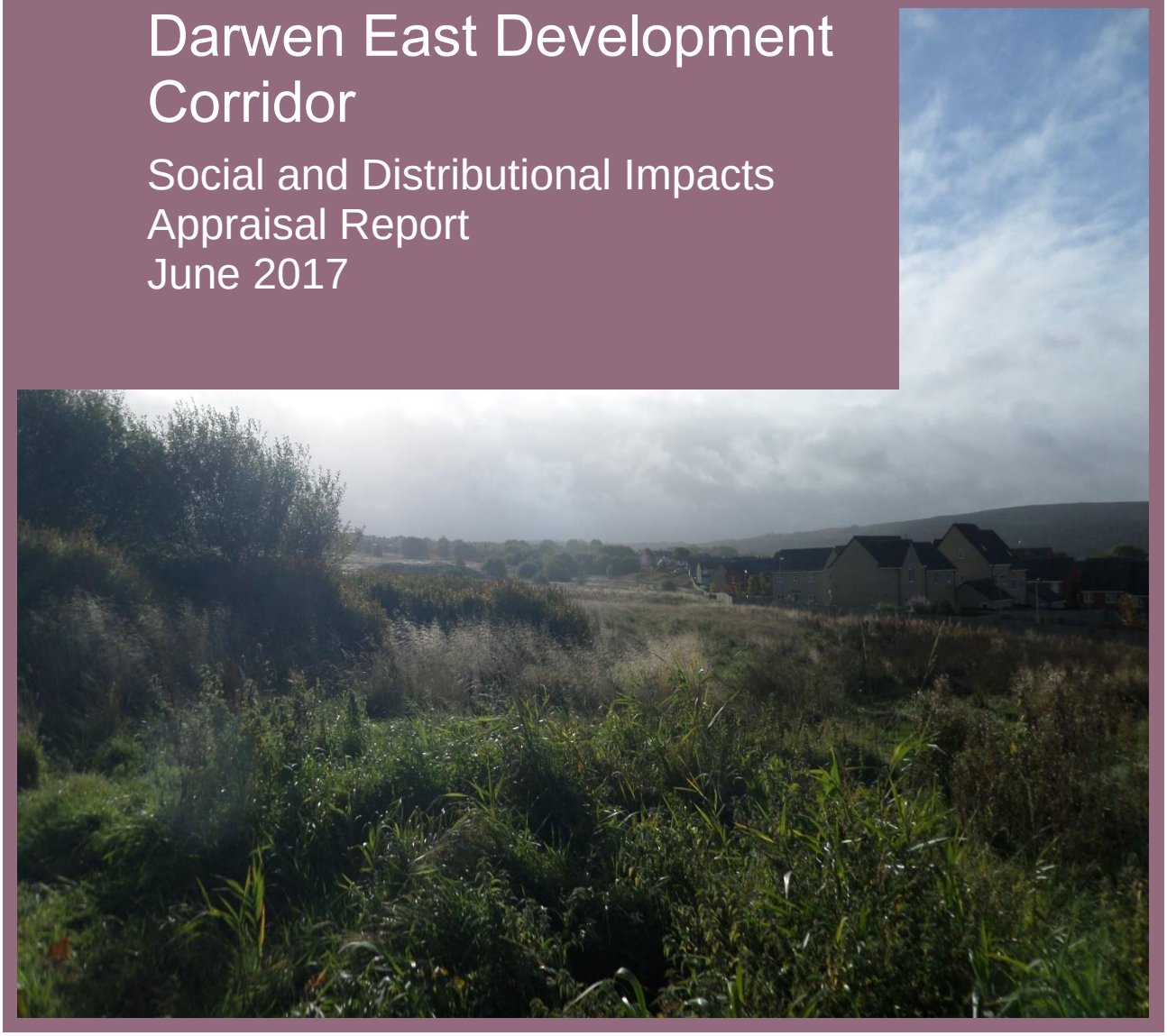
CAPITA

Darwen East Development Corridor

Social and Distributional Impacts Appraisal Report
June 2017



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1. Introduction

1.1 Background

This technical note documents the methodology and findings of the Social and Distributional Impacts Assessment undertaken for the Darwen East Development Corridor (DEDC) scheme.

Capita were commissioned by Blackburn with Darwen Borough Council to undertake a Social and Distributional Impacts Assessment of the Darwen East Development Corridor Improvements Scheme in support of the formulation of a Strategic Outline Business Case (SOBC).

Social and Distributional Impact Appraisal is undertaken as part of the transport appraisal process in order to inform the business case for a transport investment proposal.

Social impacts are not typically monetised and are assessed using quantitative and qualitative information and include impacts such as Physical Activity, Journey Quality, and Severance.

At all stages, a proportionate approach should be adopted; excessive detail should be avoided - the level of detail should be no more than is needed for robust decisions to be taken.

Information updated from the original report (Dec 2015) is detailed in **blue**.

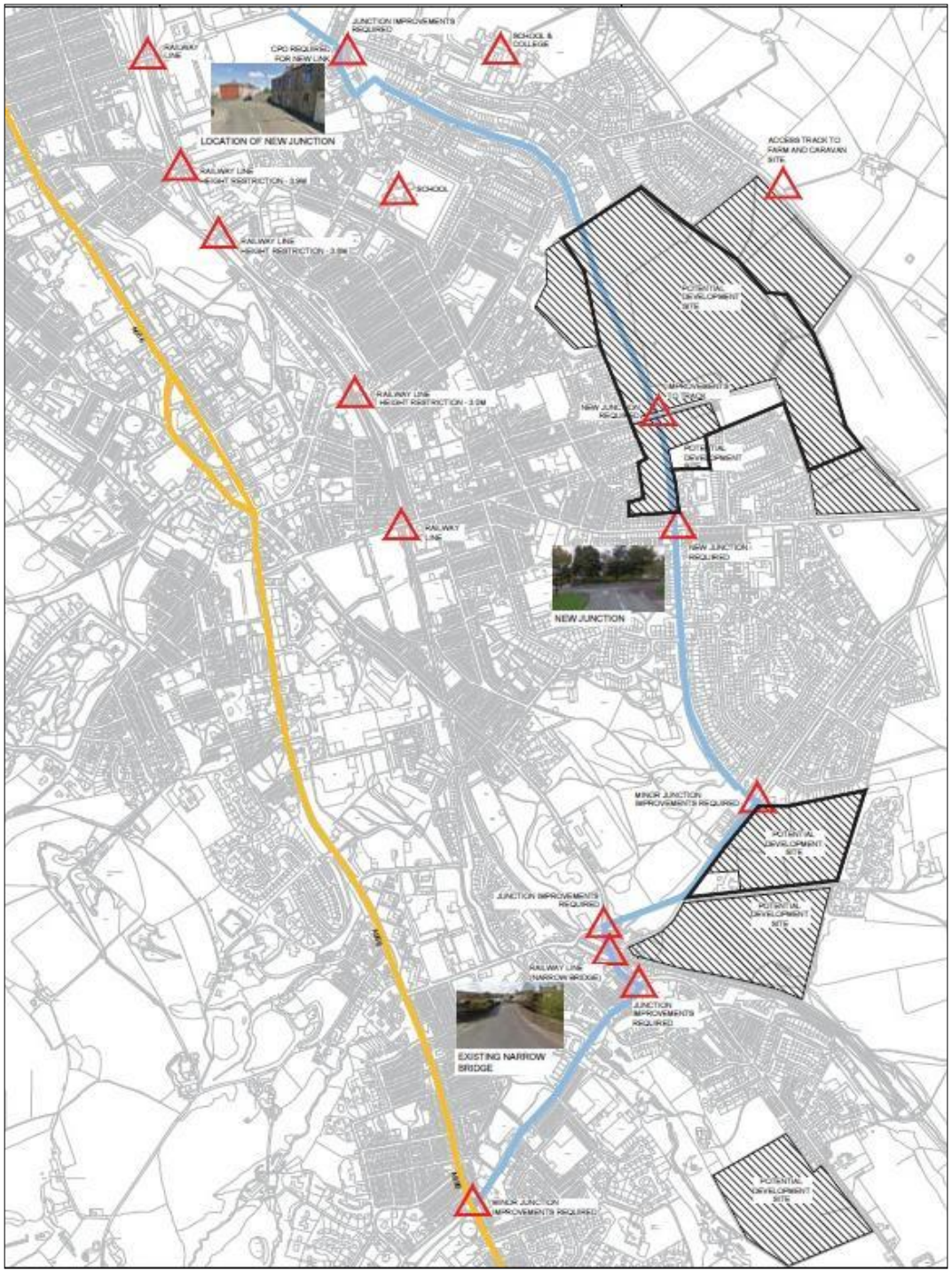
1.2 Overview of Scheme

Figure 1.1 overleaf shows the route of the proposed DEDC, and highlights the areas of constraint.

The DEDC package includes the following improvements:

- Widening of the railway bridge crossings at Sough Road and Grimshaw Street;
- Junction Improvements at Sough Road/Grimshaw Street/Pole Lane;
- Junction Improvements at Pole Lane/Priory Drive;
- A new junction at Priory Drive/Marsh House Lane in order to facilitate a new Link Road;
- A new Link Road across the East Darwen Allocation Site between the above junction and Ivinson Road;
- A short extension to Ivinson Road to create a link to Chapels
- Junction Improvements at Chapels/Goose House Lane/Moor Lane.

Figure 1.1 – Darwen East Development Corridor, Constraints Plan



1.3 Overview of Approach

Social impacts cover the human experience of the transport system and its impact on social factors, not considered as part of economic or environmental impacts. Potential adverse or beneficial impacts associated with the proposed scheme are identified.

The baseline situation is identified and is then used to inform an overview social assessment.

The study area for this report includes the entirety of the DEDC route, primarily focussing on the specific improvements identified in Section 1.2 - *Overview of Scheme* above. The specific study area varies depending on the variable being analysed and is described in the corresponding section.

The social assessment has been carried out under the sections, definitions and guidance provided in WebTAG Unit A4.1: *Social Impact Appraisal.* There are eight social impacts commonly appraised as part of a transport appraisal:

- Accidents;
- Physical Activity;
- Security;
- Severance;
- Journey Quality;
- Option and Non-Use Values;
- Accessibility; and
- Personal Affordability.

Option Values and Non-use Values are only assessed if the scheme being appraised includes measures that will substantially change the availability of transport services within the study area.

Distributional Impacts identify the potential impacts of the DEDC proposals on different groups of people, ensuring that the proposals will not adversely impact on disadvantaged or potentially vulnerable groups of people.

The Distributional Impacts Study has been undertaken in accordance with the Department for Transport's Transport Analysis Guidance (TAG) Unit A4.2: *Distributional Impact Appraisal* and focuses on how significant the impacts of the DEDC Scheme proposal are and how they are distributed between different social groups.

Results of the Social and Distribution Impacts Appraisal are ultimately recorded in the Appraisal Summary Table (AST) in the main report.

1.4 Structure of the report

The remainder of the report will take the following structure:

- Social Impact Assessment
- Analysis of Distributional Impacts
- Distribution of User Benefits
- Distribution of Accident Benefits

2. Social Impact Assessment

2.1 Accidents

Transport Interventions may alter the risk of individuals being killed or injured as a result of accidents. Accidents occur across all modes of transport and affect non-users as well as users.

Accident appraisal has been undertaken using the DfT's COBALT spreadsheet based tool, following the guidance in WebTAG Unit A4.1 and the COBALT manual. The outputs are shown in Table 2.1 below.

Table 2.1 – COBALT Accident Analysis Results

Junction Location	Accidents Without Scheme	Accidents With Scheme	Accidents Saved by the Scheme	Accident Benefits Saved by the Scheme
A666 / Watery Lane/ Queens Rd	60.0	60.0	0.0	£0.00
Sough Road / Grimshaw Street / Pole Lane	58.5	44.7	13.8	£924,700
Pole Lane / Priory Drive	33.3	9.7	23.6	£1,146,300
Priory Drive / Marsh House Lane / Proposed Link Road	45.5	17.4	28.1	£1,384,400
Oak Grove / Holden Fold	18.2	18.2	0.0	£0.00
A666 / Grimshaw Street/ Bowling Green Close	59.0	59.0	0.0	£0.00
Total	**274.5**	**209**	**65.5**	**£3,455,400**

The outputs indicate that proposed interventions at a number of junctions will have a beneficial effect on accident rates at certain locations. Proposed junction improvements at the Sough Road / Grimshaw Street / Pole Lane junction, the Pole Lane / Priory Drive junction and the Priory Drive / Marsh House Lane / Link Road junction are all expected to reduce the total number of accidents across the appraisal period.

As a result, it is considered that the DEDC scheme will have a slight positive social impact on accidents.

The monetised changes in the accident rate are incorporated into the formulation of the BCR; details of this calculation can be found in **Benefit Cost Ratio Technical Note** available as an Addendum document of the main Business Case report.

2.2 Physical Activity

There is increasing recognition of the interrelation between transport, the environment and health; transport can affect levels of physical activity, a primary contributor to a broad range of chronic diseases such as coronary heart disease, stroke, diabetes and some cancers.

A qualitative only assessment has been undertaken for the DEDC in line with WebTAG Unit A4. 1, which states that for “schemes that are demonstrated to have a relatively insignificant impact on physical activity, such as inter-urban road building, it will be satisfactory to enter a qualitative indicator in the AST.”

The DEDC is not designed to have any impact on physical activity, and is purely focussed on facilitating the additional demand associated with the housing allocation sites in east Darwen. The pre-appraisal scoping carried out has determined that any benefits or dis-benefits to physical activity are likely to be negligible, and it is therefore considered proportionate to ‘scope out’ any further analysis of physical activity, and that the overall impact should be considered ‘neutral’.

2.3 Security

Transport interventions may affect the level of security for transport users. The assessment of these impacts should reflect both changes in security and the likely numbers of users affected. There are no formal guidelines for road users, although points to note when considering these security indicators in relation to road users include:

- road users are more vulnerable to crime in circumstances where they are required to stop their vehicles or travel at slow speeds, such as at the approaches to signals or in congested conditions;
- road users are more vulnerable to crime at locations where they are required to leave their vehicles, such as at service stations, car parks and so on; and

- the importance of each indicator is likely to vary according to the location and nature of the road; for example: emergency call facilities are likely to be more important than surveillance when considering a rural road.

The DEDC will have very little impact on security, if any, with the scheme primarily focussed on individual junction improvements. It is therefore considered that the scheme will have a 'neutral' impact on security, and any further analysis would be disproportionate to the scale of the project.

2.4 Severance

WebTAG Unit 4.1 defines community severance as the separation of residents from facilities and services they use within their community caused by substantial changes in transport infrastructure or by changes in traffic flows. Severance will only be an issue where either vehicle flows are significant enough to significantly impede pedestrian movement or where infrastructure presents a physical barrier to movement.

The DEDC includes appropriate pedestrian infrastructure, and at a number of the junctions the provision of pedestrian refuges are an improvement on the existing facilities. The improvements to the footway along the Sough Road railway bridge should also have a slight benefit to pedestrians. Overall, however, the scoping undertaken suggests that the DEDC is unlikely to have any significant impact on severance. It is therefore considered that the scheme will have a 'neutral' impact on severance, and any further analysis would not be proportionate or appropriate given the scale of the project.

2.5 Journey Quality

Travellers don't normally travel for its own sake. Travel is a derived demand that arises from people's desire to engage in activities. Therefore a high quality journey, when experienced, is often taken for granted. However, a poor journey quality, when experienced, can be easily recognised. Journey quality can be affected both by travellers and by network providers and operators.

WebTAG Unit 4.1 states that a qualitative approach to assessment is likely to be appropriate in many cases: where an intervention does not aim to directly influence quality factors, or where a scheme does not unduly alter the quality of journeys for users and non-users (as externalities).

Given the scale of the DEDC, it is considered unlikely that there will be any significant impacts on journey quality. There may be some potential slight benefits in Traveller Stress: where the road layout and geometry is improved at the new junctions, with associated signage and a reduction in delay; and at the two bridges which will see significant carriageway improvements in surfacing, width and visibility. However, these improvements are likely to only be significant where there is an existing issue, primarily at the junction of Sough Road/Grimshaw Street, and the railway bridge over Sough Road downstream.

Therefore, overall the impact on journey quality is likely to be 'neutral'.

2.6 Accessibility and Affordability

Accessibility is a term that has a multitude of meanings within the transport profession ranging from the physical access onto a public transport vehicle, the ability to get to a given place (for example a hospital), to the accessibility of information about a particular public transport service.

In some cases, accessibility benefits from transport interventions are the same as transport user benefits. However, transport user benefits are usually defined in a narrow way within the appraisal process and it is important to consider accessibility benefits in a more holistic way.

Scoping indicates that the DEDC is likely to have a negligible effect on Accessibility and Affordability, if any at all. It is therefore considered that the scheme will have a 'neutral' impact on Accessibility and Affordability, and any further analysis would be disproportional to the scale of the project.

3. Analysis of Distributional Impacts

In order to understand the impacts of the scheme on different social groups, including those which are potentially more vulnerable to changes in transport provision, a Distributional Impact (DI) appraisal has been undertaken. The DI analysis is mandatory in the scheme appraisal process and as a minimum is required for the following five impacts: User Benefits, Noise, Air Quality, Accidents, and Personal Affordability. Results are presented as part of the Appraisal Summary Table (AST)

3.1 Appraisal process – Introduction

The appraisal of Distributional Impacts is undertaken in line with WebTAG Unit A4.2 *Distribution Impact Appraisal*, and in accordance with DfT guidelines is undertaken in a manner which is appropriate and proportional to the scale of the scheme to be appraised. Figure 3.1 below shows an extract from WebTAG giving an overview of the process.

Figure 3.1 - Overview of the DI Appraisal Process

Table 1 Overview of the DI appraisal process

Step number	Step description	Output
1	Screening Process: Identification of likely impacts for each indicator	Screening Proforma
2	Assessment: Confirmation of the area impacted by the transport intervention (impact area); Identification of social groups in the impact area; and Identification of amenities in the impact area.	DIs social groups statistics and amenities affected within the impact area.
3	Appraisal of Impacts: Core analysis of the impacts Full appraisal of DIs and input into AST	Appraisal worksheets and AST Inputs

3.2 Step 1 – Screening Process

The first step in the appraisal of Distributional Impacts is to undertake a screening exercise. This has been completed using the WebTAG Screening Proforma; the completed proforma is available in **Appendix A**.

The conclusions drawn from Step 1 are summarised as follows:

- Further analysis of User Benefits is required.

- DI analysis of Noise and Air Quality is not necessary, as scoping carried out as part of the Environmental and Social Impacts Appraisal has shown these impacts to be negligible.
- Further analysis of Accidents is necessary, as the changes in junction type and layout have shown changes in the expected accident rates.
- Further consideration of Security, Severance, Accessibility and Affordability impacts is not necessary, as scoping carried out as part of the Environmental and Social Impacts Appraisal has shown these impacts to be negligible.

Therefore, further analysis of the Distributional Impacts of User Benefits and Accidents will be carried out.

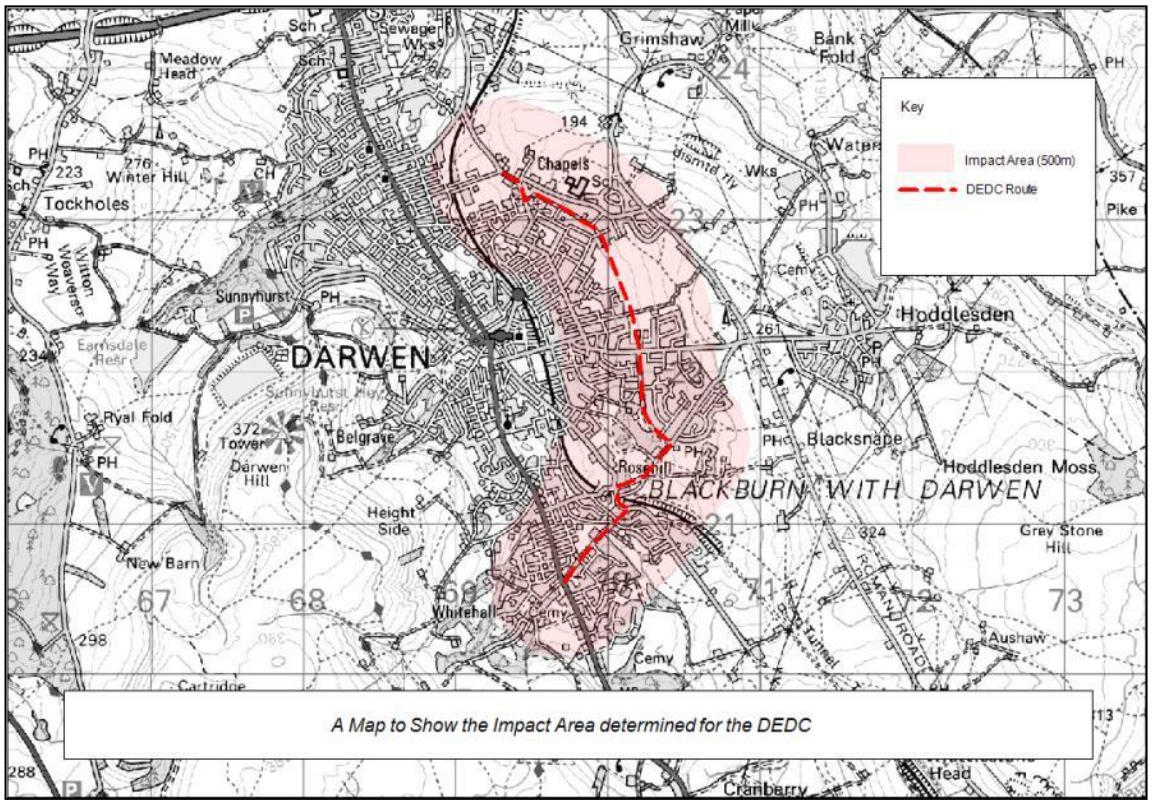
3.3 Step 2a - Confirmation of Areas Impacted by the Intervention

In order to define an appropriate area for assessment, consideration must be given to the methodology adopted in developing the assessment model. It has not been considered appropriate to undertake variable demand modelling, and therefore transference of trips from other routes has not been taken into account.

A similar approach has been taken in determining the Impact Area for Distributional Analysis. Impacts will be assumed to be distributed amongst those currently utilising the route; in the absence of any origin-destination data or wider network modelling, it is assumed that these users are local residents travelling via local roads towards larger distributor corridors, such as the M65 or A666. These potential beneficiaries will also include the potential residents of the SHLAA sites.

The assessment of user benefits will therefore only take into account benefits for those currently utilising the route, rather than attempting to capture any benefits to those that could potentially divert onto the route. A 500m zone around the route of the DEDC has been determined to be sufficient in representing the location of those that stand to benefit from the scheme. This Impact Area is illustrated in Figure 3.2 overleaf.

Figure 3.2 - DEDC Impact Area



In order to follow a consistent and proportional approach, the same Impact Area has been used throughout the analysis. Therefore the assessment of those impacted by the changes in accident rates will only take into account those in the immediate vicinity of the route.

However, the impacts of the DEDC will be mainly focussed around the proposed junction improvements, as the scheme includes very little work on existing links or new highway infrastructure. Therefore each specific junction improvement has been identified and mapped using GIS in order to undertake further spatial analysis. Each junction has been mapped with a 500m radius Impact Area to provide consistency across the methodology.

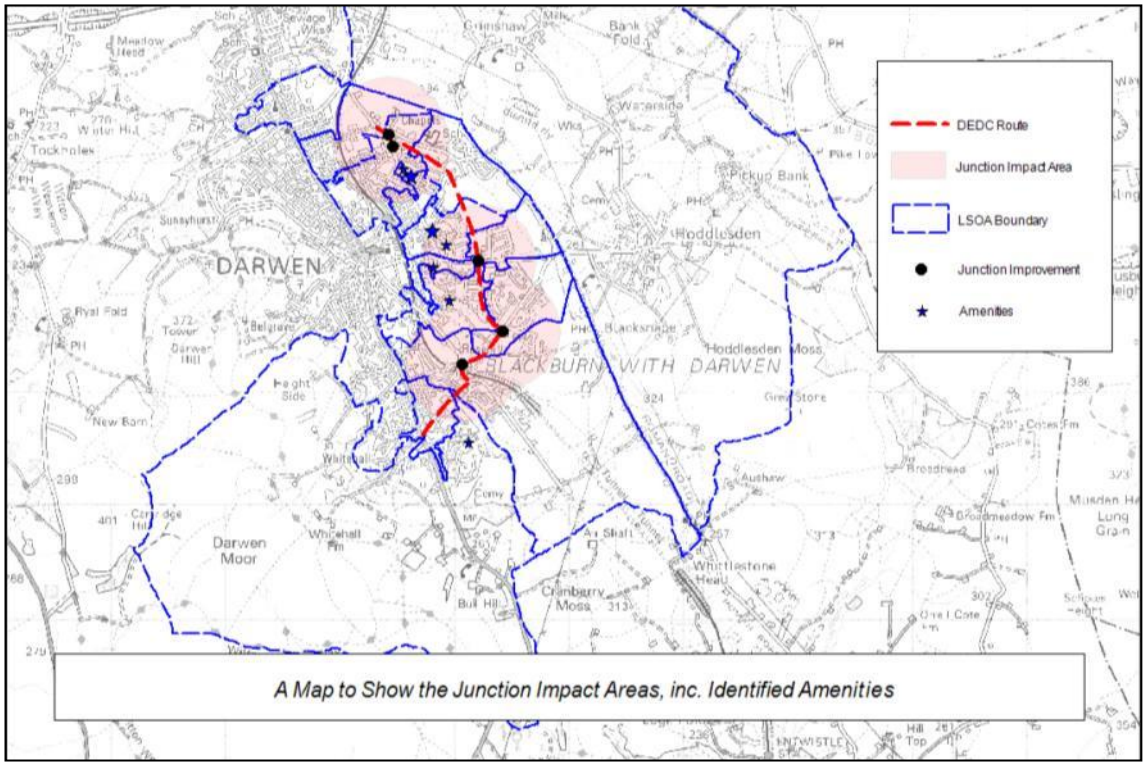
Ultimately, this approach will potentially underestimate the distribution of benefits from the scheme, but will provide a more robust assessment methodology.

Analysis of the Impact Areas against LSOA boundary data identifies that the same LSOAs are affected, although the Junction Impact Areas have less overall coverage than the DEDC Route Impact Area. Both the Route Impact Area and the Junction Impact Area encompass 13 LSOAs, although some only marginally encroach on the Impact Areas.

Local amenities including schools, community centres and care homes have been mapped out as well, in order to identify any potential trip attractors for pedestrians and vulnerable people.

Figure 3.3 below shows the results of this mapping, clearly showing the higher concentration of amenities towards the north-western extent of the Impact Area, as well as the boundaries of the 500m Junction Impact Areas and the LSOAs included in the analysis.

Figure 3.3 - Junction Impact Areas and Amenities



Since the production of these maps, extend of the DEDC scheme and the location of specific junction interventions included in analysis has been slightly altered. The course of the DEDC route and the associated impact area indicated in Figure 3.2 remains the same. A proposed intervention at the Goose House Lane/ Chapels/ Moor Lane junction is no longer taking place. Key junctions, including the Sough Road / Grimshaw Street / Pole Lane junction, the Pole Lane / Priory Drive and the Priory Drive / Marsh House Lane / New Link Road junction remain within the scheme as indicated on DI analysis maps, as shown in Figure 3.3. Given this, it has not been considered necessary to redefine the Impact Area around each junction and re-analyse the distributional impact of User Benefits and Accidents. Given the impact of User Benefits and Accidents is expected to be broadly positive as a result of the DEDC scheme, it is expected that positive impacts will be felt across any identified user and vulnerable groups.

3.4 Step 2b - Identification of Social Groups in the Impact Area

This step requires the analysis of the socio-economic, social and demographic characteristics of:

- The transport users that will experience changes in travel generalised costs resulting from intervention;
- The people living in areas who may experience impacts of the intervention even if they are not users; and
- The people living in those areas identified as likely to be affected by the intervention.

The following sections describe the social and demographic characteristics of the study area, compared against Local Authority (LA) averages. Any significant concentrations of the key social groups of interest within the affected areas are also identified with some consideration of how these groups might be affected by the DEDC proposals.

Figure 3.4 below shows the required Socio-Demographic Analyses required for Distributional Impacts. Based on this table, it can be seen that the assessment of User Benefits will require data on Income Distribution, while analysis of Accidents will require data about the proportion of children under 16, young adults aged between 16-25 and older people aged 70+, both in the authority and in each LSOA.

Figure 3.4 - Socio-Demographic Analyses required for DIs

Table 2 Scope of Socio-Demographic Analyses for DIs (Step 2b)

Dataset / social group (Ticks indicate analysis required for each impact)	User Benefits	Noise	Air quality	Accidents	Security	Severance	Accessibility	Affordability
Income Distribution (see below)	✓	✓	✓				✓	✓
Children: proportion of population aged <16		✓	✓	✓	✓	✓	✓	
Young adults: proportion of population aged 16-25				✓			✓	
Older people: proportion of population aged 70+				✓	✓	✓	✓	
Proportion of population with a disability					✓	✓	✓	
Proportion of population of Black and Minority Ethnic (BME) origin					✓		✓	
Proportion of households without access to a car						✓	✓	
Carers: proportion of households with dependent children							✓	

In accordance with the available guidance, MapInfo has been used to provide detailed information about those potentially affected by the DEDC in order to accurately analyse the Distributional Impacts. MapInfo is an industry standard desktop GIS system used for mapping and location analytics.

Lower Layer Super Output Areas (LSOAs) have been used to provide local boundaries required for the distributional analysis of accidents. 2011 Census data for analysis has been obtained from Infuse[1].

With no available data for the housing allocation sites in regards to type (affordable, rented, etc) it is assumed that the proposed sites will approximately maintain the current proportional splits in regards to demographic profiles.

3.5 Impact Area Summary – Blackburn with Darwen

In order to provide a qualitative assessment of the Distributional Impacts, and present additional context to the spatial analysis, a profile of Darwen has been prepared, focussing on those that may experience the greatest impacts from the implementation of the DEDC.

Blackburn with Darwen

Blackburn with Darwen is a Local Authority in East Lancashire covering 137 square kilometres, with a population of approximately 140,000 (2010 data). Historically, there have been dramatic changes in the social, economic and environmental characteristics of the area, and the pace of future change is predicted to increase.

In common with other areas in East Lancashire, Blackburn with Darwen faces a number of economic and social challenges, including outward migration, pockets of severe urban deprivation, a large number of old terraced properties in poor condition, and a range of health issues.

It is, however, an area of very strong contrasts; parts of the locality to the west and south of the authority contain some of the wealthiest areas in Lancashire.

November 1997 saw the opening of the M65 extension to connect with the M6 and M61. New businesses, housing and other developments have sprung up near to the motorway junctions, but the evidence surprisingly reveals a disappointing picture for employment growth.

Improvements to the road network have created a two-way flow of people and goods, which have had positive and negative economic and environmental affects that are difficult to accurately quantify. Changes in employee numbers emphasise the continuing growth of employment in the Central Lancashire authorities in contrast a more subdued growth in the East Lancashire area.

[1] http://infuse.ukdataservice.ac.uk/

The town of Darwen retains a strong local identity and the surrounding hills and moors, along with the imposing Darwen (Jubilee) Tower, present a striking backdrop. It has a number of important local employers and is well located for commuters; close to Junction 4 of the M65, it is on the main A666 route to Bolton, whilst railway station usage figures highlight very strong passenger growth at Darwen station, part of the Clitheroe - Manchester passenger route.

People and Communities

The population of the authority has been on an upward trend over recent years and reached 140,000 in mid-2010. Blackburn with Darwen has a high proportion of ethnic minorities, including a large Asian population.

The authority has a bias towards a much younger population than average, and therefore has fewer people of pensionable age than is the average for England and Wales.

In 2009/10 there were 780 registrations by foreign nationals in Blackburn and Darwen. This was 150 fewer than in the previous year (a decrease of 16%). The highest individual group (190) registering was Pakistani. The second largest group was Indian (170).

It is estimated that between 2008 and 2033, the population of Blackburn and Darwen will increase by 5.1%, mush lower than the projected growth for England of 18.0%.

Blackburn with Darwen, in common with East Lancashire authorities, has a very high proportion of its housing stock in council tax band A.

Average house prices in the authority have been consistently amongst the lowest for authorities in England and Wales, and the authority has a high rate of vacant properties. The yearly ratios of median house price to median earnings shows rates for the authority below the Lancashire County and England averages.

The authority has the highest percentage of unfit dwellings in England; in 2006 17.2% of housing in the authority was deemed to be unfit, in contrast with the England average of 4.2%.

The 2010 Indices of Deprivation show a number of areas in the unitary authority with very high levels of deprivation. Of the 32,482 lower-layer super output areas (LSOAs) in England, Blackburn with Darwen had 14 LSOAs that were in the bottom 1,000 most deprived areas.

Blackburn with Darwen was ranked as the 28th most deprived area out of the 326 districts and unitary authorities in England.

Economic Development

Gross Disposable Household Income is effectively the amount of money that, after taxes and social contributions etc, households have available for spending or savings. In 2008 the figure per-head for Blackburn with Darwen of £10,880 was 26.8% lower than the UK average. The per-head figure for the authority is in long-term decline, though the 2008 result represented an improvement over the previous year.

Employee numbers in Blackburn with Darwen area declined by 3.9% to 60,000 employees between 2008 and 2009 as a result of the recession. In addition, over the longer term, the authority has a history of low overall employment rates.

The total unemployment rate in the authority is considerably above the national average and there are some particularly high unemployment rates in certain wards.

The authority has the largest amount of commercial and industrial floorspace of the 14 authorities in the broader Lancashire area.

In contrast to its established strengths in various manufacturing sectors, the authority has only limited strengths in the service sector, like much of East Lancashire. There are few public sector sites in the east of the county that have a national, regional or even county-wide role. One of the few examples is the Lancashire Education Business Partnership.

In 2009, there were 4,505 active enterprises in Blackburn with Darwen, whilst the five-year survival rates for active enterprises in the authority are poor.

The M65 has improved access to the area, and new and enhanced business locations have been developed close to the motorway junctions. The authority contains a number of well-established local employers and a range of other public and private organisations.

Examples of the rich architectural legacy of the area being used to create vibrant and distinctive business premises include India Mill in Darwen and Eanam Wharf in Blackburn.

Average earnings in Blackburn with Darwen are noticeably higher when measured by place of work in comparison to place of residence; therefore, the authority records a net loss from commuter flows. This is in contrast to most other Lancashire authorities, where commuter flows to areas such as Manchester and Liverpool mean that earnings by place of residence are usually higher. However, both figures are below the regional and national averages.

At ward level, the variation in income levels between the most and least affluent wards in Blackburn with Darwen is the most extreme of any authority in the broader Lancashire area. Popular suburbs, either with good connections to the M65 or bordering the Ribble Valley, have income levels that are amongst the highest in the county. In contrast, a number of urban wards in Blackburn have some of the lowest income levels recorded in Lancashire.

There are a large number of incapacity benefit, severe disablement allowance and employment and support allowance claimants. Housing and council tax benefit claimant rates are also very high in the authority.

In comparison to the national average, there is a high percentage of the working age population that is reliant on welfare benefits.

The Annual Population Survey includes local authority estimates of the working-age population by level of National Vocational Qualification. In Blackburn with Darwen, the proportion of people in the authority qualified to NVQ level 4 is estimated to be noticeably lower than the county and national averages.

Children and Young People

For the 2009/10 academic year, the percentage of pupils achieving at least five GCSEs grades A*-C of 76.4% was very similar to the England average of 76.1%.

The authority is home to two highly regarded fee paying schools: Queen Elizabeth's Grammar School and Westholme School.

Blackburn College covers a large site in the town centre and serves over 20,000 students of all ages. Significant expansion over recent years has made a major contribution towards the regeneration of the urban centre.

St Mary's Sixth-Form College includes a Higher Education department that offers degree level courses via links with Liverpool Hope University and the University of Central Lancashire.

Darwen Aldridge Community Academy is a secondary school and sixth form with academy status in central Darwen, with a capacity of 1,600 pupils.

Community Safety

A review of the key community safety figures for 2009/10 reveals that in comparison to the broader fourteen authority Lancashire area, Blackburn with Darwen recorded higher rates of criminal activity across the number of indicators. Violence against the person and criminal damage including arson were particular areas of concern. The authority has an above average number of hospital stays due to alcohol, according to the health and wellbeing traffic lights.

32.6% of respondents to the Place Survey 2008 felt that drunk and rowdy behaviour was a problem in their local area, compared with the England and Wales average of 29%, and 42.8% of respondents felt that drug use or drug dealing was a problem, compared with the England and Wales average of 30.5%. 61% of respondents felt that their local area is a place where people from different backgrounds get on well together, compared with 76.4% for England and Wales.

27.7% of respondents to the Place Survey 2008 felt that anti-social behaviour was a problem in their local area, compared with 20% in England and Wales.

Environment

Certain inner areas of both Blackburn and Darwen towns have air quality results amongst the worst in the county, with a number of AQMAs declared.

Total carbon dioxide emissions in the authority are high in relation to other Lancashire authorities, but the rate per resident is not particularly high in comparison to the UK average. CO2 emissions were driven mainly by the industrial and commercial sector within the authority.

The household reuse, recycling and composting rate for the authority of 43.6% (2009/10) was above the England average and in excess of the rates recorded in a number of Lancashire authorities.

Health and Wellbeing

The total fertility rate (TFR) represents the average number of children per woman that would be born to a group of women if current age-specific patterns of fertility persisted throughout their childbearing life. The TFR for Blackburn with Darwen is the highest of the 14 Lancashire authorities, and well above the rate of 2.1 children per woman that is required to maintain long-term population levels (ignoring migration flows).

Figures for life expectancy at birth show that Blackburn with Darwen has both male and female rates that are amongst the worst in the country.

The Blackburn with Darwen Health Profile, published by the Association of Public Health Authorities, reveals that the health of people in the area is generally worse than the England average. Problems include deprivation, children's tooth decay, deaths from smoking and early deaths from heart disease and stroke.

Older People

The authority has relatively few state pension claimants. Attendance allowance provides financial help to people aged 65 or over who are physically or mentally disabled. The caseload in Blackburn with Darwen is over 4,400.

Life expectancy is currently increasing, however there is no data to conclude whether these extra years will be healthy or not.

4. Distributional Impacts of User Benefits

4.1 Income Distribution

User benefits are experienced in certain areas and by certain groups of people. Whilst it is not possible to attribute social impacts to user benefits, there are distributional impacts that have not, in most cases, been considered previously in the appraisal process.

The process for determining the DI of User Benefits follows the guidance given in WebTAG unit A4.2. Analysis is only carried out on the non-business journeys, as the cost of these journeys are borne by the user.

TUBA was not used in the determination of user benefits. Given the scale of the scheme and level of analysis carried out, it is considered appropriate and proportional to assume that the benefits of the DEDC will be equally split within the Impact area.

The Income Deprivation domain of the English Indices of Deprivation[2] has been used as a proxy for the number of low income households/individuals. This statistic does not measure areas of affluence, but instead presents the number of individuals within an area that claim means tested benefits. This can then serve to identify the percentage of individuals within a specific area (in this case, the LSOA) that claim such benefits, and therefore identify those areas that have a lower or higher number of claimants than the regional average.
Table 4.1 below displays the number of means tested benefit claimants in the Blackburn with Darwen Local Authority, expressed as a percentage of the total population.

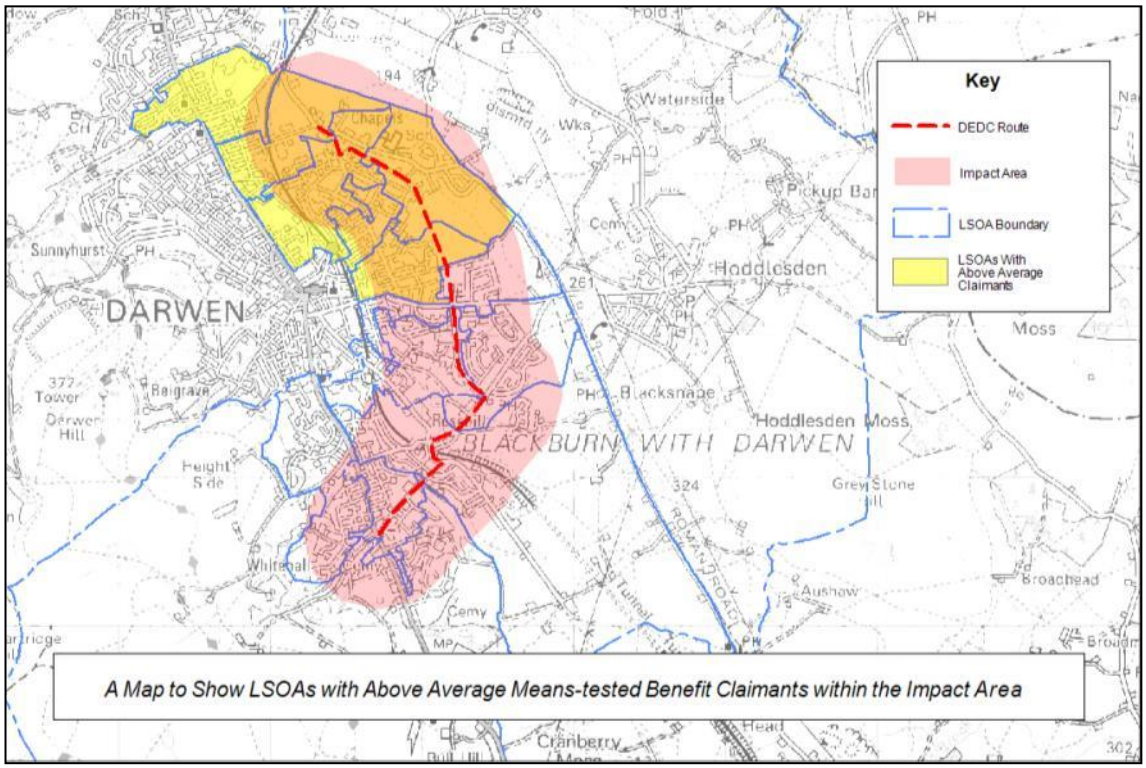
Table 4.1 – BwD Average Claimants

Area	Average Number of Means-tested Benefit Claimants
Blackburn with Darwen	21.5%

Each LSOA has then been mapped to show those areas in which the percentage of claimants exceeds the LA average. Figure 4.1 overleaf presents the results of this mapping.

[2] https://www.gov.uk/government/statistics/english-indices-of-deprivation-2010

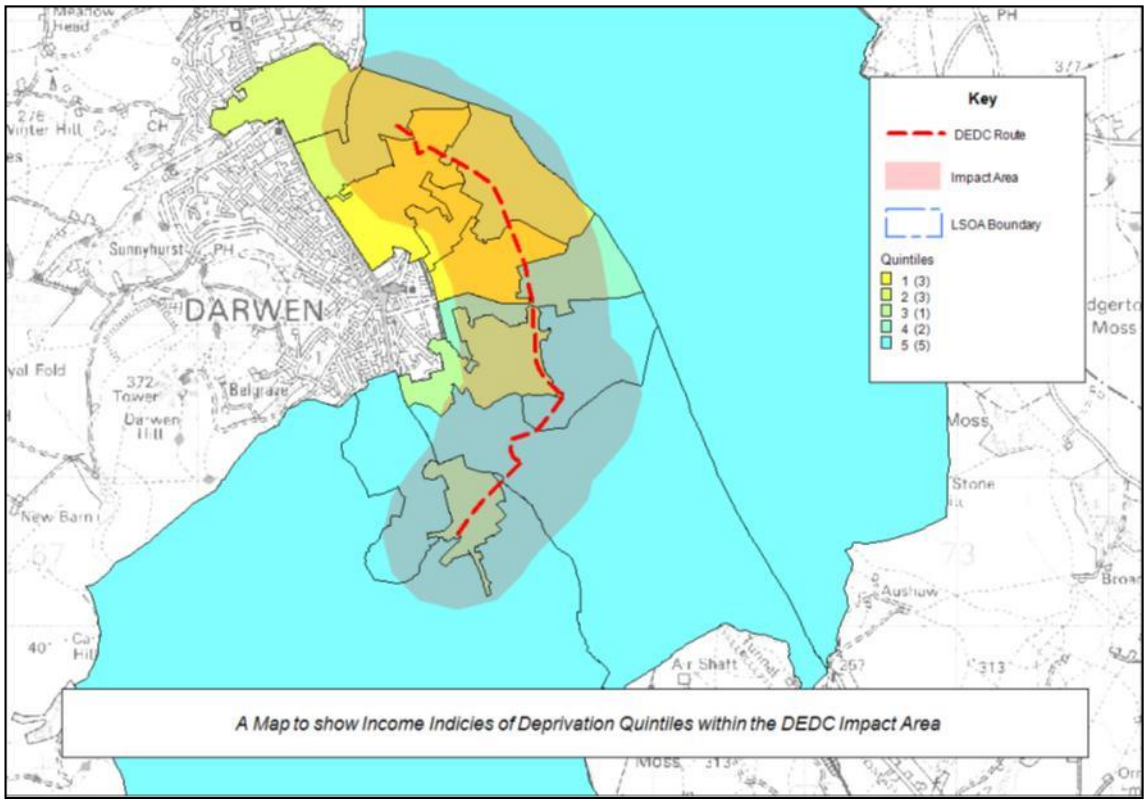
Figure 4.1 – LSOAs exceeding the LA Average of Benefit Claimants



This map clearly shows that the Impact Area to the northern extent of the DEDC covers a cluster of 6 LSOAs with an above average number of means-tested benefit claimants, just under half of the 13 LSOAs included within the Impact Area.

Figure 4.2 overleaf shows the percentage of means-tested benefit claimants in each LSOA expressed as quintiles, clearly highlighting the disparity between the north and south of the town and the DEDC Impact Area.

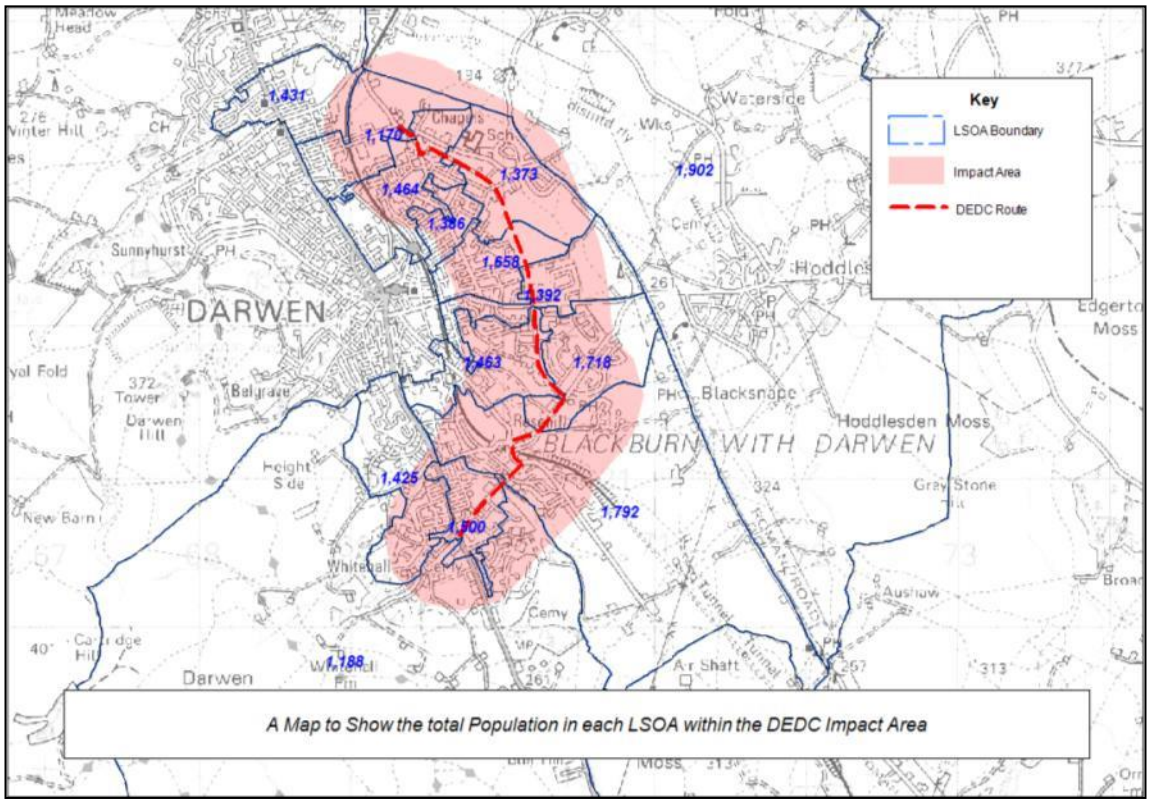
Figure 4.2 – Benefit Claimant Quintiles within the DEDC Impact Area



It must be noted, however, that some of those LSOAs with a considerably lower percentage of claimants cover wider rural areas, and the average within the actual Impact Area may differ from the LSOA average.

Lower Layer Super Output Areas are defined based on specific criteria, including a minimum population of 1,000 and maximum population of 3,000. Figure 4.3 overleaf presents the population of each LSOA within the DEDC Impact Area.

Figure 4.3 – Population of each LSOA within the DEDC Impact Area



This mapping is then used to analyse the percentage of the total impacted population that live within each quintile range of means-tested benefit claimants. The results of this are shown below in Table 4.2.

Table 4.2 – Percentage of Population in each Quintile

Percentage of Claimants (%)	Percentage of Total Population within the Impact Area
28.1-34.2	21.61%
22-28.1	19.05%
15.9-22	7.01%
9.8-15.9	13.86%
3.7-9.8	38.47%

The analysis shows that almost 40% of those within the Impact Area live within LSOAs with the fewest means-tested benefit claimants. Just over a fifth of the population impacted live within LSOAs with the highest proportion of means-tested benefit claimants.

Overall, **17%** of the population within the Impact Area claim means-tested benefits, less than the LA average of 21%

This data is then used to provide a qualitative appraisal of which income groups potentially stand to benefit most from the impacts of the DEDC. The DI analysis for User Benefits therefore shows that the scheme will have a greater proportional impact on those living in the LSOAs with the least proportion of means-tested benefit claimants, as these areas make up the greater proportion of the population within the Impact Area. The two 'Most Deprived' quintiles make up a combined 41% of the population; therefore the impact of the benefits will still be felt amongst the LSOAs with a high proportion of benefit claimants. The assessment is made based on the criteria specified in WebTAG Unit A4.2, shown in Table 4.3 below.

Table 4.3 - Grading DIs

Table 5 General system for grading of DIs for each of the identified social groups	
Impact	**Assessment**
Beneficial and the population impacted is significantly greater than the proportion of the group in the total population	Large Beneficial ✓✓✓
Beneficial and the population impacted is broadly in line with the proportion of the group in the total population	Moderate Beneficial ✓✓
Beneficial and the population impacted is smaller than the proportion of the group in the total population	Slight Beneficial ✓
There are no significant benefits or disbenefits experienced by the group for the specified impact	Neutral
Adverse and the population impacted is smaller than the proportion of the population of the group in the total population	Slight Adverse ×
Adverse and the population impacted is broadly in line with the proportion of the population of the group in the total population	Moderate Adverse ××
Adverse and the population impacted is significantly greater than the proportion of the group in the total population	Large Adverse ×××

The results of this assessment is summarised in Table 4.4 below.

Table 4.4 – DI Assessment of User Benefits

	IMD Income Quintiles					
	Most deprived areas ← → Least deprived areas					
	1	2	3	4	5	**Total**
Number of LSOAs in Impact Area	3	3	1	2	5	
Population in Affected Area	4508	3974	1463	2892	8025	20862
	22%	19%	7%	14%	38%	100%
Assessment	✔	✔	✔ ✔	✔ ✔	✔ ✔ ✔	

5. Distributional Impacts of Accidents

5.1 Introduction — Impact of the DEDC

Most transport-related accidents, injuries and deaths occur on the road network. Vulnerable groups (in terms of their accident risk) include children and older people (both particularly as pedestrians), young males and motorcyclists. There is also a strong link between deprivation and road accidents: children from social class V are five times more likely to be involved in a fatal road accident than those from social class I. Young males are also relatively vulnerable as drivers, and this group should also be considered if there is evidence that they form a significant proportion of casualties on the road network.

Approximately 25.5% of the Local Authority population are children aged under 16. Darwen is a very compact town, with a dense housing pattern at its core, enabling many journeys to be made on foot. There is low car ownership within the Borough; 33.5% of residents do not own a vehicle, meaning people rely on public transport or to walk, making them more vulnerable hazards along the routes. All these factors are evidenced in the high levels of multiple deprivation within the Borough and above average levels of road casualties, particularly in road traffic incidents involving children.

The DEDC includes a package of junction improvements designed to facilitate growth in the local area. Each junction has also been designed with consideration for road safety and the uptake of sustainable modes of transport.

COBALT analysis has been undertaken in order to determine the expected impacts of the improvements in each location on the accident rate. Further details of the monetised COBALT results are available in the **Benefit Cost Ratio Technical Note** available as an Addendum document of the main Business Case report. The expected change in accidents over the 60 year appraisal period is presented in Table 5.1 overleaf.

Table 5.1 – COBALT Accident Rates

Junction Location	60yr Accident Rate Without Scheme	60yr Accident Rate With Scheme	Change
A666 / Watery Lane/ Queens Rd	60.0	60.0	0.0
Sough Road / Grimshaw Street / Pole Lane	58.5	44.7	-13.8
Pole Lane / Priory Drive	33.3	9.7	-23.6
Priory Drive / Marsh House Lane / Proposed Link Road	45.5	17.4	-28.1
Oak Grove / Holden Fold	18.2	18.2	0.0
A666 / Grimshaw Street/ Bowling Green Close	59.0	59.0	0.0
Total	**274.5**	**209**	**-65.5**

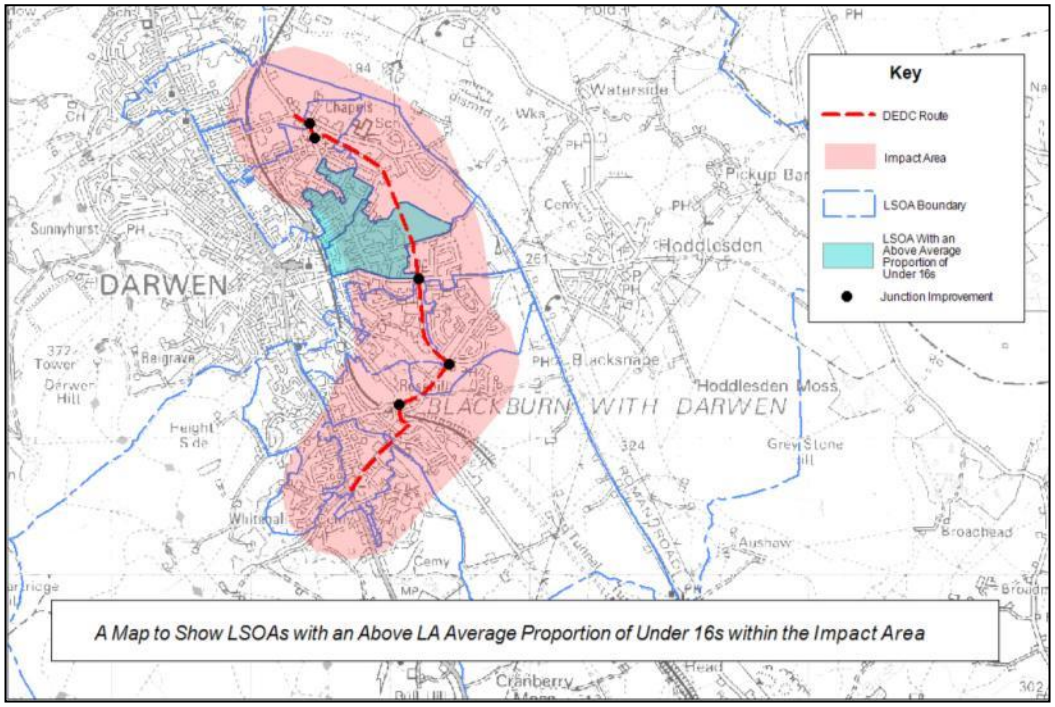
Across the six assessed junctions, it is expected that there will be a reduction of 65 accidents over the 60 year appraisal period, approximately 1 per year. Three junctions are estimated to have no change in accidents as a result in the proposed intervention, with no change in junction type proposed. The Sough Road / Grimshaw Street / Pole Lane junction, the Pole Lane / Priory Drive junction and the Priory Drive / Marsh House Lane / Link Road junction are all estimated to have a beneficial effect on accident rates, with each of these being interventions changing junction type from a priority junction to a mini-roundabout/ roundabout layout.

Assuming accidents are evenly distributed across the 60 year appraisal period, the without scheme accident rate across the six junctions is 22.9 per 5 year period. As stated in WebTAG Unit A4.2 (5.4.8), as the number of expected accidents on the affected links is below 50 in a 5 year period, a qualitative assessment will be undertaken. This analysis will provide information on the likely impact on vulnerable groups based on demographic analysis and the identification of accident clusters, as well as the expected change in accidents rates caused by the interventions.

5.1.1 Socio-Demographic Analysis — Age

GIS has been used to map those LSOAs with above average (Local Authority) proportions of people considered to be within a vulnerable age group. Figure 5.1 overleaf identifies LSOAs with an above Local Authority average of under 16s.

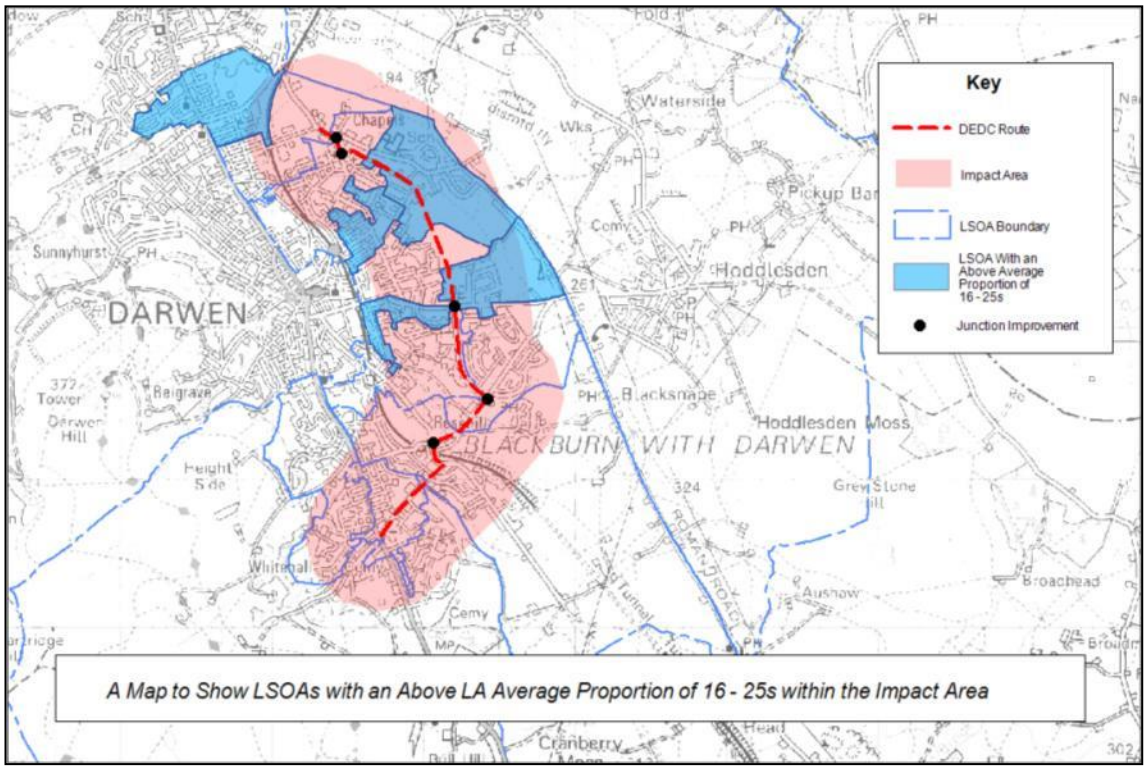
Figure 5.1 - LSOAs With Above Average Proportion of Under 16s



Only 2 of the 13 LSOAs that intersect with the Impact Area have an above average proportion of Under 16s, located to the north-west of the route.

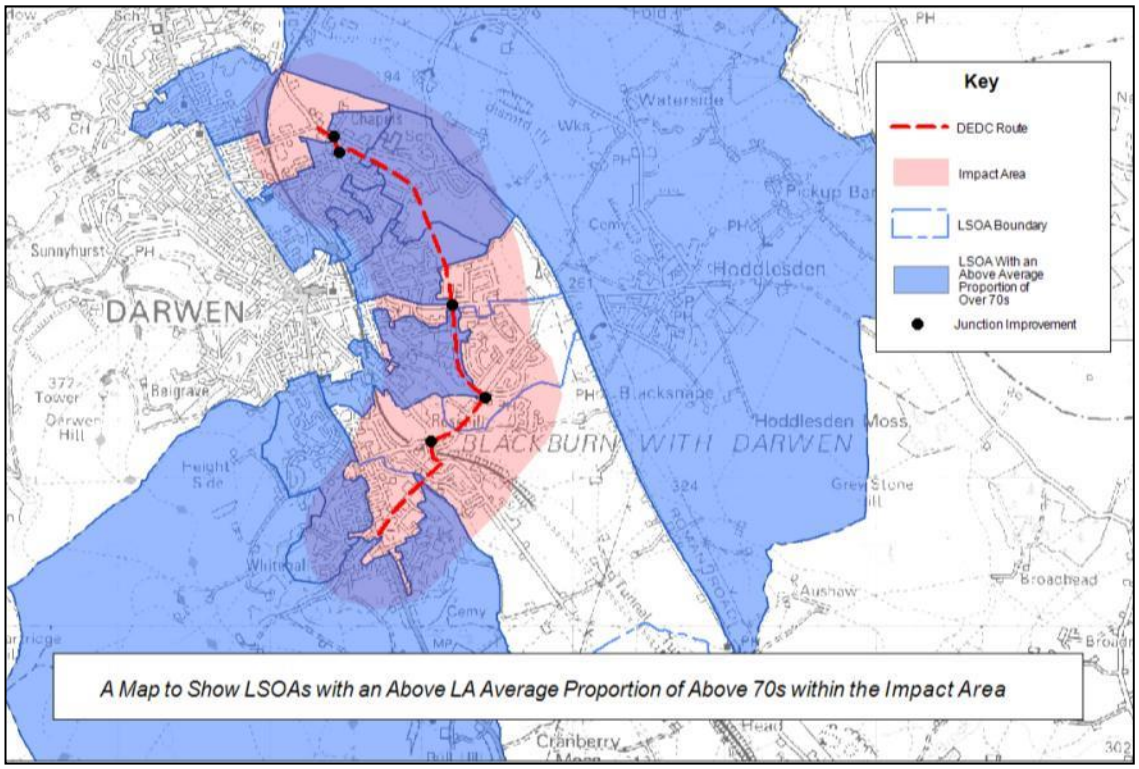
Figure 5.2 overleaf identifies LSOAs with above Local Authority average proportions of 16-25 year olds. These LSOAs include one of the two identified as having an above average proportion of under 16s, and all the LSOAs identified with above average proportions of children and young people lie within the areas identified as having above average proportions of mean-tested benefit claimants.

Figure 5.2 - LSOAs With Above Average Proportion of 16 - 25s



Finally, Figure 5.3 overleaf identifies LSOAs with above Local Authority average proportions of Over 70s. This shows that the majority of the LSOAs (9 of the 13) within the DEDC Impact Area have above average proportions of Over 70s. One LSOA was identified as having an above average proportion of each of the vulnerable age ranges.

Figure 5.3 - LSOAs With Above Average Proportion of Over 70s



5.2 Socio-Demographic Analysis — Accident Rates

Stats19 accident data[3] for a three year period (2012 – 2014) has been analysed and mapped in order to identify those areas that may have higher proportions of accidents involving vulnerable user groups.

Figure 5.4 overleaf plots the location of recorded accidents within the junction Impact Areas, identifying 21 (reported) accidents over the three year period. Of particular note is the cluster of accidents around the Sough Road / Grimshaw Street junction.

To provide further detailed analysis, the accidents have been mapped by vulnerable group, which will allow a comparison of accidents to LSOAs with a high proportion of vulnerable groups.

Figure 5.5 overleaf presents the results of this mapping for Children (Under16s). 6 of the recorded 21 accidents involved under 16s (29%). Of these, only two occurred within the two LSOAs with an above average proportion of Under 16s.

[3] https://data.gov.uk/dataset/road-accidents-safety-data

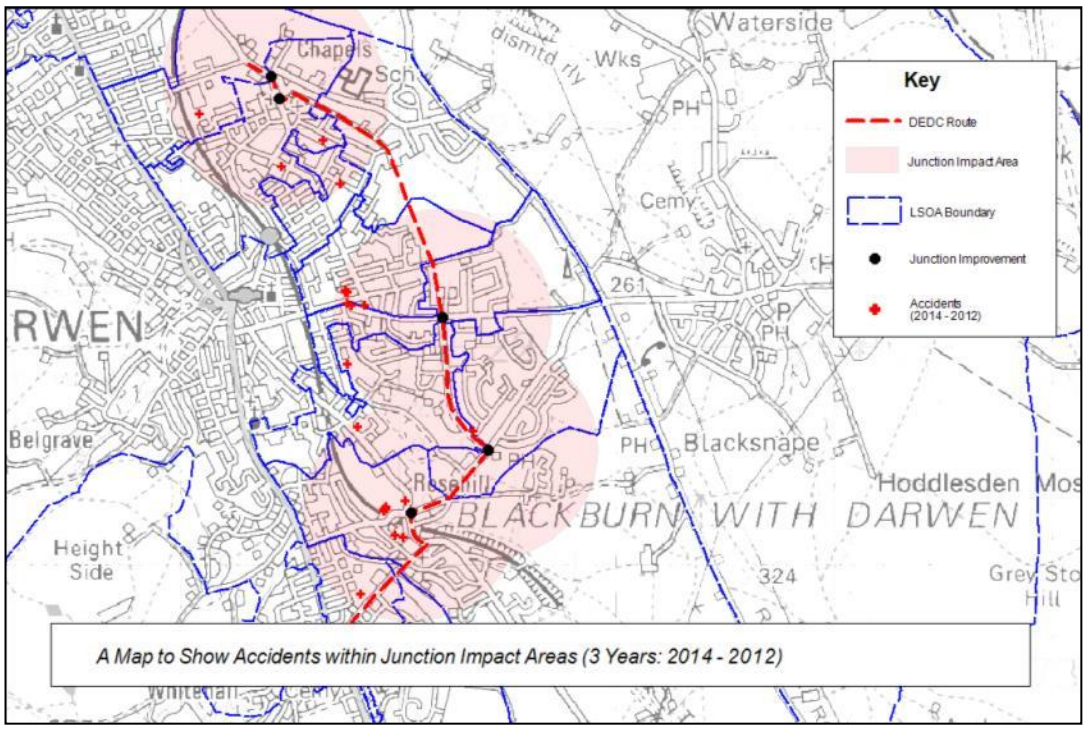
Figure 5.6 overleaf presents the results of this mapping for young people (16-25s). Only 2 (10%) of the recorded accidents affected young people, neither of which occurred in LSOAs with a high proportion of 16-25s. The accidents occurred within close proximity of Sudell Primary School and Sudellside Community Centre.

None of the recorded accidents affected older people (Over 70s).

Road Safety statistics[4] show that nationally only 8.9% of reported accidents involved children under 16. Of the 21 accidents within the Impact Areas over the appraisal period, approximately a third involved children, considerably higher than national average. A number of accidents occurred around the junction of Sudell Road and Marsh House Lane, close to a number of identified amenities. Blackburn with Darwen as an authority has one of the poorest records for child road safety in the country, with the proportion of child casualties being 50% higher than the national average.

There is no obvious correlation between the accidents recorded and the areas with high proportions of vulnerable groups.

Figure 5.4 - Accidents within Junction Impact Areas



[4] https://www.gov.uk/government/collections/road-accidents-and-safety-statistics

Figure 5.5 - Accidents affecting under 16s

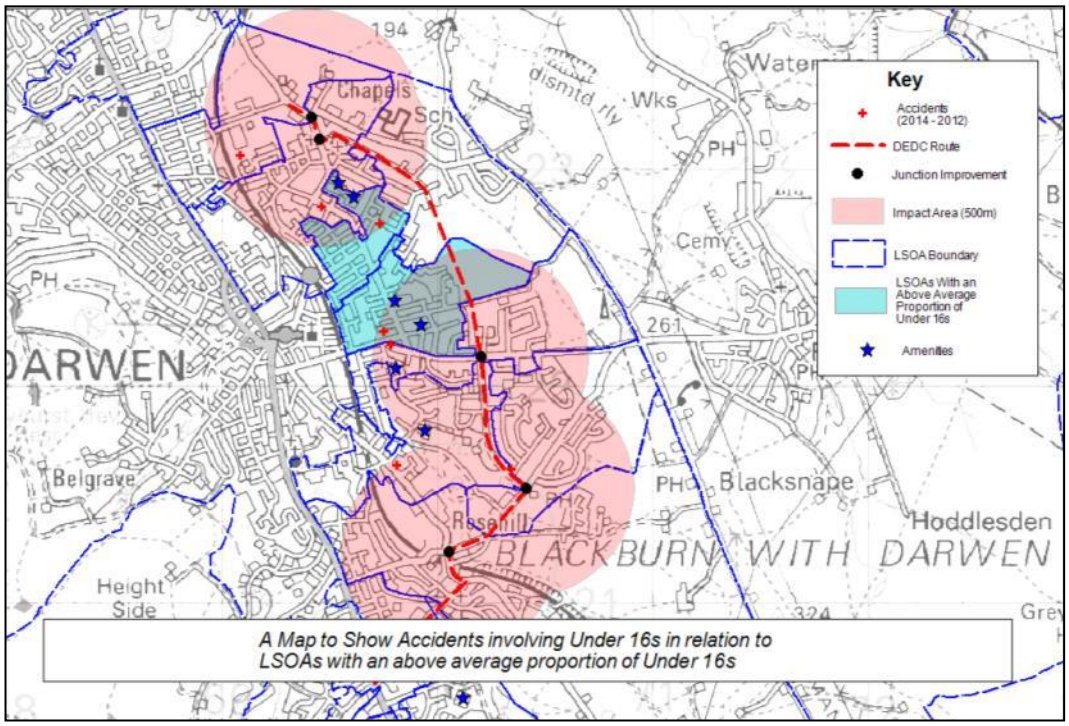
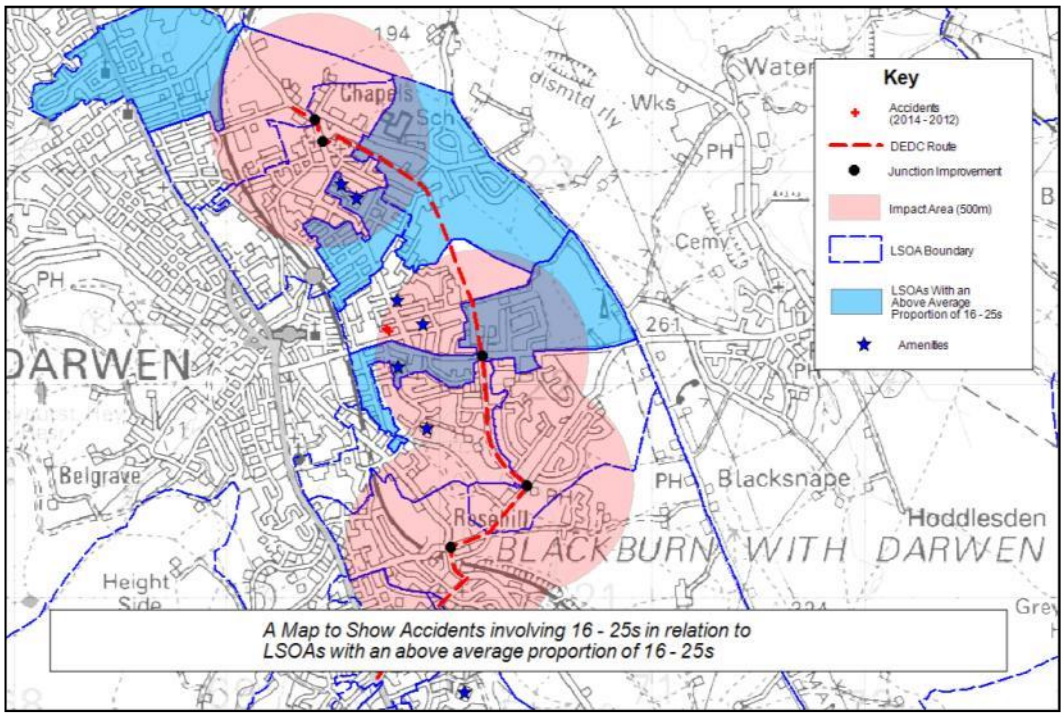


Figure 5.6 – Accidents affecting 16 – 25s



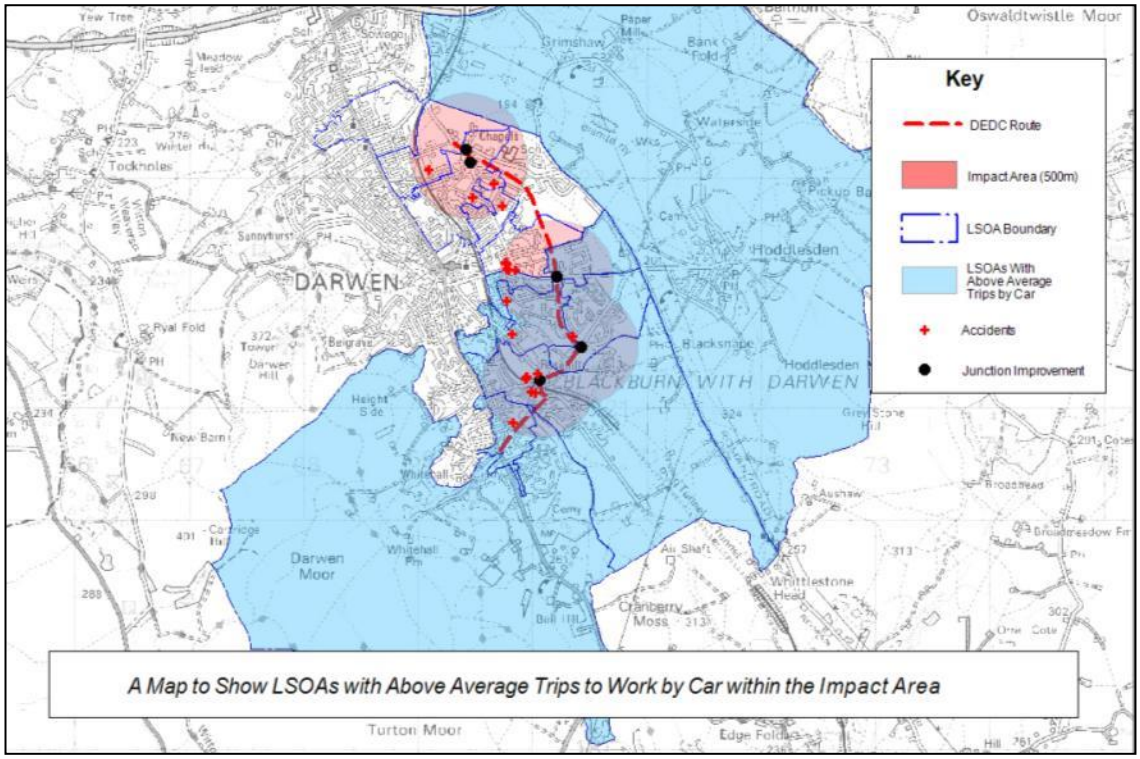
5.2.1 *Socio-Demographic Analysis — Travel to Work*

In addition to identifying vulnerable people by age, the profile of local transport users must be considered, and in order to do this spatial analysis has been undertaken on the 2011 Census Travel to Work data, identifying LSOAs with above Local Authority (LA) average proportions of journeys made by bicycle, motorcycle and as a pedestrian, as well as by car.

Local data for young males as drivers was not available at this level of disaggregation.

Figure 5.7 below identifies those LSOAs within the Impact area that have an above LA average proportion of trips to work undertaken by car. Just over half of the LSOAs are above the average, and the majority of these are to the southern extent of the route, including the more rural LSOAs to the east and west. Areas with a high proportion of car users may stand to benefit more from highway interventions that reduce potential accidents at junctions and along links.

Figure 5.7 – Trips to Work by Car



It is important to also identify areas with high numbers of vulnerable road users, such as cyclists and pedestrians, who may benefit from improved crossing facilities, upgraded cycling infrastructure, improved footways/footpaths, and junction improvements in some circumstances.

Figure 5.8 below identifies LSOAs with an above LA average proportion of journeys to work undertaken on foot (ie pedestrians). In comparison with Figure 5.7, it can be seen that the LSOAs in the northern extent are more likely to journey to work on foot, in contrast with the southern and rural LSOAs where commuters journey by car. 4 LSOAs (roughly central to the impact area, and in close proximity to the town centre) are characterised by both an above LA average of journeys by car and on foot.

Figure 5.8 – Trips to Work on Foot

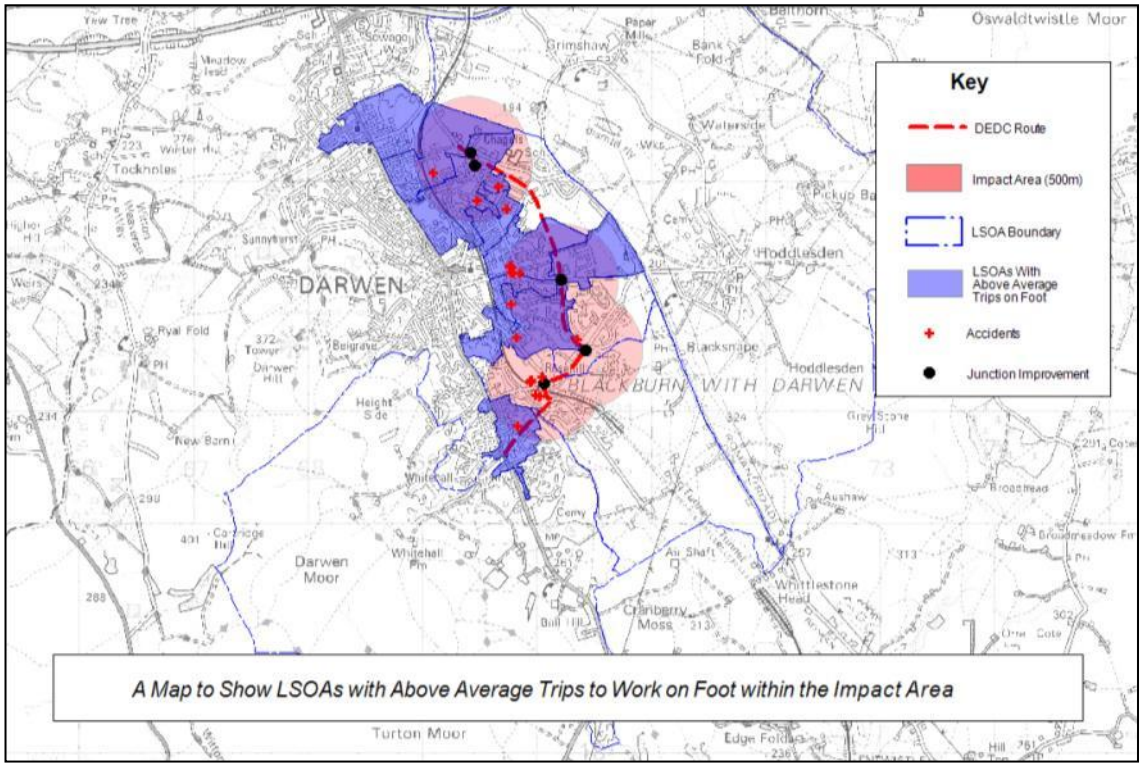


Figure 5.9 and Figure 5.10 overleaf identify LSOAs with above LA average proportions of journeys to work made by bicycle and motorcycle. However, the Local Authority is characterised by a particularly low percentage of cyclists when compared to national and regional figures

Table 5.2 - Journeys to Work by Bicycle

National Average	LA Average
4%	1%

Figure 5.9 – Trips to Work by Bicycle

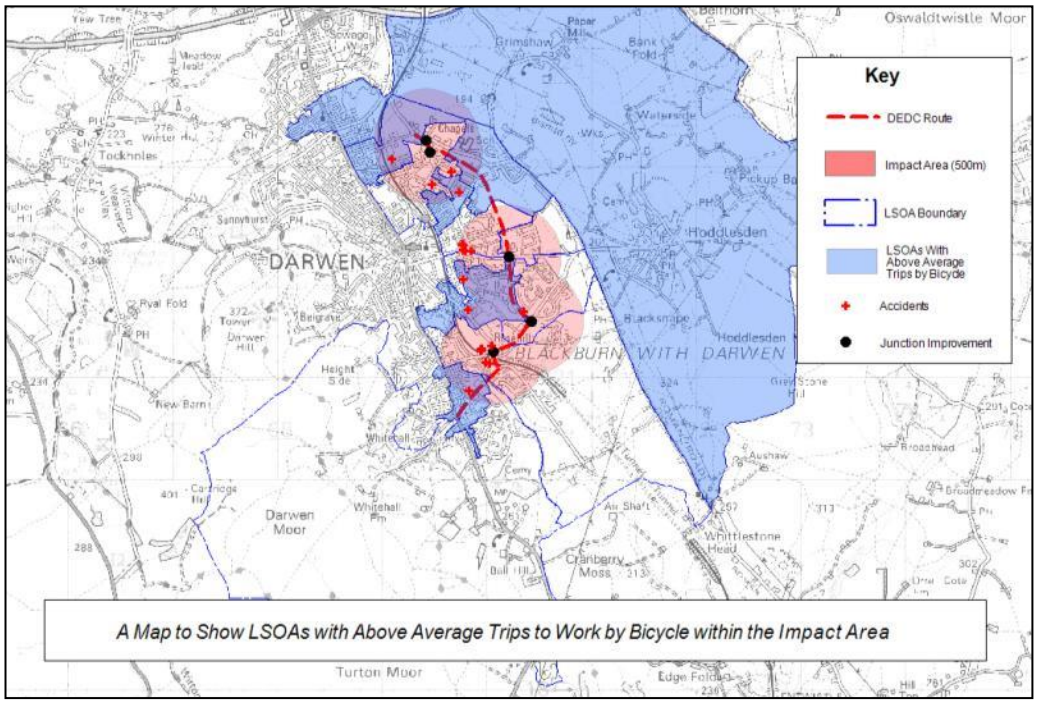
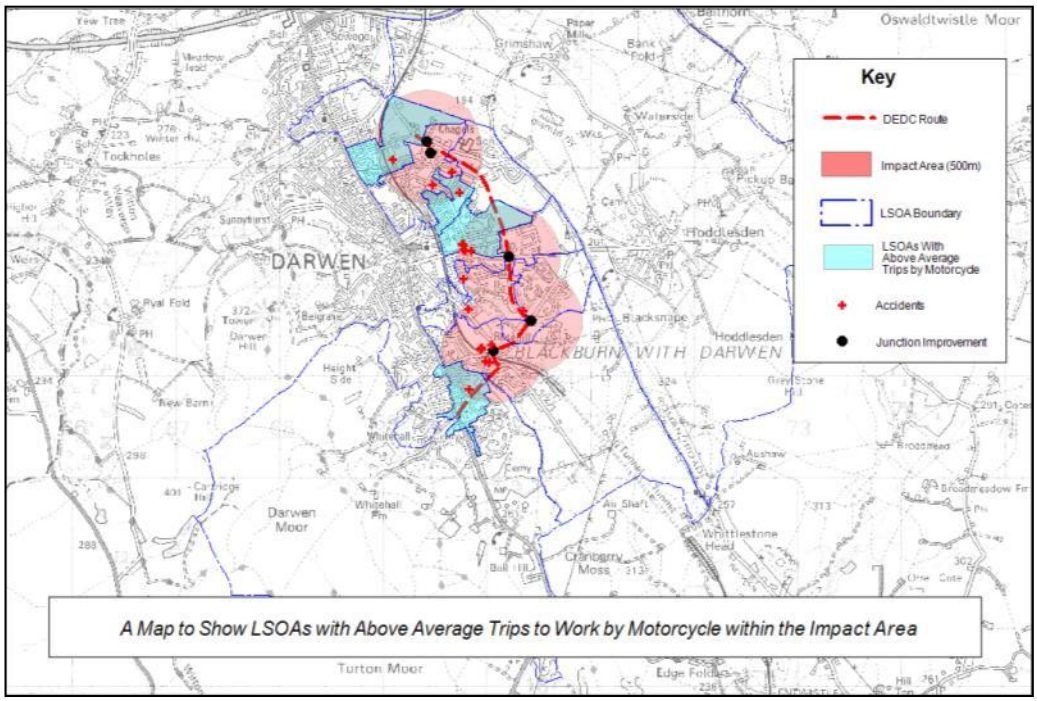


Figure 5.10 – Trips to work by Motorcycle



When compared to the previous analysis undertaken on User Benefits and LSOAs with an above average proportion of means-tested benefit claimants, it can be seen that those areas considered to be characterised by a lower income have a higher proportion of trips by bicycle or on foot. None of the LSOAs with lower incomes had a higher proportion of trips undertaken by car.

5.3 Analysis and Conclusions

The spatial analysis undertaken identifies an Impact Area characterised by areas of higher deprivation to the north, with higher proportions of pedestrians, fewer trips by car, and higher concentrations of vulnerable groups. However, mapping of accident data suggests there is no existing pattern of accidents impacting specific vulnerable groups.

The greatest distributional impact is expected to be at the Priory Drive / Marsh House Lane / Link Road junction. COBALT output suggests that the proposed change in junction type at this roundabout will generate the greatest total accident reduction, as indicated in Table 5.1.

A summary of the DI impact across vulnerable user groups for each junction can be found in Table 5.3 overleaf. A “slight positive” DI has been recorded for each vulnerable age and user group if the Junction Impact Area at each locations covers at least one LSOA with an above LA average proportion for a given group.

For the Priory Drive / Marsh House Lane / Link Road junction, the accident reduction benefits is expected to be felt across all vulnerable age and user groups, with the Junction Impact Area covering at least one LSOA with above average proportions of each group.

Interventions at both the Sough Road / Grimshaw Street / Pole Lane and the Pole Lane / Priory Drive junctions are also expected to have a slight positive impact on the majority of vulnerable age and user groups. It is also worth noting that the current COBALT is based on average data for junction type, rather than specific road safety analysis for each junction. The existing Sough Road / Grimshaw Street / Pole Lane junction has poor visibility along a number of approaches and at the give-way lines due to local constraints, including the sub-standard railway bridges. The junction and bridge improvements to DMRB and MfS standards should improve the accident rate and increase safety for all users, a factor not considered within COBALT.

The Pole Lane / Priory Drive junction is expected to see a significant decrease in the number of accidents occurring at this location with the change in layout from a priority junction to a compact roundabout. The junction design incorporates improved footways and should create more opportunities for pedestrians to cross.

The impact area for this junction is similar in characteristics to Sough Road / Grimshaw Street; and all the surrounding LSOAs have an above La average proportion of Over 70s, and well as trips undertaken by car. One LSOA to the west of the junction also has an above average number of trips by bicycle and on foot.

Junctions not listed in Table 5.3 are estimated to have no change in accident rates between with and without scheme scenarios, and are therefore assumed to have a neutral DI effect across age and user groups.

Table 5.3 – DI of Accidents Results

Junction	Vulnerable Social Groups			Vulnerable Network Users		
	Children	Older People	Young People	Pedestrians	Cyclists	M/cyclists
Sough Road / Grimshaw Street / Pole Lane	Neutral	Slight Positive	Neutral	Slight Positive	Slight Positive	Slight Positive
Pole Lane / Priory Drive	Neutral	Slight Positive	Neutral	Slight Positive	Slight Positive	Neutral
Priory Drive / Marsh House Lane / Proposed Link Road	Slight Positive	Slight Positive	Slight Positive	Slight Positive	Slight Positive	Slight Positive

Appendix A – Screening Proforma

Distributional Impact Appraisal Screening Proforma

Scheme description:

Indicator	(a) Appraisal output criteria	(b) Potential impact (yes / no, positive/negative if known)	(c) Qualitative Comments	(d) Proceed to Step 2
User benefits	The TUBA user benefit analysis software or an equivalent process has been used in the appraisal; and/or the value of user benefits Transport Economic Efficiency (TEE) table is non-zero.	Yes - Positive	Significant benefits in journey time based on reduction in delay at improved junctions	Yes
Noise	Any change in alignment of transport corridor or any links with significant changes (>25% or <-20%) in vehicle flow, speed or %HDV content. Also note comment in TAG Unit A3.	No	Any impact is expected to be negligible	No
Air quality	Any change in alignment of transport corridor or any links with significant changes in vehicle flow, speed or %HDV content: • Change in 24 hour AADT of 1000 vehicles or more • Change in 24 hour AADT of HDV of 200 HDV vehicles or more • Change in daily average speed of 10kph or more • Change in peak hour speed of 20kph or more • Change in road alignment of 5m or more	No	Any impact is expected to be negligible	No
Accidents	Any change in alignment of transport corridor (or road layout) that may have positive or negative safety impacts, or any links with significant changes in vehicle flow, speed, %HGV content or any significant change (>10%) in the number of pedestrians, cyclists or motorcyclists using road network.	Yes - Positive	COBALT analysis shows an change in the expected accident rate at a number of junctions	Yes
Security	Any change in public transport waiting/interchange facilities including pedestrian access expected to affect user perceptions of personal security.	No	Any impact is expected to be negligible	No
Severance	Introduction or removal of barriers to pedestrian movement, either through changes to road crossing provision, or through introduction of new public transport or road corridors. Any areas with significant changes (>10%) in vehicle flow, speed, %HGV content.	No	Any impact is expected to be negligible	No
Accessibility	Changes in routings or timings of current public transport services, any changes to public transport provision, including routing, frequencies, waiting facilities (bus stops / rail stations) and rolling stock, or any indirect impacts on accessibility to services (e.g. demolition & re-location of a school).	No	Any impact is expected to be negligible	No
Affordability	In cases where the following charges would occur; Parking charges (including where changes in the allocation of free or reduced fee spaces may occur); Car fuel and non-fuel operating costs (where, for example, rerouting or changes in journey speeds and congestion occur resulting in changes in costs); Road user charges (including discounts and exemptions for different groups of travellers); Public transport fare changes (where, for example premium fares are set on new or existing modes or where multi-modal discounted travel tickets become available due to new ticketing technologies); or Public transport concession availability (where, for example concession arrangements vary as a result of a move in service provision from bus to light rail or heavy rail, where such concession entitlement is not maintained by the local authority[1]).	No	Any impact is expected to be negligible	No

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