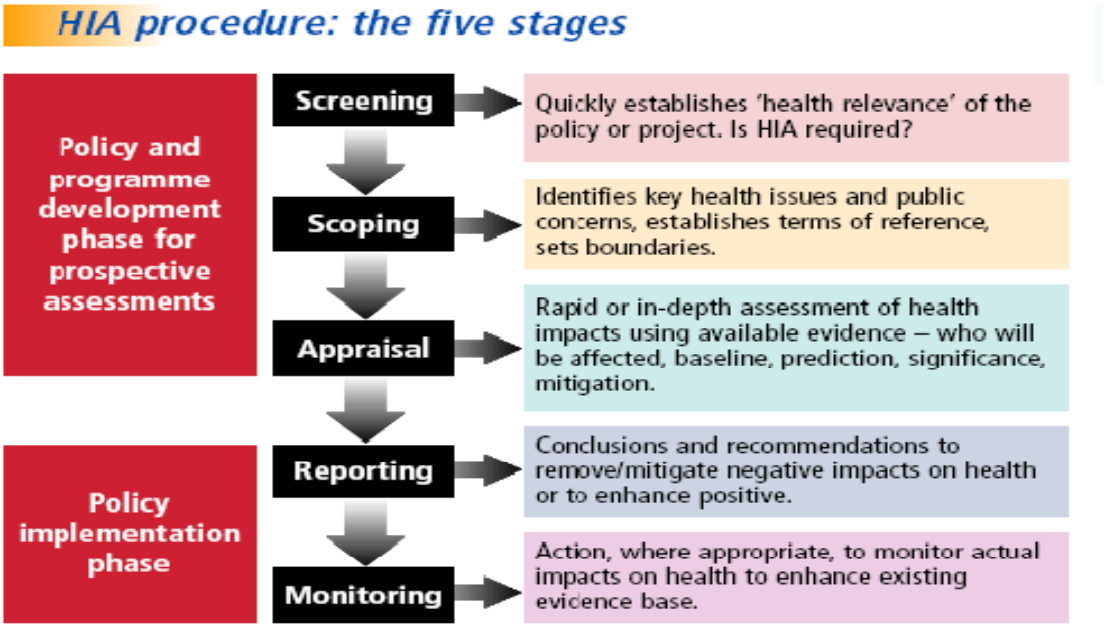
1.18 The scheme has been designed to alleviate congestion, improve safety and journey time reliability, and provide a better environment for local communities.

1.19 The agreed objectives for the scheme are:

- To provide direct northern and southern accesses to the Estate from the A483 (T) and A525 respectively, to support economic development;
- To achieve significant environmental benefits for local residents at Llan-y-Pwll, Cross Lanes and Hugmore Lane by the removal of through traffic;
- To achieve significant road safety benefits, particularly on the section of the A534 at Llan-y-Pwll and Hugmore Lane;
- To create a commodious route around the east side of Wrexham.

Integrated Health Impact Assessment

1.20 The following diagram illustrates a suggested process for undertaking a Health Impact Assessment:



Source: Welsh Health Impact Assessment Support Unit (WHIASU)

1.21 There is no statutory or standardised approach to undertaking HIA. However they are increasingly recognised as having an important contribution towards establishing the potential impacts and benefits of schemes, designs and policies. There are a number of resources available to guide the development of HIA's as well as best practice examples to draw valuable lessons from.

1.22 The Welsh Health Impact Assessment Support Unit (WHIASU) is funded by the Welsh Assembly Government (WAG). The Unit has produced guidance on HIA's, *"Improving Health and Reducing Inequalities – A Practical Guide to Health Impact Assessments" (2004).* This guide remains the most robust set of guidelines and tools for approaching a HIA in a Welsh context.

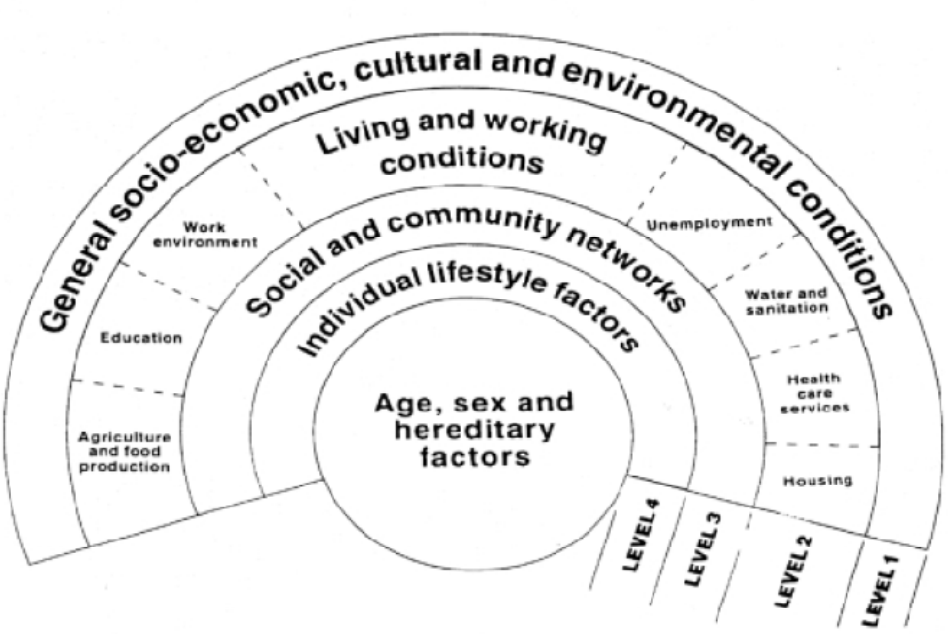
1.23 These stages include:

- **Stage 1:** Scoping – this stage includes examining the baseline and determining the focus and key issues
- **Stage 2:** Consultation – this stage considers the stakeholder concerns and aspirations
- **Stage 3:** Assessment – this stage establishes the health impacts associated with the proposed scheme for development
- **Stage 4:** Reporting – this stage captures all positive, neutral and negative impacts associated with the proposed scheme for assessment and provides recommendations for future measures

HEALTH DETERMINANTS

1.24 The environment, income, employment, education, the organisation of transport, the design and condition of houses, crime, and the social and physical condition of local neighbourhoods all contribute to good and poor health. These factors are often called the determinants of health.

1.25 The diagram below illustrates the different types and level of health determinant ranging from wider societal factors down to those affecting the individual.



Source: "Improving Health and Reducing Inequalities – A Practical Guide to Health Impact Assessments" (2004)

1.26 HIA's essentially consider how a proposal or policy might affect these determinants in order to assess the likely impact on the health of different groups in a population.

Welsh Assembly Guidance

1.27 The Welsh Impact Assessment Support Unit guidance on HIA's, entitled *"Improving Health and Reducing Inequalities – A Practical Guide to Health Impact Assessments" (2004).* is designed to provide a flexible framework for undertaking HIA's in recognition of the myriad scenarios in which a HIA could be deemed a useful exercise and the variety of approaches and levels of detail in which a HIA could be undertaken.

1.28 Given the nature of the WIE Access Road proposals, a HIA would be a useful exercise in order to identify any potential health impacts that may be encountered by local residents and users of WIE and to also demonstrate the measures that have been incorporated into the design and development of the WIE to address any health concerns.

1.29 The approach that has been adopted for the development of this HIA for the WIE Access Roads directly reflects this guidance and is outlined below via a number of discrete stages.

1.30 WelTAG (2008) suggests liaising with WHIASU for guidance and support on HIA issues. We were able to draw upon the support of the Welsh Health Impact Assessment Support Unit (WHIASU) in reviewing draft versions of this report, sign-posting towards best-practice examples and guidance and the facilitation of a "Rapid HIA Workshop" with key local stakeholders.

1.31 The purpose of the HIA report is to establish a clear step-by-step logic behind the eventual identification of health impacts. There should be a hierarchy of issues, supported by evidence which then helps to identify impacts and this should be demonstrated in the report.

Stage 1: Scoping

1.32 The aim of this stage is to determine the focus of the study. A Scoping Report presents the key health and wellbeing issues that will form the parameters of the HIA. These key issues will be the subject of the detailed impact assessment to be undertaken in Stage 3.

1.33 It is important to note that the interaction between the WelTAG appraisal criteria, factors that determine health and the 'Template for Health Impact Assessment' (taken from Cardiff University guidance entitled *How to use Health Impact Assessment: A Short Guide*[2]) have all informed this early scoping stage. In addition, the HIA will cover both the construction and the operational phases of the new access roads.

1.34 The findings from the scoping stage were presented in a short Scoping Report. The main issues that the scoping report identified as forming the basis for the eventual Assessment were:

- Impacts on existing noise, air, dust and vibration levels during the construction and operational phases;
- Severance of public footpaths, cycle routes, bridle paths and access to local facilities;
- Reduced severance within local communities due to removal of traffic from existing roads;

[2] http://www.wales.nhs.uk/sites3/Documents/522/HSCWBSfinalguidance.doc

- Provision of new cycle routes and footways;
- Reduction in road traffic accidents;
- Impacts on local farms and reductions in agricultural land; and
- Removal of existing vegetation and introduction of man-made elements into primarily rural landscape

Stage 2: Consultation

1.35 This stage establishes any stakeholder concerns and aspirations, for the scheme in question, in terms of health.

1.36 There has been a considerable degree of public consultation already undertaken in the course of developing proposals for WIE and in the course of developing comprehensive Environmental Statements for the two access roads. The Welsh Impact Assessment Support Unit provided crucial support for consultation and engagement through the facilitation of a Rapid HIA Workshop which involved key local stakeholders and enabled their concerns and views on potential negative, neutral and positive health impacts arising from the WIEAR proposals to be taken into account and reflected in this report.

1.37 The Rapid HIA was extremely useful and enabled us to add credence to the existing consultation feedback. Feedback on the process was collated and a selection of comments is set out below:

- "A clearer understanding of HIA requirements for the Wrexham IERA scheme and how to incorporate HIA into the WelTAG report"
- "I was delighted with the outcome of the workshop and rapid assessment as it highlighted some key gaps in our draft HIA which we can now address and for key partners to consult with in moving forward"
- "The benefits of having the elected members for the area and other officers who a local knowledge were particularly beneficial"
- "Appreciation of 'health' impacts on schemes and implications beyond direct requirements of Design Manual for Roads and Bridges."

1.38 The outcome of the Rapid HIA Workshops is set out in table form in Appendix 1. Any issues arising from the historic consultation exercises already undertaken have also been incorporated in this HIA.

Stage 3: Assessment

1.39 This is the key stage of Health Impact Assessment. It gathers information about the potential nature, size, likelihood and distribution of the impacts. It also provides an opportunity to suggest possible ways of maximising the health benefits and minimising the risks, particularly to the least healthy or most disadvantaged groups.

1.40 A Socio-Economic baseline is produced to understand the characteristics of the local population that is likely to be affected by the scheme. This will establish the lifestyle and composition of the local community in terms of demographics, employment and health criteria.

1.41 The WIE has already been the subject of comprehensive Environmental Statements for both roads. These statements contain a wealth of information, evidence and analysis of the likely impact of the roads on the surrounding environment.

1.42 These Environmental Statements as well as the socio-economic baseline provide us with the framework in which key impacts can be identified. We have used a HIA Matrix to analyse the evidence and extract likely impacts using a set of key HIA questions that have been framed by the Department for Health publication: "Building in Health" (2006).

1.43 "Building in Health" (2006) has been produced by the Milton Keynes South Midlands Health and Social Care Group and is widely credited as best practice in helping to identify ***integrated*** health impacts arising from development and infrastructure projects. This allows for issues that may not be considered to have a direct health impact to be considered on the basis that they contribute towards good health, quality of life and general well-being.

1.44 The questions that "Building in Health" advocate for identifying integrated impacts include:

- Public involvement - Are plans being developed with the active involvement of all of those likely to be affected – both existing residents and potential incomers?
- Indoor Air Quality - Do the design and construction methods minimise the ingress of dust and fumes from traffic and industry
- The construction process - Have developers agreed to minimise the potential adverse impacts of construction, and an agreed a Code of Construction Practice (CoCP) with the local authority?

1.45 "Building in Health" contains some questions that are not necessarily relevant to the WIE and so for brevity and efficiency we have selected the most relevant questions to the issues raised in the Scoping Report in order to identify the key impacts.

1.46 The Assessment then takes the impacts identified in the matrix and provides the detail on how they relate to health, what evidence there is to suggest there will be a positive, negative or neutral impact and what the nature of that impact will be in terms of scale, timing and intensity.

1.47 There will also be some discussion on what key win-wins there are and how any negative impacts could be mitigated.

Stage 4: Reporting

1.48 This stage concludes the HIA process, including a HIA Summary Table, and culminates in a report detailing each stage of the HIA process and what the key findings are.

BASELINE

1.49 Baseline data has been collated to identify the existing health and socio-economic issues specific to the Wrexham Industrial Estate (WIE) area and its surroundings. Data was collected in a format which was readily applicable to the issues to be assessed and at a relevant geographic level, where possible.

1.50 Data has been extracted from the following websites:

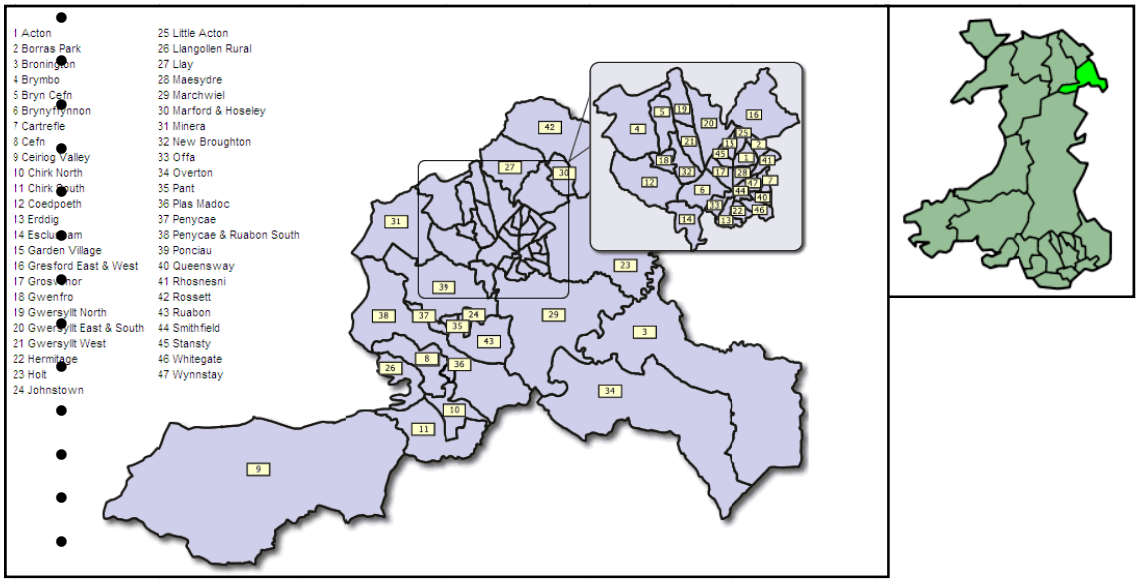
- National Statistics (http://neighbourhood.statistics.gov.uk);
- Wales Statistics (http://www.statswales.wales.gov.uk); and,
- Welsh Assembly Government (http://new.wales.gov.uk/topics/statistics).

1.51 The WIE falls within both the Holt and Marchwiel Wards of Wrexham County Borough Council (WCBC). An analysis of six spatial areas is given to provide a basis for comparison on local, regional and national scales enabling a comprehensive review of the area. These areas are:

- Holt Ward (includes the WIE)
- Marchwiel Ward (includes the WIE)
- Rhosnesni Ward (adjoining ward)
- Whitegate Ward (adjoining ward)
- Wrexham CBC (for a regional perspective)
- Wales (for a national perspective).

1.52 The maps in Figure 2 show the locations of Holt, Marchwiel and the adjacent Rhosnesni and Whitegate Wards within Wrexham. The insert shows Wrexham within Wales.

- Figure 2: Map of Wrexham Wards)[3] (insert: Map showing Wrexham within Wales [4])



[3] http://www.wrexham.gov.uk/english/council/wardmap.htm

[4] http://en.wikipedia.org/wiki/Wrexham_%28county_borough%29

1.53 The baseline analysis covers six domains which provide an understanding of various social, economic and health characteristics within the chosen area.

1.54 These domains are; household structure; tenancy; employment; health; and modal method of travelling to work.

Population

1.55 Changing demographics and age structures of a population can have significant impacts on those living within an area, particularly increasing numbers of older people and decreasing numbers of young people, which are one of the most significant issues faced by central government and local authorities[5] when planning the delivery of services and investments.

1.56 Hence the need to examine the population profile of those living in close proximity of the Wrexham Industrial Estate area in order to review whether the proposed access roads will be beneficial to those as potential beneficiaries.

1.57 In 2006 the population of Wrexham stood at 131,000 which accounts for 4.4% of the entire population of Wales and has remained static since 2001[6]. It has a population density of 2.55 people per hectare which is double the national average of 1.4.

1.58 The population of Holt was 2,828 in 2001 which accounted for 2.2% of Wrexham, while Marchwiel had 2,420 in 2001. Both Holt and Marchwiel have very low population densities of 0.74 and 0.64 people per hectare respectively, which are much lower than regional and national levels. This could be due to the vast majority of land being devoted to agricultural purposes with limited residential areas within both wards.

1.59 Both Rhosnesni and Whitegate wards has much higher population densities, 40.79 and 33.02 people per hectare respectively, due to smaller areas than Holt. In addition, they are located closer to the city of Wrexham which accounts for higher population levels.

1.60 The Wrexham Industrial Estate (WIE) is located outside the main populated areas of Wrexham and therefore the immediate population that will experience direct effects of the proposed access road schemes and the associated road traffic is lower than if the proposed access roads were situated in a more densely populated and built-up area.

Ethnicity

1.61 The dominant ethnic group within Holt and Marchwiel is white which is similar to that on local, regional and national scales. Holt has a gender ratio of 1.01 female to every male which is below that of the national ratio of 1.07; however, is similar to ratios for both adjacent wards and Wrexham as a whole. Marchwiel has a higher male population with 1.02 males to every female.[7]

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5 http://www.wrexham.gov.uk/assets/pdfs/wrexham_statistics/population.pdf

6 http://www.statswales.wales.gov.uk/ReportFolders/reportfolders.aspx?IF_ActivePath=P%2C345%2C1851%2C1856

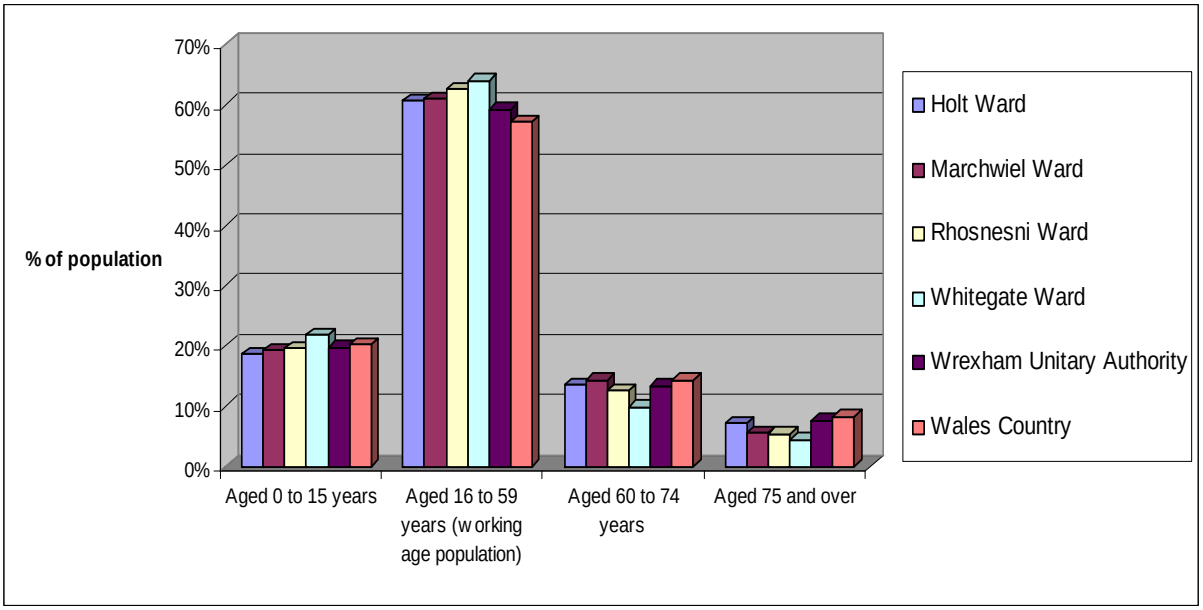
7 http://neighbourhood.statistics.gov.uk/dissemination/LeadAreaSearch.do;jsessionid=ac1f930dce63791717a49f94151948cd62ac5e28cb4.e38OaNuRbNuSbi0Nch0TaxeOc3j0n6jAmljGr5XDqQLvpAe?a=3&i=1001&m=0&s=1204122481484&enc=1&areaSearchText=wrexham&areaSearchType=13&extendedList=false&searchAreas=Search&bhcp=1

Age structure

1.62 Figure 3 below gives a representation of age as a percentage of the population within all 6 spatial areas for 2001. Although mid-year estimates have been given in more recent years, these cannot be used as actual counts; therefore figures given below have been taken from Census 2001 data which form the latest available for ward level.

1.63 60% of the population of Holt and Marchwiel are of a working age (16 to 59 years old), which is higher than both Wrexham and Wales working age rates of 59% and 57% respectively. Furthermore, both wards have larger elderly populations (20% of total ward populations are aged 60 and over) and smaller youth populations (19% of total ward populations are aged 15 and less) than those of adjoining Rhosnesni and Whitegate wards.

Figure 3: Age as a percentage of the Population (April 2001)



1.64 There are high rates of working age population present in the area of Holt and Marchwiel, where the WIE is located, as shown above. Therefore, these populations could benefit from improvements to the WIE accessibility and potential job creation through the development of proposed access roads.

Household Structure

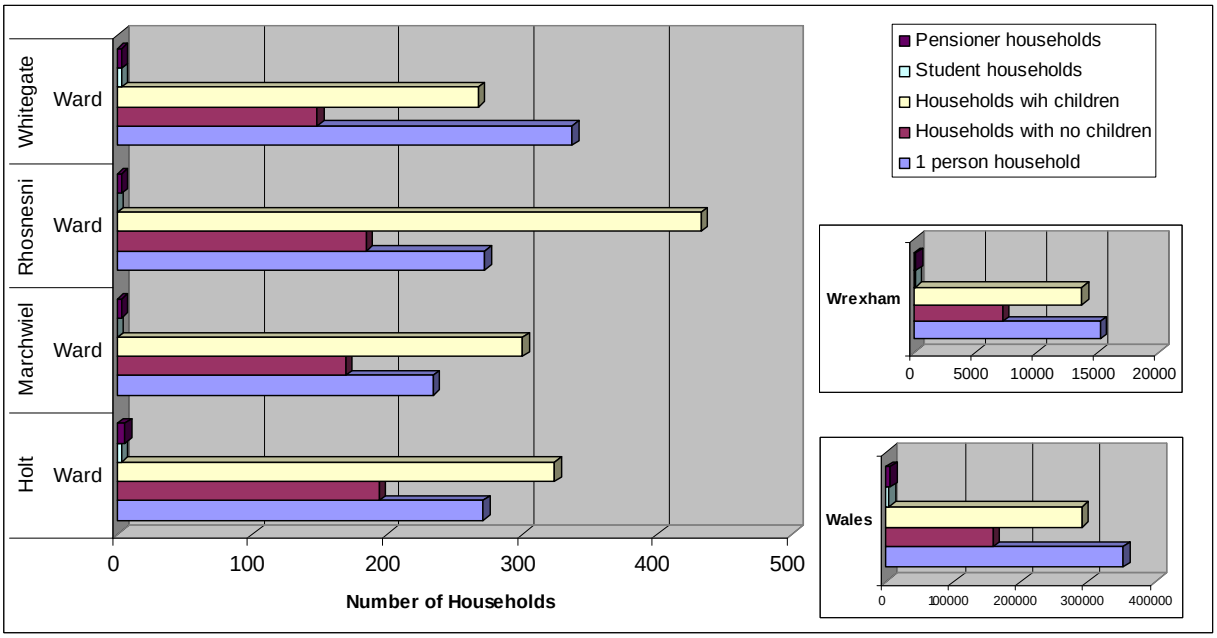
1.65 Household structure examines the characteristics of a household within an area, including family structure, number of people within a household, and age of persons within households.[8]

1.66 Figure 4 below shows data for the structure of households within all six spatial areas in 2001. The household structure for Holt showed households with children to be the most prevalent which is similar to that of both Rhosnesni and Marchwiel. However, there are less one-person households in Holt and Marchwiel than the average for the region and Wales as a whole. This could be the result of the rural setting of both

[8] http://neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=276863&c=wrexham&d=13&e=16&g=415108&i=1001x1003x1004&m=0&r=1&s=1205166209834&enc=1&dsFamilyId=165

wards. Low levels of student and pensioner household structures existed on all scales and of the four Wrexham wards, Holt had the highest number of households with no children.

Figure 4: Household Composition (April 2001)



1.67 Although households with children are most common within the surrounds of the WIE, data shows that there is a range of household types within the area and therefore the proposed access roads development must include measures for child safety, mobility issues for pensioners and the need for speed reductions in a residential area.

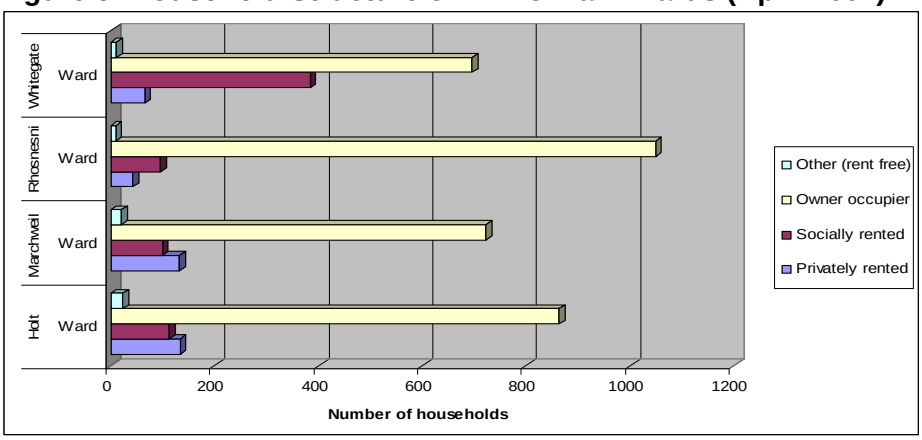
Tenancy

1.68 An analysis of tenancy can give an indication of lifestyle patterns and income levels.

1.69 Our examination of tenure is given for all households in April 2001 which are categorised into households owned; privately rented; socially rented and those living rent free (which includes households that are living in accommodation other than private rented).

1.70 Figure 5 below illustrates the tenancy profile of Marchwiel, Holt and surrounding wards.

Figure 5: Household Structure of 4 Wrexham Wards (April 2001)



Privately Owned Households

1.71 Privately owned households were most common on local, regional and national levels. In particular, over 75% of total households within Holt and Marchwiel are privately owned, with 87% in Rhosnesni.

1.72 No households with shared ownership exist within Holt while extremely low levels exist for Marchwiel, Rhosnesni and Whitegate. Furthermore, less than 0.5% of total households are in shared ownerships for both Wrexham and Wales. [9]

Rented Households

1.73 Less than 12% of total households in Holt are privately rented. Only 10% are socially rented in both Marchwiel and Holt, of which the majority is rented from the Local Authority. Rhosnesni experiences the least amount of socially rented households of the four wards and 33% of all households in Whitegate are socially rented, particularly from the Local Authority.

Living rent free

1.74 Both Holt and Marchwiel have high numbers of households living rent free at 24 and 21 respectively. This is more than double that of both Rhosnesni and Whitegate.

Economic Activity

1.75 Economic Activity indicators are useful in gaining an understanding of the proportion of the working-age population that is in employment as well as addressing the reasons people are not in employment, for example, long term sickness.

Economically Active

1.76 In 2001, 68% of the total working population (16 to 59 years) of Holt were economically active while 70% of Marchwiel's total working population were economically active. Both ward figures are higher than both Wrexham and Wales's rates of 65% and 61% respectively.[10]

1.77 Figure 6 below gives the distribution of economically active people for Holt and Marchwiel. Both charts indicate that over 70% of all economically active people within each ward are employed with more than half employed on a full time basis.

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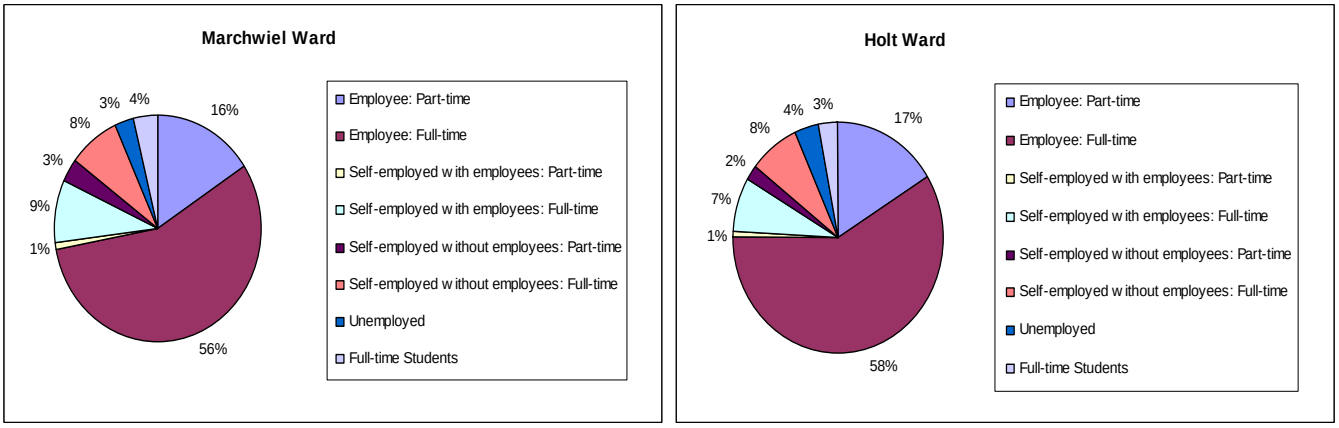
9 Http://neighbourhood.statistics.gov.uk/dissemination/LeadAreaSearch.do;jsessionid=ac1f930dce63791717a49f94151948cd62ac5e28cb4.e38OaNuRbNuSbi0Nch0TaxeOc3j0n6jAmljGr5XDqQLvpAe?a=3&i=1001&m=0&s=1204122481484&enc=1&areaSearchText=wrexham&areaSearchType=13&extendedList=false&searchAreas=Search&bhcp=1

10 http://neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=5939367&c=holt&d=14&e=9&g=415026&i=1001x1003x1004&m=0&r=1&s=1204550343976&enc=1&dsFamilyId=21

Figure 6: Distribution of Economically Active People in Holt and Marchwiel (April 2001)



1.78 For Whitegate and Rhosnesni, people employed on a full time basis made up 67% of the respective economically active populations.

1.79 The unemployment rate for Holt and Marchwiel was 2.4% and 2% respectively in 2001 which were both lower than regional and national levels[11]. Holt had an employment rate of 67.6% while Marchwiel's rate was 69.5% which were higher than regional and national levels. Therefore, more people were economically active within both Holt and Marchwiel than those within Wrexham and Wales.

1.80 On a regional scale, the employment rate for Wrexham has increased from 64.8% in 2001 to 76.5% in 2007 while the unemployment rate has also risen from 3.28% in 2001 to 4.5% in 2007. This corresponds with the rise in national levels for both rates.

1.81 This is likely to result from the increases in population, specifically an increase in those who are economically active.

1.82 Overall, unemployment levels are low and employment and economic activity rates are in line with national averages therefore the development of proposed access roads to the WIE to improve access and attractiveness of the Estate as a place to engage in business can only support these levels and will contribute to increasing employment and job creation prospects.

Economically Inactive

1.83 Those of the working population who are economically inactive could be so for a number of reasons including being retired or a student, or having a long term illness or disability. 32% of Holt's total population and 30.5% of Marchwiel's total population are economically inactive which is in line with those of neighbouring wards; however, both regional and national averages are above 35%.

1.84 The majority of economically inactive people of working age in Holt and the other areas of analysis are classified as retired. Whitegate had the highest proportion of the

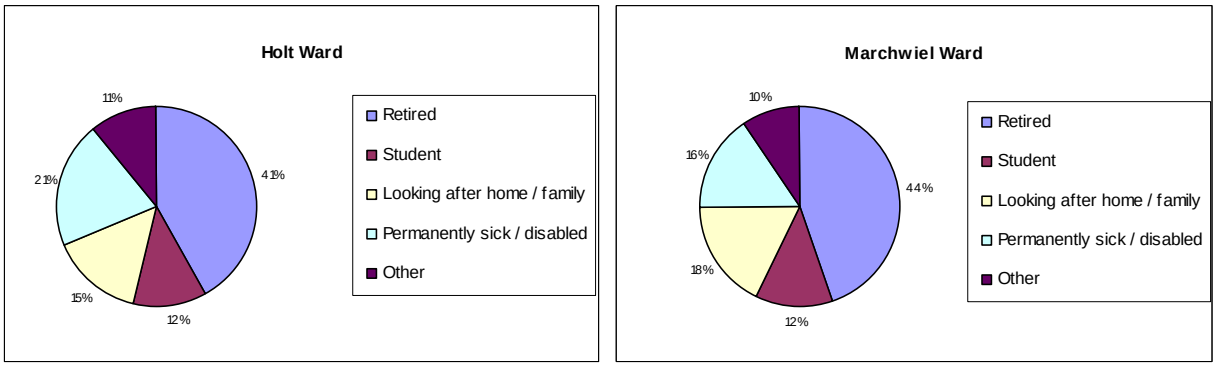
11 http://neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?adminCompAndTimeId=22797%3A248&a=3&b=276863&c=wrexham&d=13&r=1&e=9&f=22628&o=229&g=415108&i=1001x1003x1004x1005&l=1724&m=0&s=1204795663875&enc=1

working age population categorised as long term sick or disabled and Marchwiel has the lowest proportion of long term sick[12].

1.85 From Figure 7 below, 41% of Holt's economically inactive population are retired, and 21% suffer from permanent illness or disability. Therefore, 6.7% of the total working population of Holt suffer from permanent illness or disability. Furthermore, 44% of Marchwiel's economically inactive population is retired, and only 16% suffer from disability or permanent illness.

1.86 Whitegate, Wrexham and Wales experience higher proportions of the total working age population as being permanently sick and disabled (9.5%; 8%; and, 9.2% respectively); however, Marchwiel has the lowest rate of all four Wrexham wards studied, which is 4.8%.

Figure 7: Distribution of Economically Inactive People in Holt and Marchwiel (April 2001)



1.87 A large percentage of the population of both Holt and Marchwiel (either retired or suffering from long term sickness) remain at home and hence they are likely to be more affected by noise and air quality impacts resulting from the proposed development. Therefore, these issues will be considered in the impact assessment.

Travel to Work Patterns

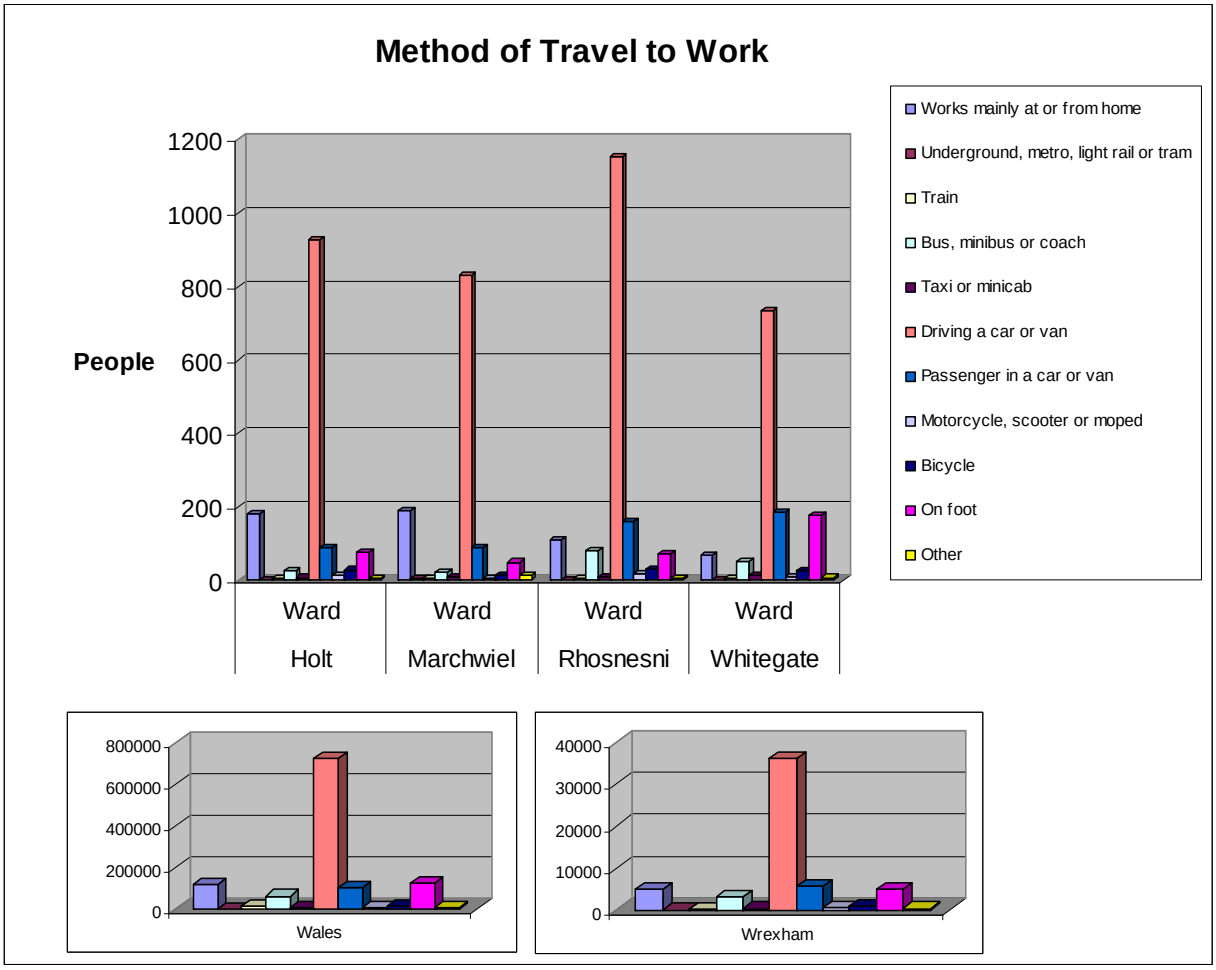
1.88 It is important to analyse which modes of transport are used for travelling to work. As the proposed scheme is for the development of access roads to the Wrexham Industrial Estate, it is worth noting whether the existing population will make use of them as a result. It is important to distinguish between not only which types are most common but whether these are private or public transport modes.

1.89 Driving a car or van to work is the most significantly common mode of transport that economically active people take to get to work within all 4 wards as well as on both regional and national scales. This is clear from the table set out in Figure 8 below.

12

http://neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=5939361&c=marchwiel&d=14&e=16&g=415085&i=1001x1003x1004&m=0&r=1&s=1206537986745&enc=1&dsFamilyId=107

Figure 8: Mode of Transport used to work (April 2001)



1.90 Private transport is more dominant than public transport on all scales. There is a low level of public transport use in Wales. This includes buses; train; taxi or minicab. This is due to poor public transport networks and constraints within Wales. In addition, population densities are low within Wales, and private transport is favoured; therefore, the requirement for public transport networks is less than that of a denser city space or urban area with a higher population density.

1.91 However, bus, minibus or coach public transport levels are higher than other modes of public transport, specifically within Rhosnesni. This could be as a result of its smaller area size and larger population density (when compared with the other three wards) in which public transport modes such as buses and coaches will be more effective in transporting large populations to their places of work.

1.92 Within Holt and Marchwiel, a large proportion of each population work from home, whilst a high number of people walk to work in Whitegate.

1.93 As the most common method of transport to work is private, the development of new access roads to the Wrexham Industrial Estate would favour the majority of the population.

Health

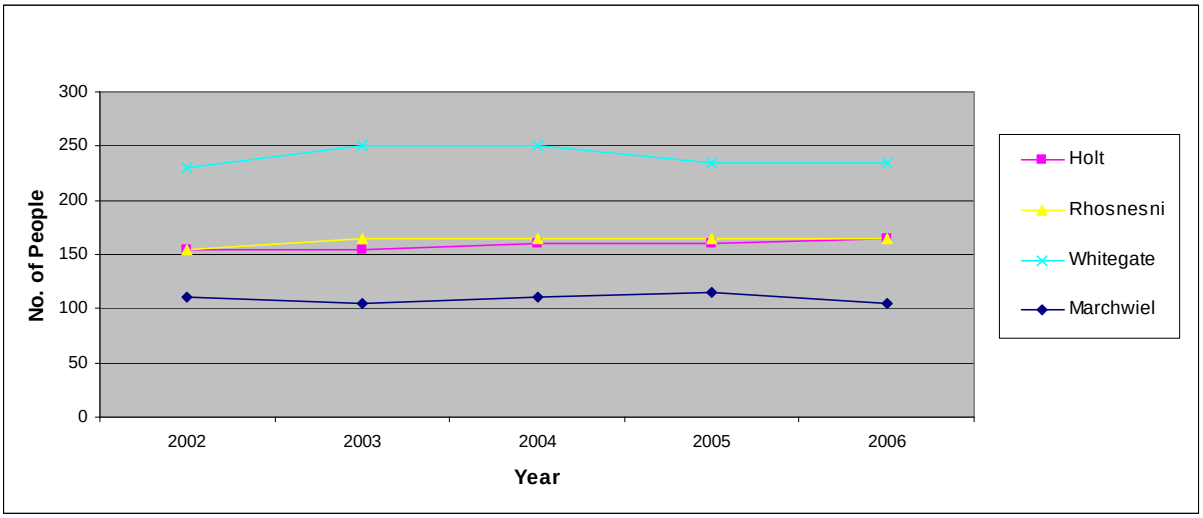
1.94 A synopsis of the existing health situation for the population within the study area and surrounding areas is vital in determining whether the proposed scheme is likely to have a significant impact on the health and well being of those who are likely to be affected.

1.95 Our analysis does not take into account any diseases which were affected by the local environment as limited data is given on this topic. An examination is given on the disabled population as well as those with limiting long-term sickness.

Disability

1.96 From Figure 9 below, it is clear that both Holt and Rhosnesni have similar levels of disability claimants which have not increased significantly between 2002 and 2006. However, Whitegate has higher levels of claimants which have decreased over the same period and Marchwiel has lower levels of claimants which have also decreased over time.

Figure 9: Disability Living Allowance Claimants for 4 Wrexham Wards (2002 – 2006)



1.97 Wrexham experienced a negative increase in disability claimants between 2002 and 2006, which is reflective of the national trend.

1.98 Disability claimants were evenly split between males and females on all scales for the period 2002 to 2006.

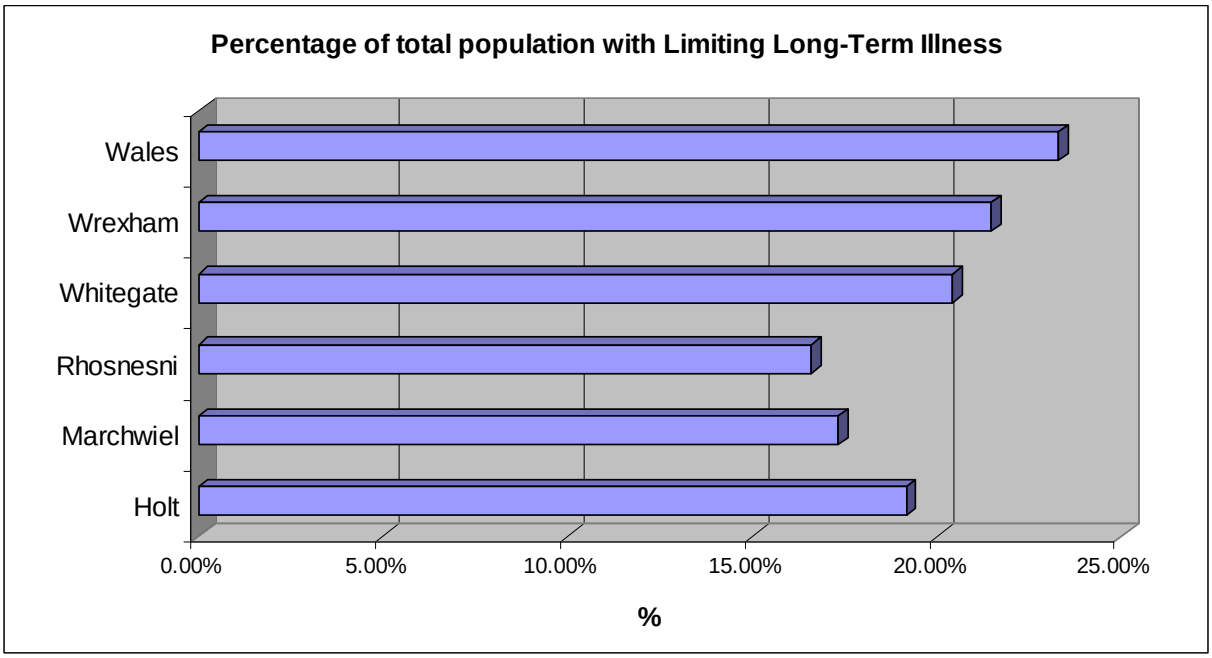
Limiting long term sickness

1.99 Those of the population who cannot work as a result of suffering from a long term illness are likely to be house bound and therefore are likely to be more affected by environmental impacts felt from the proposed road schemes than those of the population who are likely to be at work during construction and operation periods. Furthermore, it is likely that these people will be more sensitive to likely health impacts such as air quality and noise level changes.

1.100 Therefore, it is worth taking into account existing levels of the population who suffer from long term sickness which will give an indication as to how much of the population might be more exposed to any impacts.

1.101 Figure 10 below shows percentages of the total population with limiting long-term sickness for Wales, Wrexham, and the four wards. Both regional and national levels are higher than all four wards with Rhosnesni experiencing the lowest percentage of long term illness sufferers.

Figure 10: Percentage of Total Population with Limiting Long-Term Sickness (April 2001)



1.102 In 2001, 542 people in Holt and 419 people in Marchwiel were living with a long term illness. This accounted for 35% of all households in both wards which had one or more people with a limiting long-term illness[13].

1.103 Although, this level is similar to that of both Whitegate and Rhosnesni, both Holt and Marchwiel have much lower population densities; therefore, long term illness sufferers are likely to be more dispersed within both areas.

13

http://neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=5939367&c=holt&d=14&e=6&g=415026&i=1001x1003x1004&o=1&m=0&r=1&s=1204811728452&enc=1&dsFamilyId=57

Summary

1.104 Holt and Marchwiel have significantly lower population densities than the studies neighbouring wards through a combination of a larger ward size and relatively small population.

1.105 60% of the total population for both Holt and Marchwiel are of working age (Aged 16 to 59 years) which is lower than those of neighbouring wards but higher than both national and regional averages.

1.106 Most households within Holt and Marchwiel have children and live in privately owned housing.

1.107 The most common mode of transport used when travelling to work is by car or van (private transport) due to the vastly spaced layouts of agricultural land.

1.108 68% of Holt's total working population are economically active, and 70% of Marchwiel's total working population are economically active; both of which the majority are in full time employment. This is higher than both regional and national averages.

1.109 Marchwiel has the second lowest percentage of economically inactive people for all spatial areas of which 44% are retired and 16% suffer from long term illness. Holt has the third lowest percentage of economically inactive people of all studied spatial area with 41% retired and 21% suffering from a long term illness.

HEALTH IMPACT ASSESSMENT MATRIX

HEALTH IMPACT CRITERIA	SUB-CRITERIA	KEY CONSIDERATIONS	POSITIVE IMPACT	NEGATIVE IMPACT	NEUTRAL IMPACT
Governance The Wanless Review 'Securing our Future Health' showed that where public engagement in relation to their health is high there is dramatically improved population health status and relatively less demand on future healthcare resources.	Public involvement	Are plans being developed with the active involvement of all of those likely to be affected – both existing residents and potential incomers?	Statutory bodies and other non-statutory organisations have been consulted as part of the process of selecting the preferred routes. Further consultations have taken place during 2006/2007 as part of the development of the scheme design and the EIA process, the planning application and subsequent preparation of the ES.		
	Inclusiveness	Does this participation involve hard-to-reach groups?	Considerable efforts have been made to ensure other non-statutory organisations have been consulted, including: • Clwyd Powys Archaeological Trust • Clwyd Badger Group • British Horse Society (BHS) • Sustrans Cymru		
	Considering the health impact	Has consideration of the impact of proposed developments on human health been part of the evidence put forward when strategies are being developed or schemes considered?	This Integrated HIA has been commissioned to ensure health impacts have been considered for both northern and southern access roads to Wrexham Industrial Estate (proposed development).		
Environmental Egan considers the environment in the context of: "Living in a way that minimises the negative environmental impact and enhances the positive impact, (e.g. recycling, walking, cycling)".	Land	Does the proposed development have a detrimental impact such as permanent land take? Is this land taken from the community or from private use? Will any demolition take place?		The scheme results in a small amount of agricultural land take, and this would produce a minor negative effect on the local agricultural land supply. This land has been deemed of lower overall quality than surrounding agricultural land. There would be slight adverse effects as a result of the demolition on Keepers Cottage, with no other residential land take proposed.	Effects on development land within the industrial estate are considered to be minimal, reducing to a neutral significance in the long term.

HEALTH IMPACT CRITERIA	SUB-CRITERIA	KEY CONSIDERATIONS	POSITIVE IMPACT	NEGATIVE IMPACT	NEUTRAL IMPACT
	Water	Does the development minimise extensive hard surfaces, which causes rapid water and contaminant run-off? Is flood risk be minimised?	The proposed drainage system for the new access road would provide improved highway run-off management and would lead to reduced potential for environmental impact compared with the existing access routes.	The unmitigated construction impacts were assessed as posing a moderate and major adverse impact on the water quality within the Redwither Brook, the major aquifer, the River Clywedog, Bedwell Brook, and the Clywedog Stream Brook. With planned mitigation measures in place, the residual impacts were assessed as being Neutral.	Through detailed assessment within the associated hydrological and hydraulic studies, and investigation of potential mitigation measures the overall level of significance associated with the impact of the proposed road has been assessed to be neutral for the 1 in 100 year return period events.
	Air	Do proposed developments minimise exposure to air pollution, and work to 'good neighbour' policies? Do the design and construction methods minimise the ingress of dust and fumes from traffic and industry?	The net amount of NO2 and PM10 is reduced due to the proposed development of both northern and southern routes. The development will meet the requirements of national air quality objectives both within the proposed development and at sensitive receptors close to it.		

HEALTH IMPACT CRITERIA	SUB-CRITERIA	KEY CONSIDERATIONS	POSITIVE IMPACT	NEGATIVE IMPACT	NEUTRAL IMPACT
	Noise	Are houses and flats well insulated from noise, both from traffic and from neighbours?	The scheme noise assessment was revised in June 2009 for a scheme opening year of 2012. 3,496 properties in the vicinity of the scheme have been assessed. Without the scheme, all of these properties would experience an increase in noise between the years 2012 and 2027 of varying magnitude that are generally small. These increases are attributable to a forecast growth in traffic on the existing road network. If the scheme was built an assessment of the same 3,496 properties found that 488 properties would experience a noise decrease with the scheme in place, 80 properties would have no change and 2,928 properties would experience a noise increase of varying magnitude. To reduce impact from noise, a 2 metre high acoustic barrier would be constructed along the west side of the A5156 to reduce noise impacts at residential properties. This will connect to the existing acoustic barrier located close to the A5156 Borras Road roundabout. The impact of construction work would be adverse and temporary in nature and measures would be taken to identify significant impacts and take measures to reduce these as far as practicable. Construction vibration nuisance impacts have been considered and no properties would be significantly adversely affected. Vibration impacts with the scheme built have been considered and no properties would experience significant vibration nuisance.		

HEALTH IMPACT CRITERIA	SUB-CRITERIA	KEY CONSIDERATIONS	POSITIVE IMPACT	NEGATIVE IMPACT	NEUTRAL IMPACT
	Walkability (Community Severance)	Do the neighbourhoods have high 'walkability'? Are locals separated from facilities and services they use within the community as a result of the proposed development?	Overall, the effect can be summarised as a substantial benefit in amenity and safety for most local journeys, and an associated reduction in community severance. The benefits would be felt most strongly within the community at Llan y Pwll and by residents on Hugmore Lane, as well as the community at Cross Lanes and by residents on Bedwell Road which are sited on the existing access roads to the Estate.	The additional road crossings on two public footpaths near the southern access road have a slight adverse impact, and increased traffic flow on the A525, would result in a slight adverse increase in severance in terms of pedestrian access to the Cross Lanes Hotel and the bus stops on the A525. There is a range of slight, moderate and severe adverse impacts on users of public footpaths due to increases in journey times, however surveys have demonstrated that usage of these footpaths is relatively low, and safe provision for crossing the new A534 dual carriageway would be provided via the underbridge for the new quarry access road, whereas existing footpath users have to cross the busy A534 at-grade.	
	Construction Process	Have developers agreed to minimise the potential adverse impacts of construction, and an agreed a Code of Construction Practice (CoCP) with the local authority?			The Construction Environmental Management Plan will mitigate any potential temporary environmental impacts resulting during construction phase. This will provide a neutral impact as any negative impacts will be mitigated against and no beneficial impacts will result from environmental nuisances to occur during construction.
Economic Having a good job can increase income, status and feelings of making contribution to society, all of which are health promoting. Unemployment and low-grade jobs can be damaging to health.	Access to Employment	Are employment, housing and social facilities located to allow easy access between them? Is sustainable access to jobs (walking, cycling, public transport) built in?	A substantial benefit will result from the proposed scheme as it allows increased access to employment within WIE from existing housing and social facilities.		
	Access to Opportunities	Will the proposed development encourage access to opportunities for both employment and businesses?	A substantial benefit will result from the proposed scheme as it allows increased access to employment and business opportunities within WIE.		
	Inward Investment	How will the proposed scheme encourage inward investment of existing businesses and companies? Are measures in place to protect the existing businesses?	It is expected that the proposed scheme will be substantially beneficial in terms of inward investment and encouraging further growth for existing businesses and companies within the WIE.		

HEALTH IMPACT CRITERIA	SUB-CRITERIA	KEY CONSIDERATIONS	POSITIVE IMPACT	NEGATIVE IMPACT	NEUTRAL IMPACT
Infrastructure Infrastructure is essential to enable access to people, goods and services. Effective infrastructure promotes health through maintaining social networks and by enabling access to training employment and services. Poor infrastructure that does not balance the need to travel with health and quality of life needs are injurious to health.	Access & Mobility	Do the transport systems and the layout of developments provide the whole population with affordable access to services such as, shops, health care, work, education and social activities?	The development of new WIE access roads will enable improved access to the Estate for not only those who work in the Estate but those who make use of its services (i.e. customers).		
	Road Traffic Injuries	Is the layout, design and management of residential, shopping and other areas where people wish to go designed to give priority to pedestrians?	Road traffic will be removed from populated areas of the village of Cross Lanes and properties on Kiln Lane and Bedwell Road with the development of the southern access road. Furthermore, the communities of Llan-y-Pwll and properties on Hugmore Lane will experience lower road traffic levels as a result of the development of the northern access road Reduced road traffic volumes will directly impact on the safety and amenity of roads within the areas of Cross Lanes, Kiln Lane, Bedwell Road, Llan-y-Pwll and Hugmore Lane. The redirection of road traffic will reduce trips on existing road networks, improving the safety of children, pedestrians, cyclists and equestrians within the local areas. The phasing of the traffic lights on the A525 at Cross Lanes would be reviewed to take account of changes in traffic flows at the junction and to provide safe crossing times for pedestrians. Some public footpaths are severed by the scheme, which generally results in adverse impacts because of the need to divert footpaths for safety reasons. However, users of public footpaths in the Llan-y-Pwll area will be able to cross under the new A534 access road using an underbridge, which is considered to be safer than crossing the existing A534 at-grade at peak times.		An overall slight adverse impact in terms of journey time and amenity for users of the severed footpaths will occur. However, surveys have shown that these public footpaths are relatively lightly used, and therefore the number of people affected would be small.

HEALTH IMPACT CRITERIA	SUB-CRITERIA	KEY CONSIDERATIONS	POSITIVE IMPACT	NEGATIVE IMPACT	NEUTRAL IMPACT
	Walking & Cycling	Is the environment designed to encourage moderate physical activity, including walking and cycling, as part of everyday life?	It is considered that the provision of the new and additional cycleway routes will provide a slight to moderate overall benefit for users. Furthermore, the reduction in traffic flows in the Cross Lanes village will be of substantial benefit to local cycle users and pedestrians.		
	Community Severance	Do transport links sever communities, or make access to areas or services more difficult?	If the proposed scheme is not built then the degree of community severance caused by high traffic flows on the existing roads would continue and would increase in the future as traffic flows continue to grow. If the proposed scheme is built, a substantial benefit for local residents, pedestrians and others will be felt as reductions on traffic flows on the existing A534 through Llan-y-Pwll, on Hugmore Lane, on Bedwell Road and through Cross Lanes village will occur.		

KEY HEALTH IMPACTS: INTRODUCTION

1.110 The following key impacts were identified as a result of the Scoping Stage and their resultant positive or negative impacts were explored in the HIA Matrix Tool.

- Air Quality: Impacts on existing air quality levels during the construction and operational phases.
- Noise: Impacts on existing noise levels during the construction and operational phases.
- Community Severance: Provision of public footpaths, cycle routes, bridle paths and access to local facilities
- Road Safety: Reduction in road traffic accidents.
- Employment: Improved access and attractiveness of the WIE. Impacts on local farms.
- Biodiversity: Removal of existing vegetation and introduction of man-made elements into primarily rural landscape and reductions in agricultural land.

1.111 These impacts are assessed in further details in Sections 6 to 11 below. Our assessment approach includes an initial contextual overview followed by a detailed impact assessment. This includes categorising key impacts according to their potential affect on the health and well being of the local population as positive, negative or neutral. Following the assessment, details of proposed mitigation and enhancement measures are given as well as a conclusion stating the overall resulting impact arising from the proposed scheme.

1.112 We have considered impacts for all stages of the development including both construction and operational phases. It is worth noting that most impacts occurring during construction will be of a temporary nature and are not expected to continue following scheme completion.

KEY HEALTH IMPACTS 1: AIR QUALITY

Context

1.113 Road Transport is responsible for the following pollutant emissions: carbon dioxide, lead, ozone, particulates (poisonous microscopic particles of burnt gas). Emissions from vehicles in congested areas are responsible for local air pollution, and the CO2 emissions have been identified as being a major contributor to climate change. The external costs of air pollution from road transport have become a subject of increasing concern in recent years. Such costs can be categorised as follows:

- the costs to human health in the form of premature illnesses and deaths, the increased money costs imposed on health services
- the environmental damage to air, water, forests, etc. and the effects of increased climate change.

1.114 Nitrogen dioxide is a respiratory irritant associated with both acute (short-term) and chronic (long-term) effects on human health, particularly in people with asthma. Nitrogen dioxide (NO2) and nitric oxide (NO) are both oxides of nitrogen, and are collectively referred to as nitrogen oxides (NOx).

1.115 All combustion processes produce NOx emissions, largely in the form of nitric oxide, which is then converted to nitrogen dioxide, mainly as a result of reaction with ozone in the atmosphere. It is nitrogen dioxide that is associated with adverse effects upon human health.

1.116 The principal source of nitrogen oxides emissions is road transport, which accounted for about 49% of total UK emissions in 2000 ((LAQM.TG(03)). Major roads carrying large volumes of high-speed traffic are a predominant source, as are conurbations and city centres with congested traffic.

1.117 The UK Government Committee on the Medical Effects of Air Pollution (COMEAP) states that air pollution:

- has short term and long term damaging effects on health;
- can worsen the condition of those with heart disease or lung disease;
- can aggravate but does not appear to cause asthma; and
- in the longer term, probably has additional effects on individuals including some reduction in average life expectancy, (though the extent of this is not fully understood at present.)

Impact Assessment

Air Quality Goals

1.118 The Proposed Development has been prepared in such a manner as to minimise emissions. The implementation of appropriate procedures, incorporating the

principles of the BRE Pollution Control Guidance, will also minimise any significant effects during the construction of the Proposed Development.

1.119 **Positive Impact:** Goals to address Air Quality form part of the design and development brief and measures to minimise air quality and mitigate effects have been considered at all stages of the development.

1.120 **Scale & Duration:** This impact will be embedded throughout the construction phase. The road, its users and neighbours will benefit from a development process that has considered the need for pollution control and so will not adversely affect future air quality.

1.121 This impact will apply across the access road development sites and surroundings to ensure no adverse effects are deflected to surrounding areas especially residential areas.

Construction Phase Environmental Management

1.122 Construction impacts have been assessed and mitigation techniques have been addressed which will take place in the form of a construction environmental management plan to ensure any noise, air, dust and water impacts are minimised according to Best Practice measures.

1.123 **Neutral Impact:** Any persistent dust effect will result in modifications being made to the construction management strategy.

1.124 **Scale & Duration:** There would be only minor and localised effects during construction works.

Air Quality Improvements

1.125 The modelled results for 2010 and 2025 predict that concentrations of NO2 and PM10 will decrease from the 2006 levels both with and without the development except for NO2 at Waterways Garden Centre and Llan-y Pwll 2 in 2010 as the new access roads will be closer to these two receptors.

1.126 **Positive Impact:** With the development of both the north and south routes there are expected to be more receptor points that experience an improvement in air quality due to the development than experience deterioration in air quality due to the development.

1.127 **Positive Impact:** All the predicted future concentrations of NO2 and PM10 in 2010 and 2025 are significantly below the NAQS objectives.

1.128 **Scale & Duration:** The WebTAG model predicts that more properties will experience improvements in air quality (2749) than will experience deterioration in air quality (999) from the cumulative impacts of opening both the north and south routes in both 2010 and 2025.

1.129 The regional modelling shows that amount of CO2 is not significantly different with or without the development in 2010 and in 2025 there is expected to be a slight increase in CO2 due to the development of the north and south routes.

Conclusions

1.130 The analysis has shown that overall; there will be a **POSITIVE** impact on health arising from the construction and operation of the WIE access roads.

1.131 This will manifest in the following outcomes:

- Congestion will be lowered leading to greater free-flow of traffic and reduction in emissions arising from vehicles having to wait in situ on local roads.
- Measures to reduce or improve air quality have been factored into the design, development and construction process
- The local population will have improved access to footpaths and cycleways to encourage modal shift and divert pedestrians away from roads with heavy vehicle usage.

Context

1.132 Noise pollution can adversely affect the quality of life for both residents and workers. Exposure to unreasonable noise can be disturbing and can even affect our general health if uncontrolled. Transport noise is one of the most widespread sources of noise and also the most difficult to control. Research shows that over 40% of the population are bothered by noise from road traffic. The noise made by individual vehicles is limited by the Road Vehicles Construction and Use Regulations (1986).

1.133 Over the next few years, measures must be taken to reduce the harmful effects of environmental noise (from transport and industrial activity) under the EU Noise Directive. The Directive sets out a programme for EU Member States to map noise in densely populated areas and from major roads, airports and railways. Information from noise maps will be used to introduce plans to manage noise in mapped areas where it is judged necessary and to prevent specified quiet areas from getting noisier.

1.134 With the potential for mapping noise and developing mitigation measures as a result, the goal should be that the maps should identify that in fact the WIE access roads have actively reduced noise pollution in line with this EU Directive and have actually contributed to a reduction in noise.

1.135 The Highways Agency and Welsh Assembly Government expect that all road construction projects will include high standards of environmental mitigation to ensure that, so far as reasonably possible, the impact of noise is minimised in accordance with its policy.

1.136 Road traffic noise levels have been predicted at representative receptors using the method detailed in the Department of Transport technical memorandum Calculation of Road Traffic Noise (CRTN).

Impact Assessment

Noise Reductions

1.137 Of the properties assessed, it was found that 488 properties would experience noise decreases with the development of both road schemes, 80 properties would have no change in noise and 2928 properties would experience a noise increase. Of those properties experiencing a noise increase, all but 8 properties would experience an increase of between 0.1 to 2.9 dB.

1.138 Positive Impact: This noise increase would be considered to be ‘just perceptible’. If the scheme did not go ahead, all properties assessed (3496 for both schemes) would be expected to experience noise increases, with increases generally between 0.1 to 2.9 dB.

1.139 **Scale & Duration:** Construction works will be of a relatively limited duration and any nuisance caused should be minimised by the application of Best Practicable Means (BPM) in working practices, as defined in section 72 of the Control of

Pollution Act 19746 (COPA) or Part III of the Environmental Protection Act 19907 and BS 5228-1: 1997.

Construction Phase

1.140 The calculations of likely noise generated by vehicles engaged in the construction phase have been done so on a worst-case scenario.

1.141 **Positive Impact:** On this basis the majority of locations will experience low or no impact so we can assume that in a best case scenario many more will also experience low or no impact.

1.142 **Scale & Duration:** Since activities will not be conducted at the site boundary for the full duration of the works. On-time levels have also been assumed to be worst case; it is unlikely that these will be typical for every day. Sound power levels for construction noise (BS 5228) are based on data from pre-1984; modern plant is usually quieter than plant from this period.

Conclusions

1.143 The analysis has shown that overall; there will be a **POSITIVE** impact on health arising from the construction and operation of the WIE access roads.

1.144 This will manifest in the following outcomes:

- Although the analysis has shown that some properties will experience an increase in noise nuisance, this is a very small increase.
- If the scheme did not go ahead and current vehicle levels on the roads were maintained or increase then noise nuisance would be a greater problem on a much wider scale.
- In this context the small increase of noise nuisance to some properties is more beneficial an outcome than if the roads were not developed.
- Noise nuisance will be generated via the construction phase. However measures to reassure the public that this is a short-term problem and efforts to maintain open and timely communication on the progress of the construction works will minimise any loss of amenity and disturbance providing the public are well informed.
- There is a construction management plan in place to address these concerns and ensure open and clear dialogue with the neighbouring community.

KEY HEALTH IMPACTS 3: COMMUNITY SEVERANCE

Context

1.145 Community severance is defined as the separation of residents from facilities and services they use within their community caused by new or improved roads or by changes in traffic flows.

1.146 Housing developments whether they are public, private or both need to be supported by associated facilities that will serve the needs and requirements of the people who will live there now and in the future. The lack of availability and efficacy of facilities is a prominent factor in levels of deprivation and exclusion faced by many of its residents. It affects quality of life and the degree to which a community is embedded in a network of local services and support. How can a community grow and establish links to strengthen itself if there are no facilities with which to do this. People need places to meet and to share the same services.

1.147 There are some basic services which should be mandatory such as access to a local GP, dentist, hospital and school. These are shared by a wide catchment area and help to link multiple neighbourhoods together much like shops and cultural facilities do. However on a more micro level where facilities are shared by a more discreet and focused group of residents it is important that they are meeting identified needs.

1.148 A failure for services and facilities to meet local needs or a lack of services and facilities at all leads to social exclusion, poverty and poor health.

1.149 If improvements to the environment for pedestrians and cyclists were successfully instituted it is likely that speeds and volumes of traffic would diminish, resulting in a reduction in pollution and traffic danger, lower noise levels, improved access, reduced inequalities, and reduced community severance. A safer and more pleasant urban environment is also likely to increase the levels of activity such as walking and cycling.

1.150 The time savings afforded by a more efficient flow of traffic generated by the access roads could contribute to greater free time available to local residents and employees. There are quality of life benefits associated with this in terms of free-time being available to encourage the take-up of physical activity or greater frequency of participation in physical activity.

1.151 Spending less time in stationary traffic and shorter journey times could have positive effects on reducing stress levels, which has notable health benefits. Easing traffic flows will also ensure that emergency services can gain access to the WIE or local residents if the event of an emergency.

1.152 If the scheme is not built then the degree of community severance caused by high traffic flows on the existing roads would continue and would increase in the future as traffic flows continue to grow.

Existing Communities

1.153 The area in which the proposed northern access road is situated is on the urban fringe of Wrexham, particularly where the A5156 runs along the edge of the Plas Golbourne/Borras Park estate. To the east of Holt Road Roundabout, the scheme

passes through a more rural area with the small community of Llan y Pwll and properties on Hugmore Lane being situated alongside the existing access roads to the estate.

1.154 The area in which the proposed southern access road is situated varies from being rural in nature to the south of the river Clywedog, to the more urban outskirts of the industrial estate to the north of the Clywedog. The village of Cross Lanes lies to the east of the scheme, at its southern end.

1.155 There is a village shop in Cross Lanes, with the Cross Lanes Hotel and bus stops situated on the A525 Wrexham to Whitchurch Road, just to the south west of the village. There is a community centre at Pentre Maelor, some 130 metres from the northern end of the scheme. These are likely to be the main generators of local pedestrian trips.

Impact Assessment

Access to Facilities

1.156 **Neutral Impact:** Given that the proposed scheme runs along the existing A5156 corridor, there would be little effective change in the present relationship between residents of Plas Golbourne/Borras Park and their local community facilities.

1.157 **Positive Impacts:** The community of Cross Lanes would benefit by the proposed access road being located further away from the village centre. Vehicle flows through the village and alongside individual properties along Bedwell Lane would be greatly reduced following the construction phase. The community of Llan-y-Pwll will be similarly affected.

1.158 **Positive Impact:** If the scheme is built then traffic flows on Bedwell Road would reduce by around 70%, with virtually all through traffic transferring to the new access road. This represents a substantial benefit for local residents, pedestrians and others in terms of amenity and safety, and particularly for users of the village shop.

1.159 **Scale:** The benefits would be felt most strongly within the community at Cross Lanes and by residents on Bedwell Road, which are on the existing access road to the Estate.

Improvements to Public Footpaths & Cycleways

1.160 The roads forming the existing access route to the Industrial Estate, along the A534 and Hugmore Lane carry high traffic flows – around 18,000 and 13,000 vehicles per day respectively. There are no formal cycleway facilities along the existing access routes, and the only footway is on the north side of the existing A534, which is narrow (< 1m) in places. This results in poor amenity for, and

significant hazards to the safety of pedestrians and others within the small communities alongside these roads.

1.161 **Positive Impact:** The introduction of new footpaths and cycleways will be an improvement to the pedestrian and cycling environment and encourage modal shift which is beneficial to health and the environment as a whole.

1.162 **Scale & Duration:** There is a range of slight, moderate and severe adverse impacts on users of public footpaths due to increases in journey times, however surveys have demonstrated that usage of these footpaths is relatively low, and safe provision for crossing the new A534 dual carriageway would be provided via the underbridge for the new quarry access road, whereas existing footpath users have to cross the busy A534 at-grade.

1.163 The benefits would be felt most strongly within the community at Llan-y-Pwll and by residents on Hugmore Lane, as well as the community at Cross Lanes and by residents on Bedwell Road which are sited on the existing access roads to the Estate.

1.164 **Negative Impact:** The additional road crossings on two public footpaths near the southern access road have a slight adverse impact, and increased traffic flow on the A525, would result in a slight adverse increase in severance in terms of pedestrian access to the Cross Lanes Hotel and the bus stops on the A525.

1.165 **Mitigation:** Any adverse effects on public rights of way would be mitigated by the provision of diversions and/or at-grade crossing points of the new highways.

1.166 **Neutral Impact:** Access to the Pentre Maelor community centre, which is 130 metres to the north of the scheme, would not be affected by the scheme proposals.

Conclusions

1.167 The analysis has shown that overall; there will be a **POSITIVE** impact on health arising from the construction and operation of the WIE access roads.

1.168 This will manifest in the following outcomes:

- Heavy traffic is diverted from village roads onto the new access roads
- Crossings will be safer and trips to various facilities will be shorter and more pleasant
- Improvements to footpaths and cycleways encourage greater use of them and encourages modal shift which is more beneficial to health
- Better lighting and signposting also contributes to a reduction in fear of crime and greater community safety.
- Existing services will be easier to reach, thus serving the community better, helping to develop a strong community network and reducing the sense of isolation which is important for well-being particularly for elderly and home-bound residents.
- Some of the bus stops will be located on roads that are set to be busier with the development of the access roads but this could be mitigated through a review of bus stop location and bus routes themselves to take advantage of diversion of heavy traffic onto the new access roads.

KEY HEALTH IMPACTS 5: ROAD SAFETY

Context

1.169 Road traffic injuries are a global public health problem affecting all sectors of society. Road traffic accidents are ranked as the ninth leading cause of disease and trends in motorisation indicate an increase in road traffic injuries[14]. The majority of road traffic accident victims include the most vulnerable road users such as pedestrians, cyclists, children and passengers.

1.170 Road safety and reductions in traffic accident casualties remain one of the Government's main priorities for transport. In Wales, safety is now often the largest source of benefits for trunk road schemes. Therefore a proposed road scheme development that is seeking to improve road safety is expected to provide a direct link with improvements to health.

1.171 An assessment of road safety impacts will need to take into account the potential for an increase or decrease in the likelihood of accidents occurring as a result of the new scheme. WelTAG (2008) provides some steer on the methods that can be used to gauge "risk" of transport accidents and where accident "savings" can be derived. However, in order to calculate this we need to be aware of average vehicle speeds and past accident records.

1.172 Potential impacts can improve road safety through the reduction of traffic accidents and the groups most likely to benefit. For instance, a scheme which is developed to remove and reduce traffic flows within a densely populated area to an area outside of low population will help to reduce the number of traffic and road accidents within the populated area. Flows will be redirected to areas of low people concentrations which can reduce pedestrian, cyclist and motor vehicle accidents.

1.173 A safer and more pleasant urban environment can result from improved road safety which is likely to increase the levels of activity such as walking and cycling which has a direct positive impact on the health and well being of those within the proposed scheme area.

Impact Assessment

Traffic Volumes

1.174 Traffic volumes directly correlate with road traffic accidents; therefore it is fair to say that road traffic accidents are likely to decrease if the volume of traffic on particular road networks is correspondingly reduced.

1.175 The Environmental Statement (2007 version) records that the A534 in the Llan-y-Pwll area has had a particularly poor accident record, with two fatal, three serious and twenty-three slight accidents between 1998 and 2002. According to WelTAG

[14] http://who.int/gb/ebwha/pdf_files/EB113/eeb1139.pdf

models this would have led to the following monetary impacts (based on 2002 values) which do not include casualty costs:

- £18,072 worth of damage to local property arising from the 2 fatal accidents;
- £12,357 worth of damage to local property arising from the 3 serious accidents; and
- £62,790 worth of damage to local property arising from the 23 slight accidents

1.176 The Environmental Statement points to there being a significant reduction in traffic on Bedwell Road for example and an estimated saving of 90 accidents over 30 years, or 3 per year following the opening of the road.

1.177 These represent significant positive impacts on the relative road safety for the WIEAR and surrounding areas.

1.178 **Positive Impact:** Road traffic will be removed from populated areas of the village of Cross Lanes and properties on Kiln Lane and Bedwell Road with the development of the southern access road. Furthermore, the communities of Llan-y-Pwll and properties on Hugmore Lane will experience lower road traffic levels as a result of the development of the northern access road.

Road Safety and Amenity

1.179 **Positive Impact:** Reduced road traffic volumes will directly impact on the safety and amenity of roads within the areas of Cross Lanes, Kiln Lane, Bedwell Road, Llan-y-Pwll and Hugmore Lane. The redirection of road traffic will reduce trips on existing road networks, improving the safety of children, pedestrians, cyclists and equestrians within the local areas.

1.180 **Positive Impact:** The phasing of the traffic lights on the A525 at Cross Lanes would be reviewed to take account of changes in traffic flows at the junction and to provide safe crossing times for pedestrians.

1.181 **Positive Impact:** Some public footpaths are severed by the scheme, which generally results in adverse impacts because of the need to divert footpaths for safety reasons. However, users of public footpaths in the Llan y Pwll area will be able to cross under the new A534 access road using an underbridge, which is considered to be safer than crossing the existing A534 at-grade at peak times.

1.182 **Negative Impact:** There are no dedicated cycle-ways through the industrial estate itself? Therefore, cyclists are safely directed towards the Wrexham Industrial Estate (WIE) however this does not continue through the WIE and could lead to confusion and accidents as cyclists share routes with heavier traffic.

1.183 **Mitigation:** The WIE Access Road scheme does not extend to the interior of the estate so this is not a matter for the scheme to consider, however it is pertinent for Wrexham County Borough Council (WCBC) to consider discussions on the provision of safe cycle-routes within the WIE.

1.184 **Mitigation:** Adverse effects in public rights of way would be minimised by provision of the diversions and crossing points of the new highways. No substantial change in the pattern of existing pedestrian journeys is anticipated as a result of the proposed scheme; however the amenity value of pedestrian journeys within Cross

Lanes, Kiln Lane, Bedwell Road, Llan-y-Pwll and on Hugmore Lane would improve greatly due to the reduction in traffic on existing roads.

Conclusions

1.185 The analysis has shown that overall; there will be a **POSITIVE** impact on health arising from the construction and operation of the WIE access roads.

1.186 This will manifest in the following outcomes:

- Traffic volumes will be diverted from highly populated areas onto the new access roads thereby improving community and road amenity
- reduced traffic volumes will be experienced in the surrounding villages and area, therefore decreasing associated numbers of traffic accidents and improving road safety for all
- Pedestrian and cycle crossings will be safer and more pleasant due to reduced traffic volumes
- Improvements to footpaths and cycleways promote their usage and encourage a healthier lifestyle and well being.

KEY HEALTH IMPACTS 6: EMPLOYMENT

Context

1.187 Research undertaken by the London Health Observatory has shown that there is an important positive relationship between economic prosperity and health.

1.188 For people in paid employment, there are certain aspects of work that can affect health. Over the past few years the issue of job security has been recognised as important for well-being. The move towards less secure, short term employment affects most of us, but is especially important for less skilled manual workers.

1.189 A number of studies have shown how having a greater degree of control over our work is associated with positive health benefits, lower coronary heart disease, musculoskeletal disorders, less mental illness and fewer episodes of sickness absence. Amongst the most famous examples are the series of studies of civil servants in Whitehall - all people in paid relatively secure work - yet for whom there are significant and enduring health gradients associating the lower income groups with the worst health.

1.190 Unemployment is a significant risk factor for a number of health indicators. The effects can be linked to poverty and low income amongst the unemployed. There are also significant psychological consequences related to worklessness, especially for the long term unemployed. In addition, our work can play an important role in building social capital, our social networks and the ways we participate within society.

1.191 Unemployed people are found to have:

- Lower levels of psychological well-being which may range from symptoms of depression and anxiety through to self harm and suicide.
- Higher rates of morbidity - such as limiting long term illness.
- Higher rates of premature mortality, in particular for coronary heart disease.

1.192 People with poorer health are more likely to be unemployed - this is particularly true for people with long term disabilities. However, this does not explain the finding of poorer health amongst the unemployed. It is thought that the ways that unemployment lead to poorer health include:

- Effects of increased poverty and material deprivation. These can be particularly acute for people in manual occupations, who tend to be on lower incomes anyway.
- Social exclusion, isolation and stigma.
- Changes in health related behaviour.
- Disruption to longer term careers.

1.193 Policies that increase levels of employment are therefore likely to have a significant health benefit for individuals and for the local community. There are also policies which can indirectly improve opportunities for work. In particular, education and training programmes can help to enhance the chances of obtaining a job. For the parents for young children, access to day care and family friendly employment policies can also make a critical difference in terms of being able to work or not.

Impact Assessment

Employment and the Economy

1.194 **Positive Impact:** The construction and operation of the WIE is likely to have a positive impact on employment and the economy on a number of levels.

1.195 **Local Impact:** The WIE is an important local employer and employment levels in the surrounding wards are above the average for Wrexham and Wales as a whole. For some businesses between 75-100% of their workforce live locally. The development of the access road will enhance local access to the WIE which is important for the viability of local people working there. It is also important to ensure that current employment levels are maintained or bolstered and that any intervention on the estate does not deter from the economic vitality of the WIE. Any job losses would have a detrimental effect on the health and well-being of local residents and their dependents so strategic measures must be in place to avoid this scenario. The access roads are a key factor in avoiding this.

1.196 Any improvements to the local road and access arrangements can be seen as benefit as without them the business viability of the WIE could be undermined given that the current arrangement is at capacity and unsustainable. This could provide a constraint on growth and the prosperity of local neighbourhoods which depend on the WIE as an important source of local employment.

1.197 Employees are also expected to benefit from the reduction in congestion and greater free-flow of traffic in terms of travelling to work. The improvement to cycleways may lead to a modal shift of employees choosing to cycle to work which has clear health and sustainability benefits.

1.198 The WIE currently operates a car-sharing scheme which is an excellent way of providing a sustainable response to the level of car-based travel to work levels and educes resource use and emissions levels.

1.199 Suppliers and customers of businesses based at WIE will benefit from improved access to the Industrial Estate being directly linked to the strategic road network. This has clear benefits in terms of a more attractive environment, a shorter journey time, greater resource efficiencies and the resultant reductions in business costs.

1.200 **Regional & Wider Impact:** The WIE is one of the largest and therefore important industrial estates in Wales and also serves the wider UK market. It is essential that the WIE is well served by links to the strategic road network in order to contribute to the efficiency of trade but to also act as an important factor in attracting inward investment.

1.201 The WIE is experiencing growth with the development of new business areas to the park. This growth needs to be supported as much as possible by good services and facilities on order to sustain it. By developing the access roads, businesses are

supported and enhance their viability, leading to greater job security for their employees and dependents.

Sector Impacts

1.202 **Neutral Impact:** There are a number of construction related firms based on the WIE, (7% of firms based at the WIE are construction related.) However most of these are specialist services rather than construction per se. The construction industry is incredibly footloose with a heavy reliance on the availability of a mobile workforce. Therefore it is often not the case that a local construction company would be at an advantage in winning contract work over and above anywhere else as decisions over this are usually related to cost and availability of labour.

1.203 **Negative Impact:** There will be a permanent and temporary loss of agricultural land relating to the operation and construction of the WIE Access Roads respectively. The overall Scheme would result in the permanent loss of approximately 5.0 hectares of agricultural land of best and most versatile quality. This would be an effect of minor negative significance.

1.204 **Mitigation:** Agricultural land take has been minimised as far as possible by incorporating on-line improvements on parts of the northern access route.

Severance to Farm Holdings

1.205 **Negative Impact:** The Scheme would take land from Tyn Twll Farm as it adjoins the A534 and this would include the loss of a field access from the Holt Road in the vicinity of the proposed roundabout. The farm's current access to land to the east of the access to the Tarmac site would be severed. Hillside Farm would be affected by a westward extension of the current Holt Road to connect with the realigned A534 to provide a pedestrian and cycleway access from the old road. This connection would leave a small parcel of severed land between it and the realigned A534.

1.206 The proposed roundabout junction at Borras Hall Lane and a connection between it and the severed Holt Road in the vicinity of Llan-y-Pwll Farm would occasion land take and severance of field units in that holding. There would also be loss of existing field access. The roundabout and a realignment of Borras Hall Lane would also affect Gourton Hall Farm, whose land to the south of the Holt Road would be severed by the Scheme.

1.207 This holding would also experience a small area of land take associated with the proposed roundabout at the Scheme's junction with Abenbury Way. To the west of Hugmore Lane the scheme would pass though the holding associated with a property known as Bryn Villa occasioning land take and severance.

1.208 **Mitigation:** It is proposed that no land whose current means of access would be affected by the Scheme be left without a sensible alternative provision. In most cases this would be by means of new field accesses, but in the case of Bryn Villa a new access track adjoining the Scheme would be necessary from Bryn Estyn Road.

Conclusions

1.209 The analysis has shown that overall; there will be a **POSITIVE** impact on health arising from the construction and operation of the WIE access roads.

1.210 This will manifest in the following outcomes:

- The WIE is a more attractive business environment because it is more accessible and can support greater levels of growth
- The road will improve business efficiencies and health & safety objectives through time and resource savings inherent in shorter journey times and less congestion for employees and visitors
- Businesses are more attractive to inward investment if they are more accessible and efficient and can therefore provide greater job security to employees and dependents
- Employment levels on the WIE could grow as a result of more efficient and more attractive businesses being located where access to the strategic highways network has been enhanced.
- Access to local jobs for local residents is enhanced leading to greater community viability.
- The negative impacts associated with severance and losses of farmland have been mitigated with a number of measures to minimise any adverse impacts to landholdings and viability of agricultural businesses.

KEY HEALTH IMPACTS 7: BIODIVERSITY

Context

1.211 Local environmental biodiversity has been used to encompass a range of factors that affect the quality of life and people's perceptions of their neighbourhood, including reducing levels of ecology and amenity. The main potential link between the development of a road scheme and these factors are the reductions in local land features such as reductions in viable agricultural land, landscapes and ecology which have direct impacts on the employment, health and vitality of those living within the area.

1.212 For instance, in this case, the development of WIE access roads will reduce the amount of agricultural land for a small number of local farms and businesses. This can lead to reduced levels of employment. Furthermore, the scheme development will remove some existing vegetation which can reduce the attractiveness of an area, local pride, sense of belonging and community identity. This can have a direct impact on the living / environmental conditions affecting health as well as social and community influences on health for those living within the affected area.

Impact Assessment

Loss of key landscape elements and countryside

1.213 The following effects will occur resulting from the proposed WIE access roads:

- Loss of existing vegetation (trees, hedgerows, and scrub woodland) along various parts of the proposed road schemes
- Demolition and loss of Keeper's Cottage
- Large cutting and road development across open agricultural land within the surrounding areas.

1.214 **Negative Impact:** Overall, the effects on the landscape and biodiversity character of the area are slight adverse with the proposals benefiting the landscape character of some areas with the removal of traffic from some areas and the introduction of it into others.

1.215 **Negative Impact:** The rural nature and amenity of the area would be damaged by the proposed road scheme due to agricultural land take for road scheme development. Local residents will not derive the same health benefits if the character of the area changes

Land use changes

1.216 The development of WIE access roads will result in the loss of surrounding agricultural land. Land uses will change from those of farming to those of a road development. This has the potential to reduce the economic viability of farms within the area. However, only small areas of land will be claimed while other areas required for use during the construction period of development, will be reclaimed as agricultural land following completion of the proposed development.

1.217 **Neutral Impact:** Due to the small scale of land take for road construction, and following completion of the road schemes, most land take will be taken back by the

surrounding farmers and will therefore return to original uses for agriculture. Therefore, a neutral impact will occur on this land, while permanent land losses to road development will incur a negative impact.

Loss of local ecology

1.218 Local ecological species will experience an impact as a result of the scheme development, however, it is expected that all ecological impacts will be effectively addressed either fully or partly through the final route selection for both access road schemes.

1.219 **Neutral Impact:** The northern scheme identified a potential adverse impact on badgers within the area; however, extensive mitigation proposals are put forward to ensure the long-term welfare of the local populations of this species. Measures include:

- during construction, ensuring the sufficient protection of any sett within close proximity to the working area
- the provision of a replacement badger sett to account for those lost during any phase of the scheme development
- during operation, permanent badger protection from the road scheme will take place through extensive badger-proof fencing to be installed along the majority of the new carriageway with dedicated crossing points in the form of badger underpasses.

1.220 **Neutral Impact:** The southern scheme identified a potential adverse impact on Great Crested Newts (GCN) within the area; however, extensive mitigation proposals are put forward to maintain the local GCN population. Measures include:

- prior to construction, capturing and relocating all GCN species from within the site.
- restoration measures to return all habitats to an optimum breeding habitat (including both new and existing ponds as well as any terrestrial habitat)
- as part of scheme design, ensuring that all drainage systems developed as amphibian-friendly, especially in particularly sensitive locations such as those in close proximity to ponds.

1.221 **Positive Impact:** It is understood that existing GCN populations are naturally declining as a result of lack of management and a deterioration of breeding habitat and typically low quality terrestrial habitat. Therefore, as part of the scheme development, additional pond creation together with management and enhancement of existing aquatic and terrestrial habitat, will represent a moderate beneficial impact which will help to maintain the local population at a favourable conservation status.

Removal of Heavy Goods Vehicles within local towns

1.222 **Positive Impact:** Residents of Hugmore Lane, Cross Lanes and those along the road corridor of Bedwell Road will benefit substantially from the proposed road schemes which will reduce traffic volumes and HGV's, as well as enable the local area to recover some sense of place and usage as a rural area as it was originally, rather than a major road corridor for industrial and commercial traffic.

1.223 **Mitigation:** The following measures will be taken into consideration:

- Retention of existing vegetation, where possible, will take place, including vegetation beyond the highway boundary where any losses will be minimised
- The use of native and local provenance plant stock, where appropriate, local seed collection from existing mature vegetation will be considered
- The translocation of hedgerows and associated herbage, where possible
- Planting prior to the commencement of the construction period, where possible
- Tree planting will aim to improve the appearance of the existing area and screen the road from the ground level.
- Extensive mitigation measures to reduce impacts on badgers and great crested newts will be provided.

Conclusions

1.224 The analysis has shown that overall; there will be a **POSITIVE** impact on health arising from the construction and operation of the WIE access roads.

1.225 This will manifest in the following outcomes:

- HGVs and other associated commercial traffic will be diverted from village roads onto the new access roads
- Measures will be taken to improve existing levels of ecology through the improvement of GCN habitats
- Restoration of local areas to original rural settings through the removal of industrial and commercial traffic to form a sense of place and usage. This can further increase the attractiveness of the local area as a rural setting; give a sense of local community pride and belonging as well as help to establish a rural community identity.

SUMMARY OF KEY IMPACTS

1.226 WelTAG Guidance (2008) requires a Health Impact Assessment Summary Table (AST) to be compiled as part of the HIA process (see Section 10 of WelTAG 2008.) This is in order for the principal outcomes and core results of the HIA process to be presented clearly and succinctly. This is particularly important when there a number of options to be considered. An AST can facilitate comparison between these options.

1.227 The WelTAG (2008) Guidance suggests structuring the AST as follows:

Option Description			
Appraisal Criteria	Assessment	Distribution	Significance
Health Impact Assessment			
Lifestyle/Capacities affecting health			
Social & Community			
Living Conditions			
Working conditions			
Services (access & quality)			
Socio-economic, cultural, sustainability, environmental			
Macro-economic factors			
Others			

1.228 In terms of “Significance Criteria” WelTAG advises uses the same seven-point criteria as that used for appraisal techniques across the UK. Having researched WebTAG (England) and STAG (Scotland) equivalent Transport Appraisal Guidance, the following seven-point significance criteria will be used:

- Large Adverse;
- Moderate Adverse;
- Slight Adverse
- Neutral;
- Slight Beneficial;
- Moderate Beneficial;
- Large Beneficial.

1.229 The table below constitutes the Health Impact Assessment Summary Table for the WIEAR scheme.

Table 1 Health Impact Assessment Summary Table

Appraisal Criteria	*Assessment*	*Distribution*	*Significance*
Lifestyle / capacities affecting health	There will be an overall improvement in air quality as a result of the scheme. Goals to address Air Quality form part of the design and development brief and measures to minimise air quality and mitigate effects have been considered at all stages of development. The introduction of new footpaths and cycleways will be an improvement to the pedestrian and cycling environment and encourage modal shift which is beneficial to health and the environment as a whole. Reduced road traffic volumes will directly impact on the safety and amenity of roads within the areas of Cross Lanes, Kiln Lane, Bedwell Road, Llan-y-Pwll and Hugmore Lane. The redirection of road traffic will reduce trips on existing road networks, improving the safety of children, pedestrians, cyclists and equestrians within the local areas. The introduction of new footpaths and cycleways will be an improvement to the pedestrian and cycling environment and encourage modal shift which is beneficial to health and the environment as a whole. There are no dedicated cycle-ways through the industrial estate itself? Therefore, cyclists are safely directed towards the Wrexham Industrial Estate (WIE) however this does not continue through the WIE and could lead to confusion and accidents as cyclists share routes with heavier traffic.	Local Residents Road Users Pedestrians Elderly Children Visitors	Large Beneficial
Social and Community	The community of Cross Lanes would benefit by the proposed access road being located further away from the village centre. Vehicle flows through the village and alongside individual properties along Bedwell Lane would be greatly reduced following the construction phase. The	Local Residents Local	Large Beneficial

Appraisal Criteria	*Assessment*	*Distribution*	*Significance*
	community of Llan-y-Pwll will be similarly affected.	Businesses Pedestrians	
Living Conditions	There will be an overall improvement in noise amenity as a result of the scheme. If the scheme did not go ahead, all properties assessed (3496 for both schemes) would be expected to experience noise increases of 0.1 to 2.9 dB.	Local Residents	Moderate Beneficial
Working Conditions	Employees are also expected to benefit from the reduction in congestion and greater free-flow of traffic in terms of travelling to work. The improvement to cycleways may lead to a modal shift of employees choosing to cycle to work which has clear health and sustainability benefits. For some businesses between 75-100% of their workforce live locally. The development of the access road will enhance local access to the WIE which is important for the viability of local people working there. It is also important to ensure that current employment levels are maintained or bolstered and that any intervention on the estate does not deter from the economic vitality of the WIE. Any job losses would have a detrimental effect on the health and well-being of local residents and their dependents so strategic measures must be in place to avoid this scenario. The access roads are a key factor in avoiding this.	Local Residents Local Businesses	Large Beneficial
Services (access and quality)	If the scheme is built then traffic flows on Bedwell Road would reduce by around 70%, with virtually all through traffic transferring to the new access road. This represents a substantial benefit for local residents, pedestrians and others in terms of amenity and safety, and particularly for users of the village shop.	Pedestrians Local Businesses Residents	Moderate Beneficial
Socio economic, cultural and environmental and	Any severance to or loss of land from farm holdings will be mitigated. It is proposed that no land whose current means of access would be affected by the Scheme be left without a sensible alternative provision.	Habitat enhancement	Moderate Beneficial

Appraisal Criteria	*Assessment*	*Distribution*	*Significance*
sustainability factors	In most cases this would be by means of new field accesses, but in the case of Bryn Villa a new access track adjoining the Scheme would be necessary from Bryn Estyn Road. It is understood that existing Great Crested Newt populations are naturally declining as a result of lack of management and a deterioration of breeding habitat and typically low quality terrestrial habitat. Therefore, as part of the scheme development, additional pond creation together with management and enhancement of existing aquatic and terrestrial habitat, will represent a moderate beneficial impact which will help to maintain the local population at a favourable conservation status. Residents of Hugmore Lane, Cross Lanes and those along the road corridor of Bedwell Road will benefit substantially from the proposed road schemes which will reduce traffic volumes and HGV's, as well as enable the local area to recover some sense of place and usage as a rural area as it was originally, rather than a major road corridor for industrial and commercial traffic.	Local residents Local amenity Pedestrians Visitors	
Macro economic factors	Any improvements to the local road and access arrangements can be seen as benefit as without them the business viability of the WIE could be undermined given that the current arrangement is at capacity and unsustainable. This could provide a constraint on growth and the prosperity of local neighbourhoods which depend on the WIE as an important source of local employment. Suppliers and customers of businesses based at WIE will benefit from improved access to the Industrial Estate being directly linked to the strategic road network. This has clear benefits in terms of a more attractive environment, a shorter journey time, greater resource efficiencies and the resultant reductions in business costs.	Local Businesses Residents Commuters Sub-regional Economy Local Economy	Moderate Beneficial

APPENDIX 1: RAPID HEALTH IMPACT ASSESSMENT WORKSHOP

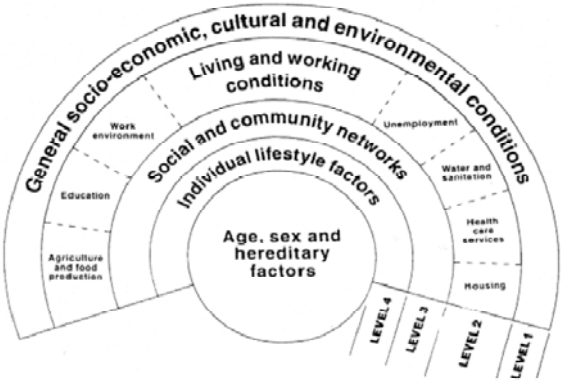
1. Introduction

A “Rapid Health Impact Assessment” Workshop was held at Wrexham County Borough Council Offices in June (2009). The Welsh Health Impact Assessment Unit describes this process as usually a desktop exercise. The output may simply consist of a summary table and conclusion. The summary table will list the relevant determinants and their likely impacts with minimal quantification. The conclusion should state whether the net impact of the proposal is likely to be positive or negative for the relevant population groups. It should also attempt to suggest ways in which negative consequences could be mitigated, and benefits exploited, particularly for disadvantaged groups. Depending on the size of the proposal a rapid appraisal may take as little as a couple of hours or as much as one day. It is important, even with a rapid health impact assessment to make a note of the procedure and monitor the outcome.

This Rapid HIA Workshop was kindly facilitated by Liz Green, (Wales Health Impact Assessment Support Unit) and attended by the following colleagues:

- John Youd (Project Manager, Transport and Asset Management Dept, WCBC)
- Gillian Cowan (Health, Social Care and Wellbeing Strategy Manager, WCBC)
- Sarah Evans (Air Quality and Environmental Health Officer, WCBC)
- Yvonne Palmer (Association of Voluntary Organisations Wrexham)
- Cllr June Fernell (Elected member for Marchwiel, Wrexham)
- Richard Evans (Technician, Transport Dept, WCBC)
- John Glaister (Project Manager, Capita Symonds)
- Liane Hartley (Principal Socio-Economic Consultant, Capita Symonds)

The workshop provided an opportunity for an open discussion with key stakeholders and interested parties related to the WIE Access Road scheme proposals to discuss the potential health impacts arising from the proposed roads. The workshop focussed on the key health determinants illustrated in the diagram below and listed in the WelTAG Guidance Health Impact Assessment Summary Table (AST) (see Section 10 of WelTAG 2008.)



Source: Dahlgren & Whitehead (1991)

It was noted that a considerable degree of public consultation had been undertaken throughout the project's history relating to the [proposed routes themselves and the potential benefits, outcomes and impacts that were expected or anticipated by stakeholders. This formed a rich baseline for identifying key health impacts and the purpose of the HIA Rapid Assessment Workshop was to strengthen this baseline further by examining them in detail with the direct involvement of local stakeholders. This is a key recommendation of WelTAG.

The following tables record the outcome of the Rapid HIA Workshop and the key impacts that were identified by stakeholders and the findings have contributed to the Health Impact Assessment Summary Table (AST) listed in the previous section.

We are grateful for the assistance of Liz Green (WHIASU) and Gillian Cowan (WCBC) in enabling the Rapid HIA Workshop to take place and for providing expert advice and support during the HIA process.

2. Individual Lifestyle & Capacities Affecting General Health

Issue	Positives	Negatives/Gaps
Footpaths & Cycleways	Footpaths, such as the one near Holt Road, will be improved as part of the scheme making them safer but also more attractive to encourage greater amounts of walking in the local area. New footpaths will be created that are remote from the carriageway ensuring that pedestrians do not encounter heavy traffic when using them. New sections of cycleways have been created by the North and South Access Roads. This provides a substantial positive impact as they will be safer to use by cyclists since cyclists will be diverted from the carriageways and the traffic hazard will be relieved therefore. There are links made with an existing cycle-way to improve integration of local cycle-ways.	There are no dedicated cycle-ways through the industrial estate itself? Therefore, cyclists are safely directed towards the Wrexham Industrial Estate (WIE) however this does not continue through the WIE and could lead to confusion and accidents as cyclists share routes with heavier traffic. **Response:** The WIE Access Road scheme does not extend to the interior of the estate so this is not a matter for the scheme to consider, however it is pertinent for Wrexham County Borough Council (WCBC) to consider discussions on the provision of safe cycle-routes within the WIE?
Time savings	The time savings afforded by a more efficient flow of traffic generated by the access roads could contribute to greater free time available to local residents and employees. There are quality of life benefits associated with this in terms of free-time being available to encourage the take-up of physical activity or greater frequency of participation in physical activity. Spending less time in stationary traffic and shorter journey times could have positive effects on reducing stress levels, which has notable health benefits. Easing traffic flows will also ensure that emergency services can gain access to the WIE or local residents if the event of an emergency.	

Issue	Positives	Negatives/Gaps
Alcohol & Substance misuse		A tunnel is created by the Tarmac access route passing through Llan-y-Pwll. There are concerns from residents that this space could be sufficiently covert as to attract those seeking to participate in alcohol or drug misuse and other types of anti-social behaviour. This could have negative community safety and social cohesion impacts if the tunnel is associated with criminal or anti-social behaviour as local residents seek to avoid the space and informal policing of the area by local residents themselves is effectively undermined. **Response:** Given that the tunnel will be well lit and located away from pockets of residential areas it was deemed unlikely that such behaviour would occur or if so, not on a regular enough basis for it to render the space a no-go area.
Equine & livestock welfare	The larger roundabouts that have been designed into the scheme are beneficial to the handling of horses or livestock that find it difficult to be manoeuvred around smaller roundabouts. This is safer for the animals themselves as well as their handlers and other road-users or pedestrians.	

3. Social & Community Influences

Issue	Positives	Negatives/Gaps
Severance	Neighbourhoods such as Hugmore Lane are currently relatively isolated having been severed by the very heavy traffic flow using the local roads. This limits the level of interaction with other neighbourhoods who may share local facilities, services and infrastructure since the road presents serious road safety issues and acts as an obstacle. The access roads will alleviate this traffic hazard and allow greater access to the local shops for example. This may lead to beneficial economic impacts to local businesses. It also means that more vulnerable members for the community such as the elderly and very young will be able to move more freely through the local neighbourhood having the risk of accidents significantly reduced. There are quality of life and direct health benefits associated with greater mobility and independence afforded to the elderly in particular.	
Housing Affordability		The Access Roads and their positive impact in terms of reducing traffic on local roads serving residential areas could lead to enhancement of residential area's attractiveness as a place to live; which in turn could lead to local uplift in house values. There are negative impacts associated with this in terms of the affordability of local housing to local people. **Response:** These are indirect and cumulative impacts associated with the WIE Access Road scheme that are not within the control of WCBC to mitigate being associated with external market factors.

4. Living Conditions

Issue	Positives	Negatives/Gaps
General indicators	A positive impact is anticipated on all indicators that are identified in WelTAG for scrutiny as part of an appraisal. This includes noise, ecology, economic and health impacts.	
Noise	Specifically, noise levels will likely be reduced from over 488 properties if the scheme is implemented. Conversely, if the scheme is not built all properties will likely experience a rise in noise levels.	Some properties will likely experience a slight increase in noise as a result of the scheme being built however it is understood that this will be background noise rather than an intermittent nuisance. **Response:** The findings of the technical analysis show that should the scheme not go ahead all local properties will experience an increase in noise disturbance and so the benefit of having noise reductions in 488 properties outweighs a slight increase in noise for a few properties. However, mitigation measures are in place particularly during construction with contractors being obliged to enter into a legal agreement to implement measures to minimise noise disturbance to local residences. Residents will be informed of all expected noise disturbance to avoid any unexpected nuisance.
Water quality	There are benefits to local water quality since the drainage and run-off from the road will be diverted from local watercourses and instead be taken to attenuation ponds with reed-beds.	
Greenhouse gasses	There will likely be a small reduction in greenhouse gas emissions in the opening year as a result of the scheme being built.	There will be a small increase in greenhouse gas emissions by 2027, with the scheme.
Accidents	There will likely be reductions in accidents and significant journey time savings as a result of the scheme being built.	
Light pollution		Light pollution emanating from lighting along the new access roads will be mitigated through the use of blinkered lights directing the light to the road only.

5. Working Conditions

Issue	Positive	Negatives/Gaps
Catalyst for growth	A key primary objective of the WIE Access Road scheme is to enable the promotion of WIE as a strategic employment location and facilitate the continued growth and prosperity of existing and future businesses located at WIE. Benefits such as reduced traffic flows leading to faster and more efficient journey times could be translated in to cost efficiencies for local businesses with customers and suppliers being able to access WIE most easily.	
Sectoral diversity	In becoming more accessible, the WIE will be able to attract more service based and high value businesses that will able the sectoral composition of the WIR to become more diverse and perhaps facilitating inter-business economic activity on the WIE itself.	
Commuting	The cost of commuting could be reduced arising from a reduction in journey time. Saving could be expected from decisions over modal shift from cars to perhaps cycling as a result of the local roads becoming safer and more attractive to cyclists. This has an added advantage of removing potential barriers to local employment to local people who perhaps do not have access to a car to commute to their place of work. The ability to walk or cycle to the WIE means that it is inherently more accessible to people seeking work.	

6. Services

Issue	Positives	Negatives/Gaps
Public Transport efficiencies	With roads becoming less busy and more accessible for local traffic there could be benefits to be expected from public transport services, such as buses, running more efficiently. This will ensure that local people have greater access to local services and facilities, improving quality of life and addressing any sense of isolation from perhaps being severed by busy roads. This is of particular importance for the elderly who often rely on public transport services to reach important services and facilities such as health services.	
Positive Social Interaction	By having safer local roads, more footpaths and cycleways that are not competing with major transport carriageways in residential areas this should lead to a positive increase in the level of social interaction with more people walking within and through their neighbourhoods and adjacent neighbourhoods to meet, share services and maintain relationships and social connections. This could generate demand for additional cultural and social facilities.	

7. Socio-economic & Cultural Factors

Issue	Positives	Negatives/Gaps
Retention of local employment	A significant benefit of the WIE Access Road scheme will be to strengthen the position of WIE as a strategic employment location. Local employment is vital for the maintenance of sustainable communities and economies. It is therefore crucial that existing businesses are supported by the level of infrastructure needed to enable growth and maintain position as a valid and productive business. The current economic slowdown has put pressure on the economy in general but some sectors are suffering more than most such as manufacturing. It is necessary therefore to safeguard existing jobs as much as possible and the WIE Access Road scheme will be a key factor in supporting this.	
Job creation	A longer term aspiration for the WIE Access Road scheme is that it will enhance the attractiveness of the WIE to new businesses, entrepreneurialism and inward investment leading to direct and indirect job creation on the WIE itself. There is a possibility that the need for landscaping mitigation measures in perpetuity to address loss of bio-diversity arising from the WIE Access Road Scheme could lead to the generation of one or more jobs with the Wales Wildlife Trust.	
Greenhouse gas	There will be a slight positive impact on the levels of green house gasses as a result of the WIE access road scheme at the WIE-wide level when the scheme first opens.	There will be a slight negative impact on the levels of green house gasses in later years as a result of the WIE access road scheme at a Wrexham-wide level. **Response:** This is outside the capacity and responsibility of WCBC to address alone however the council could be urged to establish measures to encourage modal-shift amongst residents and employees in Wrexham.

APPENDIX 2: REFERENCES

Policy Guidance

"How to use Health Impact Assessment: A Short Guide" (2002) Welsh Health Impact Assessment Support Unit

"Improving Health and Reducing Inequalities: A Practical Guide to Health Impact Assessment" (2004) Welsh Assembly Government, Welsh Health Impact Assessment Support Unit

"Building in Health" Department for Health (2006)

"Welsh Transport Planning and Appraisal Guidance" (WelTAG) (2008) Welsh Assembly Government

Websites

Department for Transport: Transport Appraisal Guidance
http://www.webtag.org.uk/

National Statistics:
(http://neighbourhood.statistics.gov.uk)

Health Impact Assessment Gateway:
http://www.apho.org.uk/default.aspx?QN=P_HIA

Wales Statistics:
(http://www.statswales.wales.gov.uk);

Welsh Assembly Government
(http://new.wales.gov.uk/topics/statistics)

Welsh Health Impact Assessment Support Unit:
http://www.wales.nhs.uk/sites3/home.cfm?OrgID=522

Welsh Transport Planning and Appraisal Guidance:
http://new.wales.gov.uk/topics/transport/publications/weltag/?lang=en

Wrexham Borough Council
http://www.wrexham.gov.uk/

Scottish Transport Appraisal Guidance:
http://www.transportscotland.gov.uk/reports/scottish-transport-analysis-guidance