Sizewell C Impact Assessment

Final Report

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Executive Summary

This report presents the results of a programme of research to assess the perceived community impacts of increased traffic associated with the construction of the Sizewell C power station. The programme consisted of four stages: a literature review, an initial consultation survey with 267 participants, 20 depth interviews, and a stated preference survey with 105 participants.

The **literature review** collected information about previous work on community impacts of road traffic and the methods used to assess those impacts. The main results of this review were as follows.

- Increased traffic levels were identified with a wide range of potential local impacts, including noise, air pollution, accident risk, and reduced mobility and accessibility. The extent of these impacts was shown to depend on the characteristics of the traffic and the local built environment, the characteristics of the population, the time elapsed since traffic increased, and the effectiveness of mitigation measures.

- The role of these factors was evident in the case of the Sizewell B project, as the evolution of local perceptions did not follow the evolution in traffic levels across the lifespan of the project. The proportion of residents identifying road traffic as a negative impact and the number of complaints and newspaper stories about traffic decreased with time, despite the fact that the total number of vehicles and the number of HGVs ended up being much higher than the numbers that were predicted before the project started.

- The approaches outlined in official guidance documents for the assessment of road traffic do not take account of the perceptions of the populations affected by that traffic. The academic literature provides several methods that could address these limitations, such as wellbeing surveys and stated preference surveys.

The findings from the literature review informed the development of subsequent research phases, and also provided a context in which to situate the final results from the study.

The **initial consultation survey** was undertaken next, where this phase was designed to gather information about the level of awareness, attitudes towards, and concerns regarding the planned construction of Sizewell C among local residents and businesses.

The survey found the following key results.

- Half of the respondents opposed the Sizewell C project and less than one-third were supportive. The major concern about the project was the anticipated construction traffic. The major perceived benefit was the increase in local employment opportunities.

- 70% of respondents anticipated that they would become dissatisfied living where they were because of the construction traffic.

- The traffic aspects causing the most concern are traffic volume, composition and speeds. The most commonly anticipated impact is increased problems to travel around by car or by foot. Only a small minority believed that there would be no personal impact on them resulting from the construction traffic.

- More than a third of the respondents stated that construction traffic would make it harder to do things around the house, would affect their health, and make it more dangerous for children to play. Almost half of participants who travelled on the local roads on a regular basis stated that they would make fewer trips and around one-third thought they would walk less, cycle less and/or drive instead of walking/cycling.

- The vast majority (90%) of the participants that experienced Sizewell B works expected Sizewell C to have a worse impact on traffic than the construction of Sizewell B, the construction of Sizewell B Dry Fuel Store, and the Sizewell B outages.

The **depth interviews** gave deeper insight into the size and nature of the impacts and suggestions about mitigation measures. The main results of this stage were as follows.

- Participants living on the affected roads were concerned about the impact of traffic on many aspects of their day-to-day life and believed that the expected traffic volume was too large for the roads. Some participants living further away from the proposed routes believed that concerns were exaggerated and that traffic would not be an issue provided that it is properly managed.

- The construction of a new relief road was seen as the most adequate solution to mitigate the impacts of increased traffic. Several participants expressed doubts about the effectiveness of mitigation measures along the existing route.

- The construction of Sizewell B was perceived by some to have caused major upheaval (mainly because of construction traffic) but by others to have caused minimal disruption to their lives.

The **stated preference** survey measured the relative size of the impacts expected due to the various aspects of the increased traffic, and local residents' priorities over the different possibilities for intervention to mitigate those impacts. The survey found the following.

- The most impactful aspects of road traffic increases for the local residents were found to be traffic noise, the effect on car or bus travel times, the risk of being involved in an accident, and vibration.

- Air pollution was considered to be more impactful by those in Middleton and Yoxford than in Theberton, when comparing with noise. Extra time added to car/bus travel journeys was more impactful to participants living far from the road and vibration was more impactful to those living near the road.

- Households with children were more concerned about risk, air pollution, vibration, and suppression of cycling trips. Full-time workers were more concerned about suppressed walking trips and loss of community character. Individuals with high-income were more concerned about stress and air pollution and those with low income were more concerned about walk trip time.

- The mitigation measures given highest priority were night-time and weekend restrictions to HGVs, provision of less onsite parking (to encourage more use of buses by construction employees and thereby a lower volume of cars), strict enforcement of speed limits, and provision of safety measures for pedestrians and cyclists.

- Participants with children gave a lower relative priority to noise than other measures, in comparison with other participants. Women gave higher priority to peak restrictions to LGVs and HGVs, weekend restrictions to HGVs, noise reduction measures for properties, safety measures for private accesses to properties, and air quality standards. Older people gave higher priority to quick construction works, parking restrictions, and enforcement of speed limits. Full-time workers gave a higher priority to weekend restrictions to LGVs and HGVs. Individuals with higher income gave higher priority to air pollution standards. The role of location (village and distance to the road) was less relevant.

- Most people preferred longer construction works with lower traffic flows (rather than quicker works with higher flows), less onsite parking and higher bus traffic (rather than more onsite parking and higher car traffic), routeing restrictions for LGVs (rather than not having restrictions and spreading impacts over a wider area) and to have a reduction of onsite car parking (rather than having routeing restrictions for cars or having no restrictions and spreading impacts over a wider area).

The study as a whole has provided information about the perceptions of the populations affected by road traffic, which is hard to obtain using the approaches in official guidance documents for the environmental assessment of major construction projects (such as the IEA Guidelines) and for the appraisal of transport projects (such as WebTAG/DMRB framework).

The results of the initial consultation survey and depth interviews have provided relevant contextual information about how the anticipated traffic problems were perceived by many local residents in relation to other effects of the project (such as the effect on local employment) and with the effects of previous projects (Sizewell B).

The stated preference study has also provided important information about the priorities of local residents regarding a wide range of individual aspects, which tend to be assessed in an aggregated and sometimes overlapping fashion in existing assessment frameworks. Results have revealed differences in the perceived impact of traffic in terms of the reduction of the utility derived from some activities and the suppression of those activities. For example, increased risk of accidents and increased time to car/bus journeys were judged to be more impactful than the suppression of driving trips. This information could not be easily obtained using the WebTAG

approach, which, does not consider averting behaviour and measures the impact of traffic on driving in a series of different and overlapping assessments, related to travel time, accessibility, severance, and journey quality.

Overall, the study has produced a rich set of insights into the perceptions and opinions of local residents concerning Sizewell C construction traffic issues. These insights should be a valuable resource to inform future discussions in relation to Sizewell C.

1. INTRODUCTION

1.1 Background

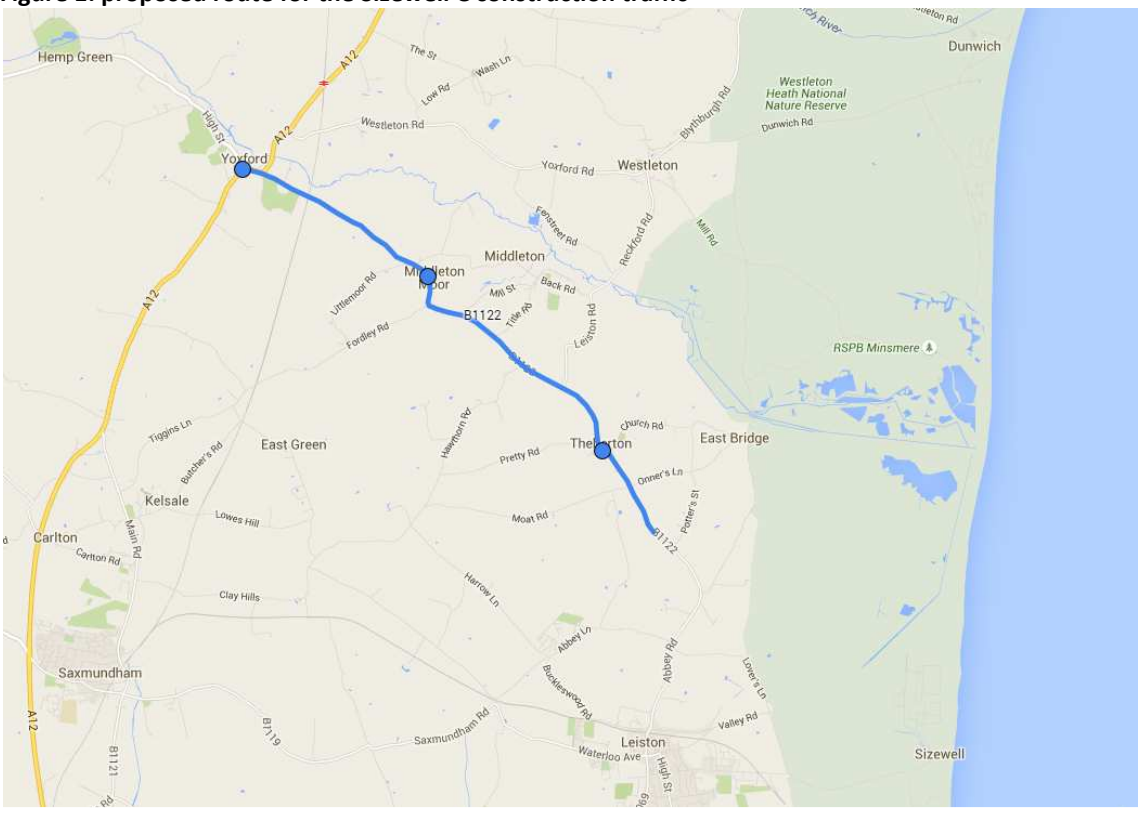
In November 2009, the Government announced that Sizewell would be a suitable site for the nuclear expansion programme, allowing EDF Energy to take forward its plans to build a new twin reactor power station on land to the north of Sizewell B, which it owns, and Sizewell A, a Magnox site in decommissioning.

The Sizewell C project is classified as a Nationally Significant Infrastructure Project (NSIP). It is at the pre-application stage, with one stage of consultation undertaken from November 2012 to February 2013 with a stage 2 consultation currently planned for 2016 followed by a stage 3 consultation.

In 2012, the Sizewell C Joint Local Authority Group (JLAG) was established in order to facilitate a joint local authority approach to the challenges and opportunities that will result from the construction and operation of the proposed new nuclear power station.

As illustrated in Figure 1, EDF Energy has proposed that the majority of construction traffic associated with the development of Sizewell C will use the A12 to Yoxford and then the B1122 through Middleton and Theberton to a new site entrance to the north of Leiston.

Figure 1: proposed route for the Sizewell C construction traffic



The construction route would need to accommodate HGV vehicles for the delivery of materials, coach traffic for transporting workers to the site, abnormal loads and car

trips by individual workers and visitors. It is therefore expected that the construction traffic will cause significant disruption to the local communities along the route during the ten year construction phase. Communities may have safety concerns about the construction traffic as well concerns related to their quality of life more generally.

A typical approach to the assessment of traffic impacts is to use the Department for Transport's WebTAG and Design Manual for Road and Bridges methodologies supplemented by Guidelines[1] produced by the former Institute of Environmental Assessment. As Suffolk County Council is concerned that such an approach could overlook and understate the extent of impacts experience by local communities, it commissioned Accent to conduct the reported research project. The overall aim was to directly engage with communities along the route to understand "*the consistency in views on the nature, scale and range of traffic-related impacts that are perceived as likely to arise with the construction of Sizewell C.*"

1.2 Objectives

The overall objective of the study was to look at the potential traffic impacts of the proposed Sizewell C construction on the wellbeing of local communities in an innovative and comprehensive manner which complements traditional modes of transport assessment. The study results are intended to inform Suffolk County Council in its discussions with EDF Energy on means of addressing those impacts.

More specifically, the research aimed to achieve the following objectives:

- To review approaches to assessing the social and community impacts of changes in traffic flows (especially HGVs) on people within directly affected communities, identifying best practice and also any correlations between pre-construction perceptions and actual experiences during construction.

- To research, through appropriate engagement activities with individuals in communities living (relatively) nearby the route, the perceived effects of an increase in traffic flows on the B1122 and the A12 through Yoxford, having regard to any previous comparable experiences.

- To analyse the type, scale and range of impacts that are envisaged to arise, to examine the consistency and consensus in such views and to identify any correlations between those views and respondent characteristics such as their location and socio-economic profile.

1.3 Report Structure

A multi-faceted approach research was adopted as follows:

[1] Guidelines for the Environmental Assessment of Road Traffic' produced by the Institute of Environmental Management and Assessment (IEMA) in 1993.

- **Literature review** covering
  - review of evidence on the social impact of major infrastructure projects and changes in traffic levels
  - assessing the limitations of WebTAG/IEA Guidelines in the assessment of the social impacts of transport projects
  - methods used in previous impact assessment studies and academic literature that address the gaps left by the WebTAG approaches

- **Initial consultation survey** to gain an initial understanding of the views of residents within the catchment area of the route

- **Depth interview case studies** to gain deeper insight into the views of residents within the catchment area of the route

- **Follow-up survey including a stated preference** to measure the relative importance local residents attach to the different impacts of the increased traffic and to the different possibilities for intervention to mitigate those impacts.

This report is structured so that each of these phases is reported in separate chapters as follows:

- Chapter 2: Literature Review
- Chapter 3: Phase I: Initial Consultation Survey
- Chapter 4: Phase II: Depth Case Studies
- Chapter 5: Phase III: Stated Preference Follow Up Survey

Chapter 6 explains how the results fit with previous work and with the current approach for transport assessment and Chapter 7 presents the overall conclusions of the study.

2. LITERATURE REVIEW

2.1 Introduction

The construction of Sizewell C will increase traffic levels on nearby roads. Suffolk County Council has commissioned Accent to study the potential impacts of this traffic increase on the wellbeing of local communities. The research will help inform Suffolk County Council in its discussions with EDF Energy on means of addressing the impacts.

This chapter contains a review of literature relevant to the study, which has been completed as a first stage of the research programme. The objective of the review was to help establish the context for the study and inform the design of the next stages, which are to include an initial consultation survey, depth interviews, and a follow-up survey.

The review covers two main aspects:

- Evidence on the community impacts of busy roads and of changes in traffic levels associated with major infrastructure projects, with particular reference to the impacts of the Sizewell B project.

- Methods to assess those impacts, including those found in official guidance documents for transport and environmental assessment and in academic studies.

The review builds upon our existing knowledge of the relevant issues, and supplements it with a Rapid Evidence Assessment to identify the key literature across a broad range of sectors.

The rest of the chapter is organised as follows:

- Section 2.2 describes the negative individual and social impacts of road traffic, and how the perceptions of local residents about those impacts depend on the characteristics of traffic and local built environment, socio-economic variables, length of time elapsed since the traffic increased, and mitigation measures.

- Section 2.3 reviews the impacts of the Sizewell B project, focusing on the local perceptions about road traffic before, during, and after the construction.

- Section 2.4 describes the frameworks in use in the UK and other countries for the assessment of the traffic impacts of major construction projects and for the appraisal of transport projects.

- Section 2.5 reviews methods found in the literature for the assessment of perceived impacts of road traffic.

- Section 2.6 reviews methods for the monetary valuation of those impacts.

- Section 2.7 concludes the chapter.

References are listed on Appendix A.

2.2 Impacts of Major Projects

The changes in traffic levels caused by major projects lead to a range of impacts on the wellbeing of the communities in the surrounding areas. These impacts can be felt at the individual or at the social level. However, the perceptions of local residents about these impacts depend not only on traffic levels but also on the characteristics of the traffic and of the local built environment, the demographic and socio-economic profile of the local community, the length of time elapsed since the traffic increased; and on any mitigation measures put in place.

Individual impacts

The negative impacts of road traffic on the health and well-being of individuals living in the surrounding areas is well documented. This section provides a brief review of the existing evidence on collision risk, air pollution, noise, and local mobility and accessibility.

A: Collision risk

An increase in road traffic levels often leads to an increase in collision risk for pedestrians walking along (McMahon et al. 2002) or crossing the road (Harwood et al. 2008). This is especially the case for roads that also have high traffic speeds or lack pedestrian infrastructure such as pavements or signalised pedestrian crossings (Stoker et al. 2015). Road traffic levels are also linked to collision risk for cyclists, especially on roundabouts and roads with no cycling infrastructure (Reynolds et al. 2009). The perception of busy roads as dangerous for pedestrians and cyclists may also have wider effects, such as a reduction of the propensity for walking and cycling, as will be mentioned in Section E.

B: Air pollution

Motorised traffic also creates air pollution, which is linked with several health concerns, including respiratory problems, cancer, and cardiovascular disease (WHO 2005). The people most exposed to air pollution are pedestrians, cyclists, open air workers, and people living near major roads. Air pollution also affects subjective assessments of well-being. For example, Orru et al. (2015) found that exposure to PM10 is associated with lower levels of life satisfaction, even in cases of relatively low levels of exposure.

C: Noise

Exposure to roadside noise has also been linked with health problems such as hearing loss and cardiovascular diseases (Ndrepepa and Twardella 2011). Additionally, noise has potentially wider impacts on people's wellbeing, due to annoyance caused by

continuous exposure. Ouis (2001) reviewed some of those impacts, which include stress, irritability, interference with activities and communication, loss of concentration, cognitive performance, and sleep disturbance. The impact of road traffic noise was more recently studied by Dratva et al. (2010), who found statistical associations between noise annoyance and several indicators of health-related well-being. Yamazaki et al. (2005) also found that indicators of good mental health were significantly lower for people whose bedrooms were located near an arterial road, comparing with those located near other roads or not located near any road.

There is evidence that noise annoyance changes rapidly after noise mitigation interventions or with changes in road and traffic conditions or noise mitigation interventions (Laszlo et al. 2012). The wellbeing of local residents can be affected even by changes in traffic levels that lead to relatively low noise levels. For example, Leventhall (2003) reports results of experimental studies where road traffic is reported as an annoyance even when the related noise levels are relatively low (20-35 dB(A)), especially in the case of older people.

D: Psychological effects

Exposure to large transport infrastructure or road traffic has been reported as having a number of negative psychological effects other than those related to noise annoyance, which are harder to identify and quantify. The increase of traffic leads to a loss of sense of place, as the road is seen as a mere link for the circulation of vehicles and not as a place to spend time. Road infrastructure and motorised vehicles may also intimidate pedestrians and cyclists and have a visual impact that interferes with people's perception and enjoyment of the surrounding environment. For example, Bayley et al. (2004) reported the results of focus groups where participants noted that traffic flows occlude the pedestrian's visual field and obstruct what would otherwise be open space, especially in the case of heavy goods vehicles and congested traffic conditions. Kaplan (2001) also found that busy roads interfere with the view people have from their windows, which influences their wellbeing and satisfaction with their neighbourhood.

E: Local mobility and accessibility

The risk and inconvenience in crossing and walking along busy roads reduces the propensity for walking and cycling. May et al. (1985, p.95) estimated thresholds values for traffic above which there is a possible change in walking perceptions and behaviour triggered by specific reasons. For example, hourly traffic values of 1700, 1000 and 700 lead respectively to annoyance due to delays, exposure to noise, and perceived danger. Values over 1300 and 400 leads to suppressed walking trips of adults and children due to perceived danger.

These threshold values were proposed taking into account empirical evidence on the impacts of traffic. For example, the application of the models developed by Goldschmidt (1977) relating mean pedestrian delay and traffic flows for different types of crossing facilities reveals that delays occur for hourly traffic flows above 1,700. Participants in surveys also reported noise annoyance for noise levels around 70-74

dB(A). May et al. (1985, p.93) state that these threshold values cannot be readily be converted to equivalent traffic flows, because other variables, such as traffic composition and speeds, also influence noise, but in typical urban environments, it is reasonable to assume that the values are equivalent to around 1,000 vehicles per hour. The threshold values for perceived danger are also based on empirical research, but the study does not give details on the sources of the values.

The reduction of walking and cycling leads to a reduction of physical activity and levels of accessibility to local facilities (such as shops, schools, health centres, and community centres). These two impacts contribute to the deterioration of the individuals' health and wellbeing, as confirmed in the reviews of Egan et al. (2003) and Mindell and Karlsen (2012).

While the losses of local mobility and accessibility affect mostly non-motorised means of transport, high traffic levels on arterial roads may also disrupt local bus services and cause delays to private vehicles. Rajé (2004) reports a case where the problems faced by local traffic in negotiating a busy junction with a dual carriageway have practically cut off a residential neighbourhood from the wider area.

Social impacts

The increase of road traffic may have impacts felt at the level of the whole community, such as the separation of the residential areas on opposite sides of the road (an effect known as community severance) and the social exclusion of some individuals or groups (which has consequences affecting the whole community). These impacts are briefly described below.

A: Community severance

Roads often restrict the movement of pedestrians, even when there are no physical barriers such as walls or guard railings. High traffic levels and speeds also represent a barrier because of the risk and unpleasantness of crossing to the other side. This barrier decreases the connectivity between communities on opposite sides of the road, with potential consequences in terms of social cohesion. This effect is usually known as "community severance".

Appleyard et al. (1981) studied a classical example of severance caused by busy roads in San Francisco. The study compared three streets that were similar in almost all aspects apart from the amount of traffic. Residents in the busiest road had few friends and acquaintances on the other side of the road, comparing with residents in the less busy roads.

Similar results were found in more recent studies in the UK. In Wales, Mullan (2003) found that young people living near busy roads were less likely to have positive perceptions of the safety, friendliness, appearance, and facilities of their local area. In Bristol, Hart and Parkhurst (2011) replicated Appleyard's methods and confirmed that high traffic levels reduce social contacts and that individuals' perceptions of road safety in their neighbourhood are disproportionately influenced by the traffic

conditions on their street. The study of Rajé (2004), mentioned above, also suggests that community severance may arise when local motorised traffic is blocked by the presence of large transport infrastructure.

There is evidence that community severance may arise even for relatively small traffic levels. For example, the studies of Appleyard and Lintell (1982) and Hart and Parkhurst (2011) mentioned above found a lower sense of community in streets with around 8,500 vehicles per day, compared with streets with less traffic.

The Department of Transport's Design Manual for Roads and Bridges (DfT 1993) suggests that traffic levels below 8000 vehicles per day lead to "slight severance", between 8,000-16,000 vehicles lead to "moderate severance" and above 16,000 vehicles lead to "severe severance". There are separate threshold values for changes in traffic levels, which are different for built-up and rural areas. However, these values apply only to reductions in traffic, and not to increases.

B: Social exclusion

The reduction of local accessibility by bus, walking, and cycling may also contribute or reinforce the social exclusion of some individuals, as it limits their access to employment, education, and healthcare. This is especially true for people without full mobility or access to private vehicles (SEU 2003). Social exclusion has wide negative consequences at the local, regional, and national levels, in domains such as poverty, unemployment, tax contributions, welfare, and anti-social behaviour.

Factors affecting perceptions

The individual and social impacts described above do not depend only on traffic levels but also on a range of local factors, including the characteristics of the traffic, the local built environment, the characteristics of the people, via socio-economic variables such as age, gender, and travel behaviour, the length of time elapsed since traffic increased and the effectiveness of mitigation measures such as alternative routes, road re-designs, traffic calming measures, pedestrian crossing facilities, or noise barriers.

A: Traffic characteristics

Traffic composition is an important factor, as heavy goods vehicles produce more noise and vibration, leading to higher annoyance levels for residents in surrounding streets (Paunovíc et al. 2009). Heavy vehicles also tend to be perceived as more alien to residential areas than light vehicles. On the other hand, a stated preference survey in Denmark has found that traffic composition is not a major factor determining perceptions of community severance, comparing with other factors such as the number of road lanes and traffic levels (Meltofte and Nørby 2013).

Traffic speeds are also relevant. For example, Sauter and Huettenmoser (2008) adapted Appleyard's methods to show that in streets with higher traffic speeds there is less neighbourhood interaction, use of public space, and feeling of belonging among residents. Road congestion (the combination of high traffic levels with low traffic

speeds) may be perceived as particularly annoying for some residents, due to effects on noise and problems in crossing the road. However, Smith and Gurney (1992) found in a survey in London that congestion does not increase the perception of road traffic as a barrier.

The impacts also depend on the time of day. Heavy traffic creates problems for pedestrians during the day time, but high traffic speeds produce loud noises at night-time, when it is most disruptive for local residents (Pirrera et al. 2010). A report by the WHO (2009) suggests that a night-time noise level of 40 (dB) is required to protect the public, including the most vulnerable groups. The indicators used in empirical analyses may then have an influence on the results, depending on the time period they cover. For example, Tate (1995) show that the impact of road traffic on pedestrian behaviour is different for different indicators of traffic flow and speed. It was found that people's perception of traffic flow is more closely related to the weekday average daily traffic volumes, rather than to alternative indicators such as 16-hour flows and peak hour traffic. Similarly, the perception of traffic speed was more closely related to space-mean speeds (the average speed of vehicles along a length of a road), rather than by alternative indicators such as time-mean speeds (the average speeds of vehicles past a given point on a road) and percentile values.

The impact of changes in traffic is also relative to existing conditions. People may not perceive the existing traffic levels as high or low in an absolute sense, but may instead perceive changes in those levels keenly. The review of Brown and Van Kamp (2009) concluded that when exposure to road traffic noise changes, individuals show an excess response compared to the responses predicted from steady-state exposure-response relationships. In other words, there is a *change effect* in addition to an *exposure effect*. However, the review has also concluded that there appears to be little, if any, adaptation of this excess response with time.

There is also a cumulative impact of the presence of several annoyances caused by traffic or other polluting activities. For example, Oiamo et al. (2015) found that noise and odour annoyances from traffic noise and air pollution have a combined effect on environmental and health-related quality of life.

The identification of the characteristics of the traffic responsible for the impacts felt by the local community allows for the development of solutions that reduce the impacts without limiting total daily traffic. Brown (2014) reports a case where a traffic management strategy to reduce the number of heavy good vehicles at night improved residents' reported levels of noise annoyance, by reducing the number of noisy events at night, even though noise levels remained the same.

B: Built environment

The impacts of road traffic are also specific to a certain spatial context. The disruption of local walking and bus accessibility is potentially higher in rural areas, given the limited number of different facilities that people can use. In addition, individuals in rural areas may be more aware of existing high traffic levels than those in cities. For example, Poole (2003) reports the results of surveys showing that the worst cases of

community severance in terms of people's willingness to walk and perception of quality of life were in towns and villages that straddled old, two-lane roads and not in dense urban neighbourhoods near dual-carriageways. This could be explained by the fact that the rural roads had narrow footways and no crossing facilities, while the urban dual-carriageways had been constructed in deep cuttings, with links maintained across the road at ground level.

The magnitude of the impacts also depends on how far people live from the road. The effects of air pollution and noise may be felt over a wide area, depending on the local built environment. Noise annoyance usually decreases with distance from the road (Michaud et al. 2008). This is also valid for the barrier effect of the road on pedestrian movement. For example Lassière (1976) used samples at successive 200m from a road and concluded that indicators such as familiarity with the area across the road, number of trips, and social activity in that area decrease with distance from the road, although that decrease is not linear.

C: Socio-economic variables

There are also differences in the nature and intensity of the impacts felt by different segments of the communities affected by high traffic levels. Children are particularly at risk to vehicle-pedestrian collisions and the elderly have the highest risk of mortality when involved in those collisions (Stoker et al. 2015). These two age groups are also more vulnerable to the health impacts of air pollution (Makri and Stilianakis 2008) and noise (Van Kamp and Davies 2013). The presence of motorised traffic is also responsible for the loss of children's independent mobility (Hillman et al. 1990) and for the reduction of walking levels and physical activity of the elderly, especially in rural areas (Frost et al. 2010).

Gender may also be relevant. In a study in Norway, Gundersen et al. (2013) found that women living in areas with high traffic density had significantly poorer physical health-related quality of life than women living in other areas, but there was no evidence that the same hypothesis applies to men. Dratva et al. (2010) also found that women were more likely to report high noise annoyance than men and that gender was a significant variable mediating the effect of noise annoyance in several indicators of quality of life. Women are also likely to be more affected to losses of walking mobility and public transport accessibility because they are less likely to have a driving license or to have access to a car (SEU 2003).

Travel behaviour also influences the extent to which individuals are affected by road traffic. Residents living in the affected areas but commuting daily to other areas may be less affected. People who use the road as car users may also have weaker views about the disruption caused by traffic. On the other hand, Song et al. (2007) show that higher density of roads and traffic in one's neighbourhood reinforces the negative impacts of perceived traffic stress.

D: Time

The impacts of major transport projects are not always monitored and audited, possibly because there is no systematic procedure to do so. Even where monitoring and audit is done, socio-economic impacts are rarely covered and perceptions about the impacts are not included. However, the perceptions of local communities about major transport projects or other projects with effect on the local road infrastructure depend on the length of time elapsed since their implementation. Perceptions also change before, during, and after the implementation (Brown 1985). These changes occur because over time, residents adapt to the problems created by traffic, such as noise, loss of pedestrian mobility, and psychological effects, as shown in several empirical studies.

One of the most comprehensive of these studies monitored and audited the impacts of the Sizewell B power station, including the increase of road traffic. This study is reviewed in detail in Chapter 3.

Other studies have found evidence that perceptions of road traffic change over time:

- Hamersma et al. (2013) found that planned changes to the road and traffic may lead to lower residential satisfaction even before they occur and that, in general, subjective evaluations of hindrance are better predictors of residential satisfaction than measured air and noise exposure levels.

- The study of Lassière (1976) analysed the case of community severance, and compared sites affected by roads for different lengths of time, finding that over time communities reorient themselves away from the road

- Laszlo et al. (2012) reviewed 41 studies analysing noise annoyance levels and other indicators of the influence of noise on wellbeing (such as sleep and activity disturbance and use of the living environment) before and after major changes in noise exposures. The review found that annoyance was not necessarily decreased by reducing noise exposures. In addition, non-acoustical factors (such as demographical, personal, social, and situational variables) influenced annoyance ratings.

Overall, there is no definitive evidence on the hypothesis of adaptation to increased noise levels. A meta-analysis of studies of community reaction to noise found that in 43% of the cases there was evidence of such adaptation, in another 43% evidence of the opposite (annoyance increased over time since the change) and in the remaining 14% there was no increase or decrease (Fields 1994). However, other reviews have concluded that the hypothesis of adaptation to increased noise levels has been rejected more often than not (Weinstein 1982, Brown and Van Kamp 2009).

E: Mitigation measures

The reduction of traffic levels may not always be feasible or desirable, especially in the cases where there are no alternative links for the circulation of motorised traffic and

where this traffic is vital for the accessibility of car and bus users or for freight distribution. In these cases, the impact of traffic can be mitigated by solutions such as alternative routes, road redesign, traffic calming measures, crossing facilities, and noise barriers. The attitudes of local residents towards the impacts may depend on their perception about the ease of implementing these solutions. For example, Burningham (1996) reports a case where noise was singled out as an impact in local residents' protests because it was identified as an impact to which clear solutions were available.

However, mitigation measures may also be perceived as part of the problem, and not as a solution, if they are ineffective in reducing the impact of traffic or if they create or aggravate other problems:

- The construction of bypasses has a marked effect in the reduction of pedestrian risk, as shown in the study of Elvik et al. (2001) of 20 bypass road projects in Norway. However, local communities do not always support bypass projects due to concerns about the potential negative impacts on the local economy (Mills and Fricker 2011). It is also common for projects for building bypasses to meet with protests for environmental reasons. In the 1990s, a project for a bypass of Winchester near Twyford Down attracted fierce opposition from local residents and several activist groups (Bryant 1996). Protests against bypasses have become increasingly common in recent years[2].

- Road redesign (for example, the reallocation of road space to pedestrians) and traffic calming schemes (including speed limits and engineering measures) have a positive effect on pedestrian safety, local accessibility, and physical health but can also be unpopular among local residents due to the effects on vehicle flow. Furthermore, these measures may not have a significant impact in terms of mental health of local residents (Morrison et al. 2004), as they do not necessarily reduce traffic volumes.

- The construction or improvement of crossing facilities reduces the barrier effect of roads. However, crossings that are not at-grade (like footbridges and underpasses) tend to be universally disliked, due to the effort required to use them and issues of personal security. Crossing facilities that are perceived as dangerous and unpleasant may aggravate, instead of mitigate, the barrier effect of the road (James et al. 2005).

- Noise barriers may also limit the movement of pedestrians and cause visual intrusion. The attitudes of local residents often change before and after the construction of the barriers, as people tend to quickly forget the previous noise levels and become dissatisfied with the visual impact and loss of sunlight (Arenas 2008). This negative perception about noise barriers is particularly prevalent among people living farther than the first or second row of houses away from the barrier (Herman et al. 1997). While more aesthetically pleasant barriers can

[2] *Road protests return: a new generation takes on the bypass builders*, Guardian, 12 January 2013, http://www.theguardian.com/environment/2013/jan/12/combe-haven-green-protesters-trees

mitigate the negative perceptions, some studies have also found an inverse correlation between aesthetics and perception of how a noise barrier would perform (Joynt and Kang 2010).

Summary

There is extensive empirical evidence on the negative impacts of high road traffic levels and changes in those levels on the health and wellbeing of individuals living in the surrounding areas. These impacts are explained by the cumulative effects of exposure to traffic, noise, and air pollution, the reduction in accessibility, and the psychological impacts associated with fear and intimidation caused by traffic. Road traffic may also affect community cohesion and contribute to the social exclusion of some individuals from the community.

However, the relationship between traffic levels and wellbeing is mediated by several variables, including the characteristics of traffic, the local built environment, the demographic and socio-economic profile of the population, the time elapsed since the traffic increased, and the effectiveness of mitigation measures.

The following chapter describes how some of these variables affected the perceptions of local residents to the traffic associated with the Sizewell B project.

2.3 Impacts of Sizewell B

The assessment of the impacts of Sizewell C can benefit from the results of assessments of similar projects, particularly of the Sizewell B project, which led to increased traffic levels in the same region in the period 1987-1995. The Central Electricity Generating Board (CEGB) (later National Power and then Nuclear Energy/British Energy) supported studies by Oxford Polytechnic for predicting, monitoring, and auditing the impacts of the Sizewell B project. This chapter compares the perceptions of local residents about road traffic before, during, and after the construction of Sizewell B, using information from these studies and from other sources. The divergence between objectively measured and perceived impacts is also analysed.

Perceptions before construction

This section reviews the available information on the perceptions of local residents about the expected increase of road traffic associated with the construction of Sizewell B, as reported during the public inquiry about the project and in an initial survey conducted by Oxford Polytechnic.

A: Controversy regarding traffic figures and route alternatives

The 2-year public inquiry about Sizewell B considered the effects of the increase of road traffic, such as noise, vibration, and visual impacts, but these effects represent a very small proportion of the inquiry documentation (DoE 1987). The assessment of

socio-economic impacts used evidence from a report by the Oxford Polytechnic Power Station Impacts Research Team (1982), but some of the predictions were contested by the local parish councils. Estimates of the traffic volume were made by both the CEGB and Suffolk County Council, but the former conceded during the inquiry that the latter's estimates were more accurate (Chadwick and Glasson 1999, p.816).

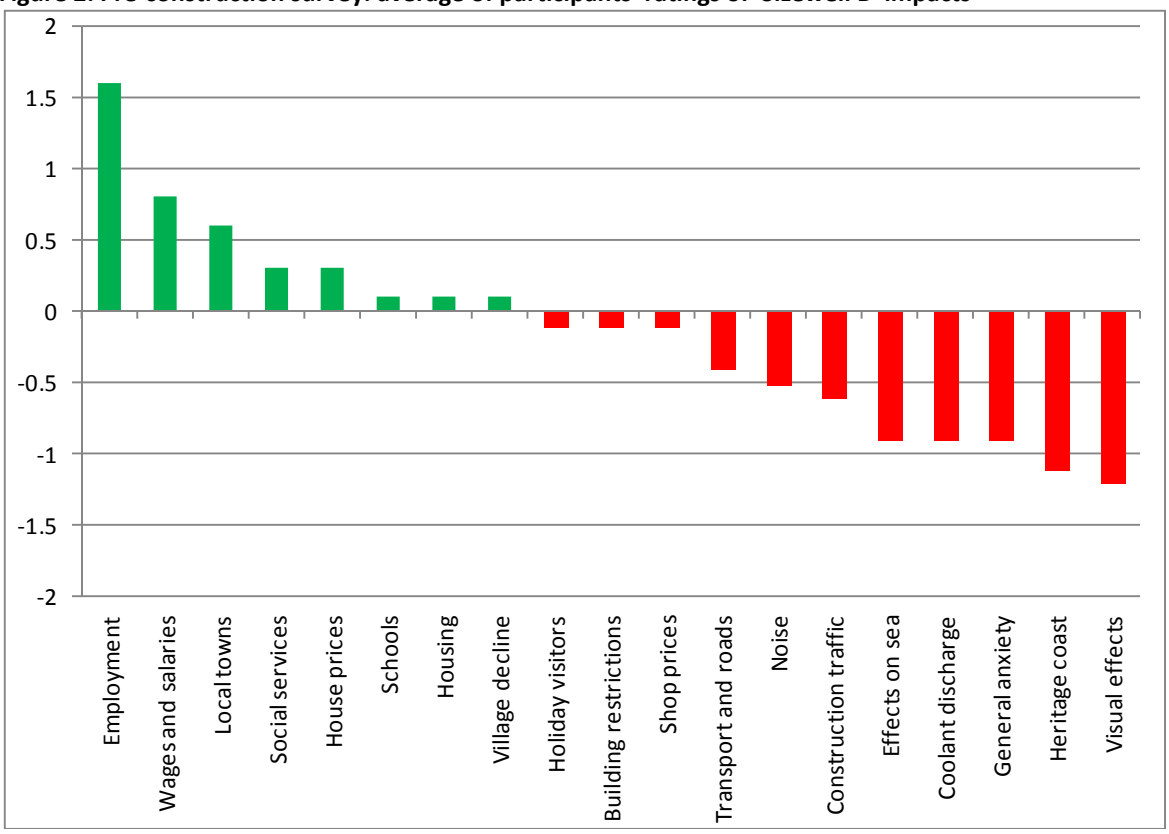
Further evidence that road traffic was a contentious issue even at this early stage is given by O'Riordan et al. (1988) who reports opposition regarding a proposed new access road to Sizewell B by local pressure groups and grievances aired by local residents at public meetings regarding the traffic noise and general disturbance the road would cause.

B: Surveys

An initial survey conducted by Oxford Polytechnic in 1986 gives an indication of the local residents' perceptions prior to the beginning of construction. The 250 participants were asked to rate their opinion about 19 possible impacts of the power station on a scale from -3 to +3.

Figure 2 shows the results of this survey. The impacts are ordered from left to right in descending order of their average rating across all respondents. The perceived impacts on environmental issues were clearly negative, including construction traffic (-0.6) and noise (-0.5). The impact on transport and roads was also perceived as negative (-0.4), despite the fact that several road improvements were planned in order to accommodate the construction traffic. Glasson et al. (1989, p.152) suggests that in light of the responses to surveys after the construction started, residents seem to have underestimated the extent of the impact. However, this conclusion should be approached with caution as the samples used in the pre- and post- construction surveys were different and the responses may reflect the fact that the increase in traffic levels was higher than predicted, as will be shown in Section 3.3.

Figure 2: Pre-construction survey: average of participants' ratings of 'Sizewell B' impacts



Source: the authors, using data from Glasson et al. (1989)

Perceptions during and after construction

The Oxford Polytechnic carried out an 8-year research programme (1989-1997) to monitor the impacts of the construction project, assess the perceptions of the local community, and propose solutions to mitigate the negative impacts. Road traffic was one of the impacts considered, and was analysed in term of the increase of traffic flows and perceptions of local residents about that increase. These perceptions were assessed using surveys and analysing complaints to the site management and stories in the local press.

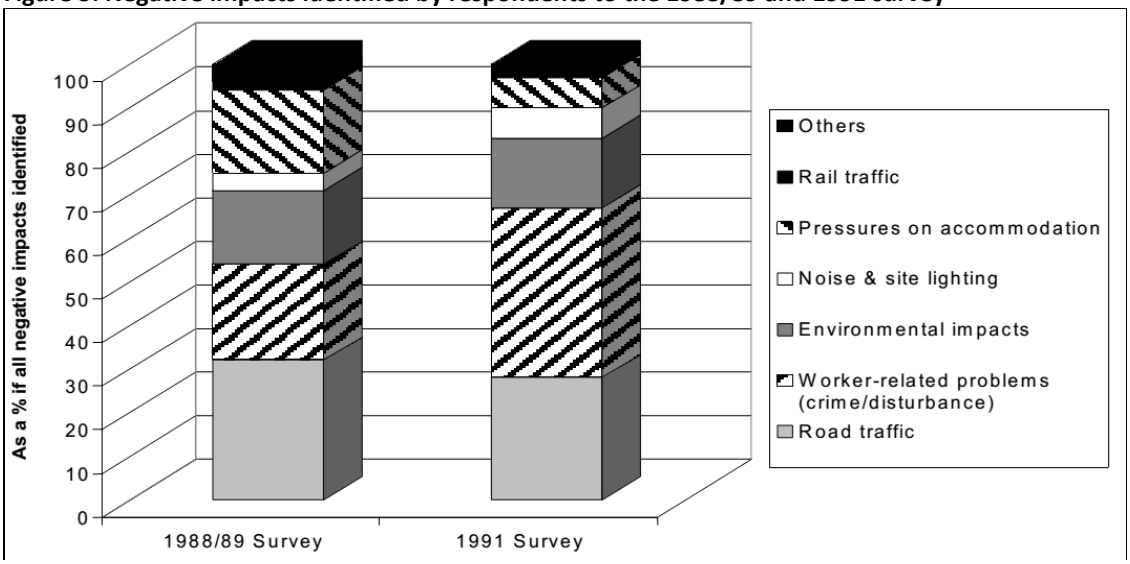
A: Surveys

Surveys were conducted every two years and were carried out by distributing questionnaires to the parents of children attending a local school. The sample size of these surveys was around 250 participants. Participants were asked to list positive and negative impacts of construction and to suggest ways of reducing or compensating for negative impacts.

Road and traffic issues were seen as the main negative impact in the early years of the project. This impact included concerns about traffic safety and speed, routeing of HGVs and personnel vehicles, number of lorries and times of transport, traffic noise, side-effects of road improvements, and the way that the issue of constructing an alternative road was handled.

Figure 3 shows the proportion of each type of negative impact identified in the first two surveys (1988/9 and 1991). Road traffic was the main negative issue in the first survey, identified by 31% of the participants. Road traffic also comprised about 20% of all impacts, positive and negative (not shown in the figure). The proportion of road traffic in the negative impacts decreased slightly in 1991. In that year, the behaviour of the workforce was the main issue.

Figure 3: Negative impacts identified by respondents to the 1988/89 and 1991 survey



Source: Glasson et al. (1995)

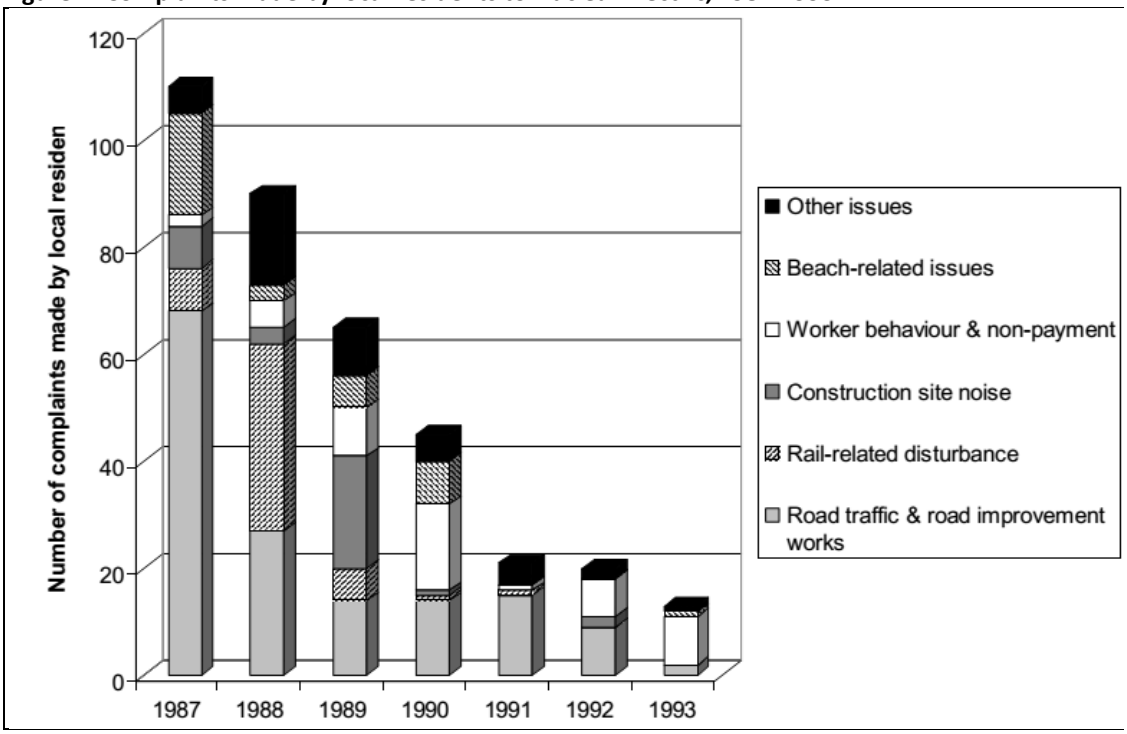
Participants were also asked to suggest means of mitigating and compensating for the negative impacts felt by the local community. The construction of an alternative road was seen by many as a mitigation (25%) and compensation (7%) measure. Other transport-related mitigation measures mentioned include building bypasses, encouraging workers to take the same route as that designated for construction traffic, monitoring and enforcing the use of the designated road, restrictions on the times during which lorries can travel, restricting speed limits, improving the standards of existing roads, providing free parking, improving public transport, and transporting more material by rail or ship (Glasson et al. 1989, p. 172).

B: Complaints

The complaints made to the site management identify negative impacts that local residents feel strongly enough to complain about. Between 1987 and 1993, Nuclear Electric received over 350 telephone complaints from local residents. Over 40% of these complaints related to road traffic. In the first year of the project, the proportion was 58% but in the second year only 33% (Glasson et al. 1989, p.189). The number of complaints decreased substantially over time, as is clear from Figure 4 below. Most of the decrease was due to the decrease in complaints about road traffic. Complaints about traffic more than halved in the second year of the project (1988). Since that year, the main issues residents complained about were rail-related disturbance, then construction site noise, and finally worker behaviour. By 1993, the number of complaints about road traffic was residual. The study does not explain the reasons for the continual fall in the number of complaints but suggests that it may reflect the

better management of the impacts of the project over time or instead an acceptance of the inevitability of the project and an adjustment to its impacts by the community (Glasson et al. 1995, p.224).

Figure 4: Complaints made by local residents to Nuclear Electric, 1987-1993



Source: Glasson et al. *(1995)*

C: Press coverage

Press coverage can influence local views about the project. The study monitored this coverage by doing an annual analysis of all local newspaper articles and letters about the project, identifying how strongly local residents feel about the project. Indicators of "favourability of press coverage" were constructed based on the area occupied by articles about the project in the printed newspaper. The indicator for a given topic was the difference between the area of favourable and unfavourable articles, as a proportion of the total area of articles on that topic.

In the first few years of the project, road traffic received a particularly unfavourable press, accounting for 25% of all coverage (more than any other issue) and having a favourability index of -0.4 (lower only than issues about rail and workers' housing) (Glasson et al. 1989, p. 184). The construction of an alternative road for the construction traffic was the issue most often reported. Over time, there was a shift in the issues receiving bad press: workforce behaviour, pressure on local services and in later stages, safety issues related to the operation of the power station and the effects of construction rundown on the local economy (Glasson 2005).

Measured impacts vs. perceptions

The previous sections suggest that the impact of traffic decreased over the years. However, this did not occur because traffic levels were lower than expected. This is

clear from Table 1, which compares the predicted and actual impacts of the project. The total number of vehicles was slightly higher and the number of HGVs was much higher than the predicted values. The lower relevance of road traffic in local residents' concerns must then be explained either by their adaptation to that traffic or by the characteristics of the traffic, compared with those expected prior to the start of the construction project. For example, as shown in Table 1, personnel traffic did not take place at unsocial hours, as planned (because the proposed policy of using double day shifts was not carried out).

Table 1: Actual and predicted traffic impacts of the Sizewell B construction project

Impact	Predicted	Actual
Average daily number of vehicles travelling to and from site (personnel traffic only)	1280	Precise number not known, but probably <1900
Timing of personnel vehicle journeys	Three daily peaks, two at unsocial hours (5-6am and 12pm-1am)	Two daily peaks, neither at unsocial hours
Average daily number of goods vehicle movements to and from site (average for two peak years)	220	c.450
Average daily number of HGV movements to and from site (average for two peak years)	c.130	c.220
Settlement on construction haul route most directly affected by increased traffic during construction	Theberton	Theberton (largest absolute and relative increase in traffic volumes)
Average daily traffic flow on B1122 at Theberton		
in average year	3735	3900 (in 1989)
In peak year	5520	5640 (in 1992)
Average daily HGV flow on B1122 at Theberton		
in average year	270	c.210 (in 1989)
In peak year	430	c.380 (in 1992)

Source: adapted from Chadwick and Glasson (1999)

Other information collected by Glasson et al. (1989) further confirms that the perceived impacts of traffic did not always correspond to objectively measured variables. Residents often complained that Sizewell B traffic did not stay on the designated routes (p.112). However, traffic levels increased by 32-122% between 1986 and 1988 in counting points along the designated route but only by 13-24% in points not along the route. Residents also complained of speeding lorries and dangerous driving, but this was not confirmed by speed checks (p.114). On the other hand, 17 of the 69 households in the area where noise levels were expected to rise the most did not take up the offer of the CEGB for installing double glazing windows (p.121), suggesting that the local perceptions about noise were not directly related to noise levels (although some households may have rejected the offer for reasons unrelated to perceptions of noise, such as the visual impact of the windows).

Summary

The results of the Sizewell B assessment provide useful information for the study of the Sizewell C project. The reduction in the proportion of survey participants identifying road traffic as a negative impact of the project and in the number of complaints and stories in the local press may suggest that the local community adjusted or resigned itself to the impact of traffic associated with the construction project. However, the changes in perceptions did not always follow changes in objective indicators.

The design of the Sizewell C study should take into account the limitations of the Sizewell B surveys. The authors of these surveys point out that "care should be taken not to use the survey results as more than an indication of how limited and perhaps unrepresentative sectors of the local population perceive the impacts of Sizewell 'B' construction" (Glasson et al. (1989, p.125). As the participants were parents of school children, the population over 50 was underrepresented in the sample. In addition, the surveys were done in Leiston, but the settlement with the highest increase in traffic levels was in Theberton. It is also difficult to disentangle the impacts that were due to the construction project itself, from those due to other local changes, because there was no control group.

2.4 Appraisal Frameworks

The effects of road traffic associated with Sizewell C are proposed to be assessed by EDF Energy (2014, par. 6.3.25) using the different frameworks currently in use in the UK:

- The Department of Transport's transport appraisal guidance (WebTAG), which applies to the impacts of new transport infrastructure and of major changes to existing infrastructure, including interventions that cause increases in traffic levels.

- The Design Manual for Roads and Bridges, also published by the Department for Transport, includes a framework for the assessment of community effects, which should be consistent with WebTAG, but is updated less frequently so there is scope for discrepancy (DfT 1993).

- The Guidelines for the Environmental Assessment of Road Traffic (IEA 1993), published by the former Institute of Environmental Assessment, which applies to the traffic impacts of construction projects.

These documents outline the relevant impacts of road traffic on local communities and suggest methods to measure or to classify the magnitude of each impact. However, in all cases, the assessment of the most subjective impacts relies on qualitative scales which are based on the judgement of the assessors and not on the perceptions of local residents. This chapter describes the two frameworks in some detail and briefly reviews the approaches in use in other countries, with particular relevance to the methods that address the limitations of those two frameworks.

Assessment of transport projects: WebTAG/DMRB

WebTAG is the Department for Transport's framework for appraising transport projects. This framework allows for a reasonably comprehensive assessment of the social and environmental impacts of changes in road traffic and their distribution across different groups.

The WebTAG guidance on the appraisal of the social impacts of transport projects is included in TAG Unit A4.1 (DfT 2014a), which describes methods for the assessment of accidents, physical activity, security, severance, journey quality, option and non-use values, accessibility, and affordability. There is a separate unit about methods for assessing the distribution of these impacts (DfT 2014b). These methods are based on the identification of the impacts falling on vulnerable groups such as low income households, children, young adults, older people, individuals with a disability, ethnic minorities, households without access to a car, and households with dependent children.

WebTAG is updated regularly but some of the methods proposed are based on older documents such as the Design Manual for Roads and Bridges (DfT 1993), which presents detailed information on the assessment of some of the impacts of transport projects. This is, for example, the case in the calculation of changes to trip length at the local level resultant from the project, and the classification of community severance according to traffic levels and disruption of walking routes.

The methods suggested by WebTAG have some limitations for the study of community impacts of projects that increase road traffic levels in residential areas, as follows:

- The focus is on observable, tangible effects and not on the perceptions and averting behaviour of individuals affected by the project. For example, the assessment of accidents does not take into account people's perception of risk, and the resulting effects in terms of suppressed walking or cycling trips. The assessment of noise also does not consider the potential effect on the reduction of indoor or outdoor activities. However, as explained in Chapter 2, perceptions can diverge from objectively measured impacts. In addition, different groups perceive and experience the various impacts in different ways.

- There is no recommendation on how to assess an individual's priorities regarding the level of each impact and the possible methods to mitigate those impacts in each particular case.

- It is recommended that some impacts are assessed and presented qualitatively only. For example, the assessment of community severance involves the collection of data on traffic levels and on the total number of people affected but there is no guidance on how to quantify the magnitude of the effect. Ultimately, the assessment relies on qualitative scales that tend to be subjective. The approach to assess security also considers data on several elements of the built environment

but does not suggest a method to measure and combine that data into quantitative scales.

- The analysis considers each impact separately, which may lead to double counting due to overlap in the methods to assess different impacts. For example, losses in accessibility and reduction of walking are considered as separate impacts but they are also effects of community severance, which is another impact. There is also overlap between methods to assess social and environmental impacts. For example, noise, air quality, and impacts on landscape and townscape are treated as environmental impacts, although they are also factors contributing to community severance and to the deterioration of walking mobility for residents in the affected area. In addition to the problem of double counting, the treatment of each impact separately also fails to account for the cumulative impact of several effects, which, as mentioned in Section 2.3 A, is an important factor determining the perceptions of individuals about road traffic.

- The impacts are not disaggregated for all groups. For example, the analysis of noise and air pollution considers only the different income groups, children, and young people, although as mentioned in Section 2.3 C, older people are particularly vulnerable to the negative impacts of noise exposure. The analysis of the distribution of accidents, severance, and accessibility also do not consider differences between income groups. Gender is not considered, despite being an important variable determining the magnitude of the impacts felt and perceived by different individuals.

- The analysis of distribution impacts relies on census data, at the lower layer super output area (LSOA). In most cases, these areas are too big for the assessment of effects such as noise and air pollution, which are highly variable within each LSOA. Residents living along the road are more affected than those living in the second and third row of buildings away from the road, even though they are in the same LSOA.

Overall, the WebTAG approach provides useful information about a range of different impacts of road traffic and its distribution within the affected community. The limitations pointed out above can be addressed by supplementing the assessment with methods available in the academic literature, which are reviewed in the next chapter. As will be shown, methods such as the analysis of survey data using multivariate statistics, and stated preference studies, provide information about how individuals perceive the relationships between the different impacts and how they prioritise those impacts. The methods used in that literature to capture perceptions can also be tailored to address the other limitations of WebTAG, for example, by disaggregating the analysis for all relevant groups and by using a detailed unit of analysis, accounting for variations within the study area.

Assessment of traffic impacts of construction projects

The WebTAG/DMRB framework can be supplemented by reference to the Guidelines for the Environmental Assessment of Road Traffic associated with major construction

projects (IEA 1993). This section reviews those Guidelines and gives some examples on how they have been used in impact assessment studies of power stations and similar projects.

A: IEA Guidelines

In the UK an assessment of the environmental impacts of projects that lead to increases to road traffic tends to refer to the Guidelines for the Environmental Assessment of Road Traffic (IEA 1993) despite their age and 'unofficial' provenance. The document applies specifically to the impacts of non-transport projects on road traffic. The impacts of new or improved transport infrastructure are covered by other guidance documents (described in the next chapter). The list of impacts considered is as follows:

- Noise
- Vibration
- Driver severance and delay
- Pedestrian severance and delay
- Pedestrian amenity, including fear and intimidation
- Accidents and safety
- Hazardous and dangerous loads
- Dust and dirt

The document states that the traffic impacts associated with a project should be assessed when the total traffic flows or heavy vehicle flows are expected to increase by more than 30% or when these flows increase by 10% in sensitive areas. It is assumed that these are the values above which individuals perceive changes in traffic levels, rather than having been empirically tested.

It is recommended that the assessment identifies particular groups affected by the changes in traffic conditions, such as pedestrians, cyclists, people at home or in work places, sensitive groups (children, elderly, and disabled) and particular locations such as hospitals, schools, and recreational and conservation areas. The assessment should also describe the impacts across the lifespan of the project and identify the worst environmental impacts that might reasonably be expected and how frequently they are likely to occur.

The input data comes from the application of methods outlined in a variety of other documents, including the Manual of Environmental Appraisal (DOT 1983). However, there is no guidance on how to use this data for assessing each impact, which should be classified into two categories: "significant" and "not significant" for the affected population. Instead, the document states that there are no simple rules or formulae that define thresholds of significance for each impact. The recommendation is to use proxies or ad-hoc solutions for the assessment of the most subjective impacts. For example:

- In the case of fear and intimidation, it is assumed that the relevant traffic thresholds are the ones applicable to pedestrian safety.

- In the case of pedestrian amenity, changes in traffic flow are judged significant if the traffic flow, or its lorry component, is halved or doubled.
- In the case of vibration, road accidents, air pollution, and hazardous loads, the recommendation is to seek expert advice in each particular case.
- In the case of visual impacts and the effects of dust and dirt, the suggestion is that the impacts are only described, not quantified or classified.

In conclusion, the IEA Guidelines rely on the interpretation and judgement on the part of the assessor, backed up by quantitative data wherever possible. However, there is no recommendation for the use of input from the affected communities. Ultimately, the assessments are based either on objective data or on the opinions of the assessor. However, some of the methods available in the academic literature, which are described in Chapter 5, provide information on local perceptions that complements the objective and expert-base information provided by the IEA assessment.

It should be recognised that WebTAG provides for a more comprehensive framework for the assessment of the social and environmental impacts of changes in road traffic and their distribution across different groups compared with the IEA approach, as it considers impacts such as accessibility and physical activity, and includes methods for assessing the distribution of the impacts across different groups. The methods suggested by WebTAG are also more detailed and in most cases, based on more recent evidence than the ones in the IEA approach (dating from 1993), as its documentation is updated regularly.

B: Impact assessment studies

The Guidelines described above are still applied in the assessment of the traffic impacts of major projects, despite being more than 20 years old. This section is a brief review on how the guidelines have been used recently in the case of power stations and other similar projects. In this case, traffic assessment usually forms a relatively small part of a larger environmental statement. The assessment typically includes the following items:

- a review of existing conditions (road traffic, pedestrian and cyclist flows, public transport, and accident record).
- estimates for the construction traffic levels at different times of the day throughout the lifespan of the project.
- possible impacts on local residents and local road users.
- proposed mitigation measures.

In most cases, the set of impacts considered is the one suggested by the IEA Guidelines. However, the more subjective impacts, such as fear and intimidation for pedestrians, are not always included. In some cases, the forecasted impacts are described briefly (HMA 2010, Parsons Brinckerhoff 2012). In other cases, the impacts are classified into qualitative scales (for example: “insignificant”, “slight”, “moderate” and “major”). The classification is based on threshold values for the traffic flows (SKM 2009, Land Use Consultants 2011) or on the analysis of existing and/or future conditions, which is based on the statistical analysis of accident data or on models of

pedestrian delays, air pollution, and noise (TEP 2013, WTD 2014). These analyses and models use techniques that are much more sophisticated than the ones proposed in the IEA Guidelines. The selection of the range of impacts assessed and the priority attached to the analysis of each impact depends in most cases on input from the local community. However, the assessment itself is not based on surveys of community perceptions. The studies are also limited by their reliance on traffic flow data, which may not always be the best indicator of the perceived impacts of the road, since these impacts also depend on the factors outlined in Section 2.3 of this review.

Alternative frameworks

The limitations identified within the WebTAG/DMRB and IEA approaches also apply to official guidance documents for transport appraisal in other countries. Reviews of these documents show that in many countries impacts such as accidents, noise, air pollution, severance, and visual intrusion are similarly not quantified (see for example Odgaard et al. 2005 and Mackie and Worsley 2013). In the few cases where these impacts are quantified, they fail to consider the perceptions of the affected population. The sole exception is for the case of noise impacts, which are usually split onto health-related costs and annoyance (Odgaard et al. 2005, p.53).

Some countries have methods for transport appraisal that do integrate input from the affected communities, such as the Community Impact Assessment in the USA and the Citizen Values Assessment in the Netherlands. The use of these methods is not required for all projects with major environmental or social impacts in these countries. However, in the cases where they have been applied, they provided very detailed information about the community impacts of transport projects as perceived by the population, supplementing other methods of assessment based on objective information about those impacts.

Instead of focusing on the characteristics of the project and assessing its various impacts separately, as is the case in most official guidance for transport appraisal, the "community impact assessment" framework proposed by the US Department of Transport (US DOT 1996) starts with a delimitation and characterisation of the affected community, and proceeds to include all impacts of importance to that community and possible solutions to those problems. The set of potential impacts includes physical aspects (noise, vibration, dust, odour, and the barrier effect) and social and psychological aspects (community cohesion and interaction, isolation, social values, and quality of life). This approach has been mostly applied in the assessment of alternative solutions for major transport projects such as new roads (see for example PBSJ 2009 and Matanuska Susitna Borough 2014).

Community impact assessment does not rely on standards or criteria for identifying and measuring the potential impacts, but on the judgement of each particular case based on input from the community. In particular, the analysis considers how the impacts are interrelated and how they are distributed among different groups within the affected community. The methods for collecting data vary, but some transport authorities provide guidelines about interview and survey questions to local residents. For example, the California Department of Transportation (Caltrans 2011, p. 117-121)

suggests the inclusion of questions where participants rate the importance of different types of traffic impacts and how they believe the project will affect the neighbourhood.

The Citizen Values Assessment developed by the Netherlands Ministry of Transport, Public Works and Water Management provides another alternative to the WebTAG methods. The method involves the construction of a "citizen values profile" where issues are ranked in order of importance for the community. The values are then translated into evaluation criteria, which are scored for each of the alternatives for a project (Stolp et al. 2002). Despite its potential, there is limited evidence of the tool being applied in a systematic way for assessing major transport projects in the Netherlands.

Summary

Two alternative frameworks, IEA and WebTag/DMRB may be applied in the assessment of the road traffic associated with Sizewell C. The IEA's Guidelines for the Environmental Assessment of Road Traffic (IEA 1993) provide guidance on how to assess road traffic impacts of major projects. WebTAG provides guidance on how to assess transport projects. Both documents provide useful information about the range of impacts that the assessment should look at, and propose methods to quantify or classify the majority of these impacts. However, the assessment of the most subjective impacts relies on qualitative scales which are based on the judgement of the assessors and not on the perceptions of local residents.

This limitation is also found in official guidance documents for transport appraisal in other countries. However, alternative approaches used in other countries, such as the Community Impact Assessment in the USA, do include input from the communities. The methods described in next chapter, found in the academic literature, can also supplement the IEA and WebTAG methods, by providing information about how individuals perceive relationships between the different impacts and how they prioritise those impacts.

2.5 Perceptions

This section reviews methods to quantify the perceptions of local residents about the impacts of road traffic in their neighbourhoods. These methods provide information that supplement the information given by the appraisal frameworks reviewed in the previous chapter. As mentioned, these frameworks rely on quantitative indicators of physical impacts and assess subjective impacts using qualitative information that is based on the judgement of the assessor. In contrast, some academic studies have assessed these subjective impacts based on the perceptions of local residents. The methods used include, for example, questionnaires that focus on how traffic affects people's quality of life and behaviour. In some cases, the questionnaires are supplemented with methods based on visual inputs or outputs. As the questionnaires tend to produce a large amount of variables, the use of multivariate statistical methods has proved to be particularly useful.

Questionnaires

There is a growing academic literature on the subjective effects of roads and traffic on the wellbeing of residents in surrounding areas. Most of this literature relies on questionnaires relating objective measures of the impacts with personal assessments of quality of life. Other studies have focused on the effects of traffic on people's behaviour and on their proposed solutions to mitigate those effects.

A: Quality of life

The most common approach to estimate the community impacts of busy roads has been to relate measured data road-related problems with data from surveys measuring perceived health and wellbeing among residents affected by different levels of those problems. These surveys use in many cases standard questionnaires such as 'SF-12' and 'SF-36', which include respectively 12 and 36 indicators in domains such as physical, emotional, and social functioning, bodily pain, vitality, and mental health. This approach has been used to study the overall impact of living close to busy roads (Yamazaki et al. 2005, Gundersen et al. 2013) and of being exposed to roadside noise (Dratva et al. 2010, Oiamo et al. 2015).

The main limitation of this method is that it can only be applied to study the impact of existing traffic levels, and not to predict the impact of future changes. However, the method can be applied in the same study area at several points in time, in order to monitor the effects of changes in traffic.

B: Averting behaviour

The impact on the wellbeing of local residents can also be assessed by measuring the extent to which road traffic forces people to change their behaviour:

- In the case of exposure to noise and air pollution, the potential changes in behaviour include keeping windows shut, avoiding use of some parts of the house, or stopping participation in outdoor activities.

- In the case of pedestrian safety, the potential changes are avoiding walking to certain places or using certain routes at certain times. These changes can be assessed using questionnaires asking people's hypothetical reactions to certain traffic scenarios. For example, the study of Tate (1995) included a question asking parents whether they allowed their children to walk to school unsupervised and whether they would change their decision for a range of crossing facilities and reductions in traffic volumes and speeds.

- In the case of community severance, surveys should focus on whether local residents avoid walking or crossing busy roads and whether they have fewer social contacts on the opposite side than on their side of the road. The Street Mobility project at University College London is currently developing a survey including these questions (Boniface et al. 2015).

C: Solutions

The methods described in the two previous sections can be adapted to study people's perceptions about the effectiveness of existing or proposed solutions to mitigate the negative impacts of traffic. However, surveys of local residents can also gather information about their preferred solutions. The results may suggest that minor changes to road design and pedestrian infrastructure are more effective for reducing the impact of busy roads than solutions that restrict traffic flows. For example, the Traffic's Human Toll study (Transportation Alternatives 2006) asked 592 residents living in different types of street in New York about their predictions regarding future traffic-related issues and their recommendations for dealing with these issues. The study found the measure residents believed would be more effective for improving quality of life in heavy-traffic streets was to repair sidewalks, not to cut down cars or lower speed limit.

Visual methods

Methods using visual inputs to elicit participants' responses or that produce visual outputs may be particularly useful for the assessment of residents' views about future changes in road traffic.

A: As input

Surveys can include visual material to elicit responses from participants about their perceived impacts of traffic. For example:

- Montel et al. (2013) designed a survey where participants were shown photographs of roads in different locations and asked about their perceptions of pleasantness and safety, decision to cross the road or not, and elements taken into account to take that decision. The study found that participants justified their decision based on perceived traffic volume and speed, which were inferred from features of the built environment such as road design and pedestrian infrastructure. This method could be applied, using simulated images, to assess reactions to future changes in road traffic in a given road, and how these reactions depend on parallel changes in the road infrastructure.

- Hine (1996) showed participants recordings of different traffic conditions in the same street environment to investigate their effect on suppressed trips. The set of traffic conditions shown covered different combinations of traffic flows and congestion levels in each direction. This method can be applied to study changes in traffic in a given road if the different traffic conditions shown to participants are understood as the result of different strategies for reducing traffic levels.

B: As output

Surveys can also produce visual outputs that illustrate certain impacts in a more meaningful way than statistics calculated across all participants. This is especially

useful in the study of effects on pedestrian safety, exposure to noise, and community severance. For example, surveys can include exercises asking local residents to draw the area that they consider to be their neighbourhood, the areas they like and dislike, and their usual walking destinations and routes. Spatial analysis can then be used to search for patterns in the relationship between the location of those areas and routes and the location of busy roads. This approach gives information about the existing impact of traffic on people's mobility and social life, and can be adapted to analyse the potential impact of future changes in traffic levels. The studies of Appleyard et al. (1981) and Lassière (1976) used versions of this method to analyse the impact of busy roads.

Multivariate statistics

The methods reviewed in the previous two sections focused on specific impacts of road traffic. However, surveys can also be used to quantify people's priorities regarding the different impacts. The output of these surveys is a series of variables which are often interrelated. The interrelationships can be modelled using multivariate statistical techniques such as principal component analysis, factor analysis, and multiple correspondence analysis. These techniques identify consistent patterns in the types of impacts perceived by the local residents. The literature provides several examples of this approach:

- The study of Mouette and Waisman (2004) in Brazil assumed that the effects of community severance form a hierarchical chain, where the effects at each level create conditions for the occurrence of effects at the next level. The analysis considered five levels: causes of severance (traffic level, speed and composition, and presence of parked cars), direct impacts (ease of crossing the road, safety and delay), impact on trip patterns (number of total trips and independent trips, modal choice), impact on behaviour (participation in activities, walking locally and route choice), and impact on social relationships (number of local acquaintances and perceptions about the neighbourhood). This method can be extended by adding impacts felt at home (such as noise annoyance), to generate a more comprehensive structure of the community impacts of road traffic.

- Hopkinson and Pearman (1988) compared the factors that contribute to people's prior evaluation of a road project and of their actual experience of the project. In both pre- and post-construction studies, the approach involves a prior qualitative stage to determine the relevant factors. In the empirical application reported in the paper, these factors were split into physical (changes in the physical environment) and social (e.g. personal beliefs about the project and sources of information). The next stage is a survey where participants are asked to rate and rank their perceptions about each of the factors. The relationships between the different factors and between the factors and overall reported annoyance levels are then measured by correlation analysis. Early morning noise was the factor more inter-related with others, with high correlations with evening noise, smell/fumes, sleep disturbance, and interference with TV watching. The highest correlations between reported annoyance levels and component factor were found for early evening

noise, concern about children's safety, sleep disturbance, and lack of support for the project.

- Kaplan (2001) used factor analysis to synthesize several variables affecting people's satisfaction with the physical and social aspects of their community. This method can be used for identifying impacts of traffic that tend to produce similar perceived impacts on people's wellbeing.

Summary

A growing number of academic studies have analysed the subjective impacts of traffic on the wellbeing of individuals living in surrounding areas. These impacts can be measured through questionnaires about quality of life or responses to traffic-related problems such as noise, air pollution, pedestrian risk and community severance. Visual information can be useful either as input to elicit responses from participants in the surveys, or as one of the outputs of those surveys (for example, as maps of perceived neighbourhood or usual walking destinations and routes). As questionnaires about the impacts of traffic tend to produce a large amount of variables, the use of multivariate statistical methods such as principal component analysis, factor analysis, and multiple correspondence analysis are particularly useful, in order to synthesize the information that is collected.

These methods are a useful complement to the methods contained in the official guidance documents described in Chapter 4 because they have the potential for assessing people's perceptions and priorities over several interrelated impacts.

2.6 Relative Priorities

This section reviews methods to estimate the relative priorities that local residents place to different impacts of road traffic. These methods provide information that can be included in the appraisal of new road transport projects or other projects that change traffic levels on existing roads. If the methods include variables measured in monetary terms, it is also possible to derive indicators of the economic cost of the impacts, which can be useful to inform the decision on whether the project should be implemented or not, and provides an estimate of the benefits of mitigating solutions (such as alternative routes, traffic mitigation, or provision of pedestrian crossing facilities) and of the value of potential compensation of the affected population.

Stated preference

Stated preference surveys are an often-used method to estimate the benefits and costs of projects taking in to account the preferences of the users of the project or of the people affected by its positive and negative impacts. Choice modelling is a stated preference method that allows for the estimation of preferences regarding several attributes related to the project. In this case, the surveys ask people's choices among hypothetical alternatives, defined by the levels taken by each of the included

attributes. The willingness to trade-off marginal changes in each attribute can then be derived from the estimated models, if desired.

Table 2 gives an overview of the attributes included in stated preference studies relevant to the study of the community impacts of roads and traffic, which are described in more detail in the following sections.

Table 2: Stated preference studies estimating community impacts of roads and traffic

Study	Attributes
Caulfield and O'Mahony (2007)	Reduction in noise/air pollution, environmental tax
Willis and Garrod (1999)	Number of days/year with noise disturbance from site traffic and blasting, number of days/year with dust and mud on surrounding roads, number of trains/day, council tax
Grisolía and Lopez (2015)	Bury the road, type of land use and facilities on surface, council tax
Cantillo et al. (2015)	Traffic flow, crossing delay, additional walking distance to signalised crossings and to footbridges, travelling with minor
Meltofte and Nørby (2013)	Traffic volume, speed, and composition, number of lanes, distance to crossing facility,
Hensher et al. (2011)	Number of lanes to cross, speed limit, crossing type, walking time for entire trip, deaths/year, injuries/year, council rate/house rent
Kelly et al. (2011)	Traffic volume, traffic speed, detours, number of road crossings, pavement width, cyclists on pavements, pavement cleanliness, uneven pavements, street lighting, council tax
Garrod et al. (2002)	Noise, speed limit, crossing delay, appearance, local tax
Eliasson et al. (2002)	Type of road (speed limit and number of lanes), distance from road, land use on other side, type of screening from road, type of crossing, house price

Section A focuses on studies estimating the economic value of traffic noise, section B describes studies on community severance and pedestrian mobility and Section C describes studies valuing different types of impacts.

A: Noise

A large number of studies have used stated preference methods to estimate the economic cost of roadside noise. A recent paper by Bristow et al. (2014) reviewed 49 of these studies. The majority of the studies valued noise from the perspective of households choosing their residence location or transport users contemplating the environmental effects of their trips. These approaches may not be entirely suitable for the study of preferences of individuals faced with non-permanent changes in road traffic near the area where they already live, such as the case of the construction traffic associated with the Sizewell C power station. The evaluation of this scenario requires methods valuing changes in existing noise levels. For example:

- Caulfield and O'Mahony (2007) analysed the choice between the size of reductions of local noise and air pollution at different times of the day and the associated cost in terms of a local environmental tax. The study found that participants were willing to pay more for a day time reduction in air pollution and a night time reduction in noise levels. The method is based on a generic change in the impacts

of traffic but could be extended by specifying the methods through which that change will occur (for example, by diverting traffic or using traffic calming measures).

- Willis and Garrod (1999) modelled preferences regarding disturbances from a noisy activity (quarries) and from transport associated with that activity. Participants were willing to trade-off decreases in taxes against changes in the number of days they are subject to noise, dust, and mud. This study is particularly relevant for the case of the Sizewell C project, as it considers different alternatives for the types of disturbances (those related to the activity itself and those related to road traffic) and for their size.

B: Community severance and pedestrian mobility

Stated preference models have also been used to estimate people's preferences regarding the ease of walking along and crossing busy roads:

- Grisolía and Lopez (2015) used a stated preference study to estimate the willingness of local residents to pay to bury a busy road, with different alternatives for the type of amenities places on the surface. It was found that local residents have a positive willingness to pay for the project, especially in the case of participants who crossed the road more frequently. The possibility of building a tunnel is not always feasible, due to its cost, which limits the applicability of this method to other areas. However, the value of the project as derived from this study is an indicator of the cost of the presence of the busy road in a residential area, compared with its absence.

- Meltofte and Nørby (2013) modelled preferences of pedestrians regarding crossing busy roads but did not include a cost attribute in the survey design. The preferences were instead captured as trade-off values between number of lanes, traffic volume, composition and speed, and distances to the nearest crossing facility. The study presents several advantages compared with the study of Grisolía and Lopez (2015) mentioned above, as it assumes that the impact of the road can be reduced by a series of measures other than a road tunnel, such as changes to road design (number of lanes), traffic control (leading to a change in the characteristics of traffic at different times of the day) and the provision of crossing facilities (which reduces the walking distances to cross the road safely).

- Cantillo et al. (2015) considered different options for the provision of crossing facilities, and modelled the choices between crossing the road informally and using signalised crossings and footbridges, taking into account the walking distance to these two facilities, delay, and road traffic flow. The advantage of this method is that it includes attributes related to the impacts of the road (traffic flow and delay) and attributes related to potential mitigation measures for reducing those impacts (in this case, crossing facilities). The study found that the willingness to take risks when crossing the road depends on socioeconomic variables (age, gender, level of study, and mode of transport) and whether the participant is travelling with children.

- Hensher et al. (2011) focused on pedestrian safety, capturing preferences for different types of crossing facilities, delay at those crossings, number of traffic lanes, traffic speeds, and safety outcomes (measured as predicted numbers of deaths and injuries). The study provides values for the assessment of willingness to pay for the reduction of collision risk, but does not calculate trade-offs between the different methods to achieve this reduction, and does not consider impacts other than collision risk.

- The study of Kelly et al. (2011) is more detailed, as it valued a wider set of measures to improve the conditions faced by pedestrians near busy roads, considering attributes related to crossing the road (traffic levels, speeds, pedestrian delay and detours, and number of road crossings) and to walking along the road (street lighting and characteristics of pavements). The method can be used to identify the key environmental factors that are most detrimental for pedestrians along a specific route, allowing for the estimation of the benefits of potential improvements along that route.

C: Multiple impacts

While most of the literature focused on a single impact of the road (either exposure to noise or loss of pedestrian mobility), a couple of studies attempted to estimate preferences for several impacts and possible mitigation measures:

- Garrod et al. (2002) estimated the preferences of residents in three English towns for the reduction of several negative impacts of traffic in their local area, including traffic speed, noise, visual impact, and waiting time to cross the road. The reductions of the impacts were to be achieved by traffic calming measures but these measures were not specified. The study found that local residents had a positive willingness to pay for a reduction in the negative impacts of road traffic and for more attractive, rather than basic, designs of the traffic calming measures. Follow-up studies developed methodological questions about this experiment, finding that preferences for the improvements were polarised, with a larger group holding positive values and a smaller one with non-positive values (Scarpa and Willis 2006) and that the strategy of participants is not always to maximise utility (which is the hypothesis of most choice modelling studies) but to minimise regret for not having chosen an option, especially in the case of people who were not familiar with traffic calming schemes (Boeri et al. 2014).

- The study of Eliasson et al. (2002) modelled a choice for residence location, which, as mentioned above, is not the most appropriate scenario for the estimation of preferences for non-permanent changes in traffic levels. However, the methods used in this study are useful due to the wide range of attributes used to measure the impact of traffic (speed limit, and number of lanes, and distance from homes to the road), the relevance of the barrier effect (measured by the type of land use on the other side of the road) and mitigation measures (crossing facilities such as footbridges and underpasses, and screening methods such as fences, walls, glass

walls, and embankments). The study found that the intrusion effects from a large road do not decrease linearly with distance from homes to the road.

Benefits transfer

The implementation of stated preference surveys may not always be feasible, because of time and cost constraints. In this case, the economic value of the impacts can be estimated by multiplying the size of the impact by "unit values" imported from previous studies, a practice known as "benefits transfer". In the case of air pollution and noise, the size of the impact can be obtained from models, but in the case of impacts on severance and other subjective impacts, the approach requires further information, which must come either from surveys in the study area or from previous studies.

Some studies present unit values for a comprehensive set of impacts of road traffic, which can be applied in other settings (Mayeres et al. 1996, CE Delft et al. (2011). In most cases, the unit values were found by accounting the value of economic resources related to each impact. For example, the cost of accidents, air pollution and noise were obtained by valuing the associated medical expenditures, production losses or averting costs.

Unit values may also come from revealed preference methods, which estimate preferences based on individuals' behaviour in markets related to the impact. For example, hedonic models assess the economic value of the impacts by comparing the value of properties in areas affected by road traffic to different degrees. This approach has been used to estimate the value of cumulative impacts of vehicle traffic (Kawamura and Mahajan 2005), impacts of truck traffic (Li and Saphores 2012), roadside noise (Nelson 2010), projects to bury roads (Kang and Cervero 2009) and traffic calming measures (Bretherton et al. 2000).

The use of values found in previous studies is not always straightforward, due to differences between the areas where they were obtained and the areas where they are being applied in terms of levels and nature of the impacts, characteristics of the population affected and the geographic, social and political context in each place. In this case, the imported values need to be adjusted to take those differences into account.

Despite the limitations pointed out above, the unit values found in the previous literature can be useful even in the case where the research uses stated preference surveys, as those unit values can be used as attribute levels in the survey design. For example, in the study by Caulfield and O'Mahony (2007) the different levels of the tax associated with reduction of noise and air pollution was imported from a report of the HEATCO project, which suggested guidelines for transport costing at the EU level (HEATCO 2004).

Summary

Stated preference methods are a useful method to understand the relative priorities of local communities regarding the negative impacts of road traffic and to estimate the economic cost of those impacts. A growing number of studies have used this method to value impacts such as noise, community severance and pedestrian safety, and to estimate preferences for possible mitigation measures. These methods complement the approaches in official guidance documents for transport and environmental assessment reviewed in Chapter 4 because they support the assessment of several different attributes, which measure separate impacts, and are based on the preferences of the individuals affected by the impacts of the project, and not on objective or expert-based assessments, as in the case of the methods in Chapter 4.

The use of values from previous studies (a practice called benefits transfer) is a possible alternative in the cases where stated preference studies are not feasible. However, those values should be used with caution, due to differences between the areas where they were obtained and the areas where they are being applied.

2.7 Conclusions

This chapter has reviewed the community impacts of roads and changes in traffic levels associated with major infrastructure projects and the methods used to assess those impacts. The review is the first stage of a research to study the perceived anticipated impacts of the construction of Sizewell C power station on the wellbeing of local residents.

The review has identified a wide range of potential negative impacts on local communities, both at the individual and social level, due to traffic. However, the extent of these impacts depends on a series of mediating factors such as the characteristics of traffic and local built environment, socio-economic variables, time elapsed since traffic increased, and the effectiveness of mitigation measures. The role of these factors was evident in the case of the Sizewell B project, as the evolution of local perceptions did not follow the evolution in objectively measured variables across the lifespan of the project. In this case, traffic levels were higher than predicted, but there is some evidence that the local community adjusted or resigned itself to traffic, as suggested by the reduction in the proportion of individuals identifying road traffic as a negative impact in surveys, and in the number of complaints and stories in the local press.

The approaches outlined in the official guidance documents for the environmental assessment of major construction projects and for the appraisal of transport projects provide useful information about the range of impacts that the assessment should consider and suggest methods to quantify or classify the majority of these impacts. However, these methods provide little scope for the incorporation of information about the perceptions of the populations affected by that traffic, and do not consider the cumulative effects of the different impacts. These limitations are also found in official guidance documents for transport appraisal in other countries, although

approaches such as Community Impact Assessment in the USA include input from the communities.

The academic literature provides several methods that address these limitations. The methods most suitable are those that consider the interrelations between the different types of perceived impacts and that allow for the assessment of perceptions about future changes in traffic conditions. The methods using multivariate statistics described in section 5.3 and the stated preference methods described in section 6.1 are the ones that fulfil those two conditions. Stated preference methods have the added advantage of providing an estimate of the monetary values of each type of impact, which are useful to assess the benefits of mitigating solutions and the value of potential compensation of the affected population. Equally importantly, such an approach can be used to understand prioritisation over concerns and preferences for addressing them.

These methods have the potential for complementing the IEA and WebTAG/DMRB appraisal frameworks, by providing information about the individuals' subjective perceptions about traffic. However, they do not substitute the use of the IEA guidance or WebTAG/DMRB, as these frameworks provide a range of other information useful for the decision-maker, such as objective indicators of the levels of the impact across the lifespan of the project and the cost of mitigation measures. The use of one of these frameworks alongside one of the methods from the literature brings added value because it allows for the comparison between objective and perceived impacts.

3. PHASE I: INITIAL CONSULTATION SURVEY

3.1 Introduction

EDF Energy proposes to route Sizewell C construction traffic along the B1122 from the village of Yoxford through the settlements of Middleton Moor and Theberton to the site entrance, a distance of approximately 4.5 miles. There are approximately 775 dwellings within these parishes according to the 2011 census, with about a quarter which are in closer proximity to the B1122 (see Appendix C). These parishes comprise the catchment area for the study.

To gain an initial understanding of the views of residents and businesses within the catchment area of the proposed Sizewell C construction route, we aimed to undertake around 120 face to face interviews with those residing or working within the catchment area. Face to face interviews, while more labour intensive, were desirable in that they tend to result in a higher response rate and also attract respondents with a wider range of views than those who volunteer participation.

The aim was to gain a robust understanding of the nature of the population, the level of awareness, their attitudes towards and concerns regarding the planned construction of Sizewell C and related issues. In addition to delivering relevant insights in their own right, the findings of the initial consultation survey were also used to inform the subsequent research stages to meet the study objectives.

3.2 Methods

Participants were first approached for face-to-face interviews. An introductory letter (Appendix B) was sent to all addresses in the catchment area before the start of fieldwork, so participants should have been aware of the research when the interviewer called round. Participants who had not taken part in a face-to-face interview were invited to complete an online survey through an open link printed in the introductory letter which only went 'live' after the face-to-face interviews were complete.

A total of 267 participants took part in the initial consultation survey; 122 were completed face-to-face and 145 online.

Considering there are 775 dwellings in the catchment area with about a quarter in close proximity, this can be considered to be a high response rate, particularly as 70% of the face-to-face interviews targeted the quarter in closer proximity and that there are some empty properties.

Face-to-face

One hundred and twenty-two participants completed face-to-face interviews, which were administered on tablets. The vast majority (116) of participants were domestic residents; only a small number were businesses (5) and farms (1). Businesses were told

that the questions were in relation to the impacts on them getting to and from work and their ability to do their job, and not about the impact on the business as a whole.

Face-to-face interviews took place between 15th and 22nd December 2015 and between 4th and 8th January 2016. Interviewers were tasked to conduct 70% of the interviews with residents living near the construction traffic route and the remaining 30% with those living further away but within the catchment area. Appendix C shows the maps of the three parishes used for sampling.

Online

The online survey went 'live' on 9th January 2016 (i.e. after the face-to-face fieldwork had been completed) and closed on 18th January 2016. A further 145 participants completed the survey online. Similar to the face-to-face interviews, the vast majority had responded in their capacity as a resident. However, unlike the face-to-face interviews, participants were allowed to respond in their capacity as a resident (141) as well as a business (9) or a farm (7). As a result, the total number of participants does not correspond to the sum of those who were residents, businesses or farms. The online sample also included a small number of participants (5) residing in Leiston or Sibton, which is outside the agreed catchment area.

Where there are statistically significant differences between the results for face-to-face participants and online/web participants, these are noted in the report. The questionnaires used for the face-to-face and online surveys are presented in Appendix D.

3.3 Findings

This section details the findings of the initial consultation survey. Participant characteristics, including details of their location, general views of their place of residence, current travel patterns and socio-demographics are first described. Following this, views on the planned Sizewell C construction and its expected impacts are examined. Finally, experiences with Sizewell B works and the relative impact of Sizewell C compared to Sizewell B works are explored.

Participant Characteristics

Location

Residents from the three parishes are roughly equally represented in the survey:

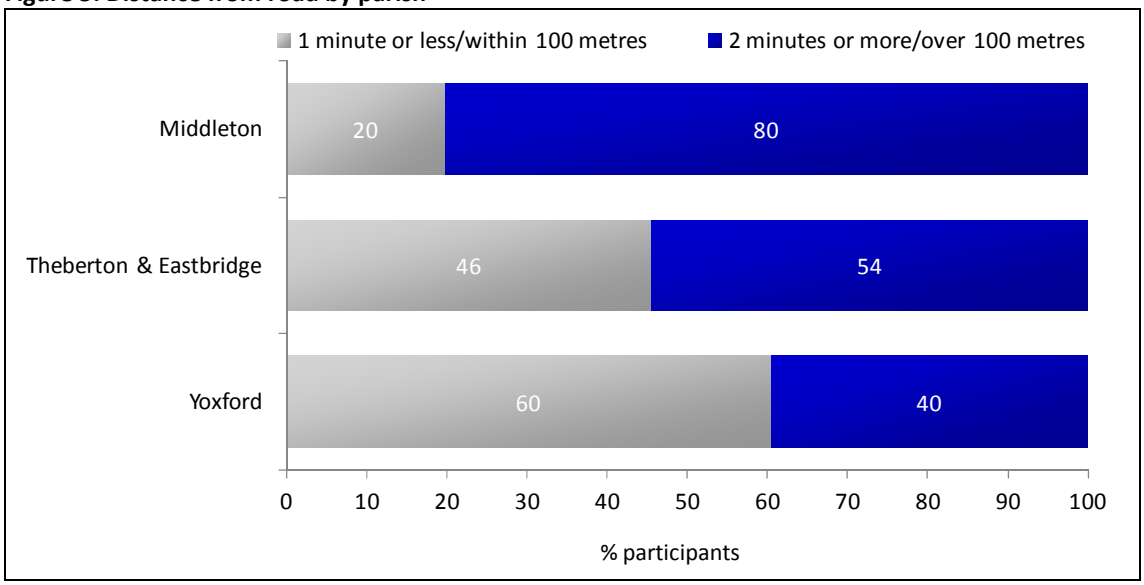
- 96 (36%) Yoxford
- 90 (34%) Theberton[3]
- 76 (28%) Middleton

[3] Reference to 'Theberton' in this report should be read as a reference to the parish of Theberton and Eastbridge

Overall, 44% of participants lived within one minute, or within 100 metres if time was not stated, of one of the three roads.

Participants in Yoxford were most likely to be close (within one minute or within 100 metres) of the proposed route. In contrast, those living in Middleton were most likely to live further away (two minutes or more, or more than 100 metres). See Figure 5.

Figure 5: Distance from road by parish



Base: Yoxford 96, Theberton & Eastbridge 90, Middleton 76

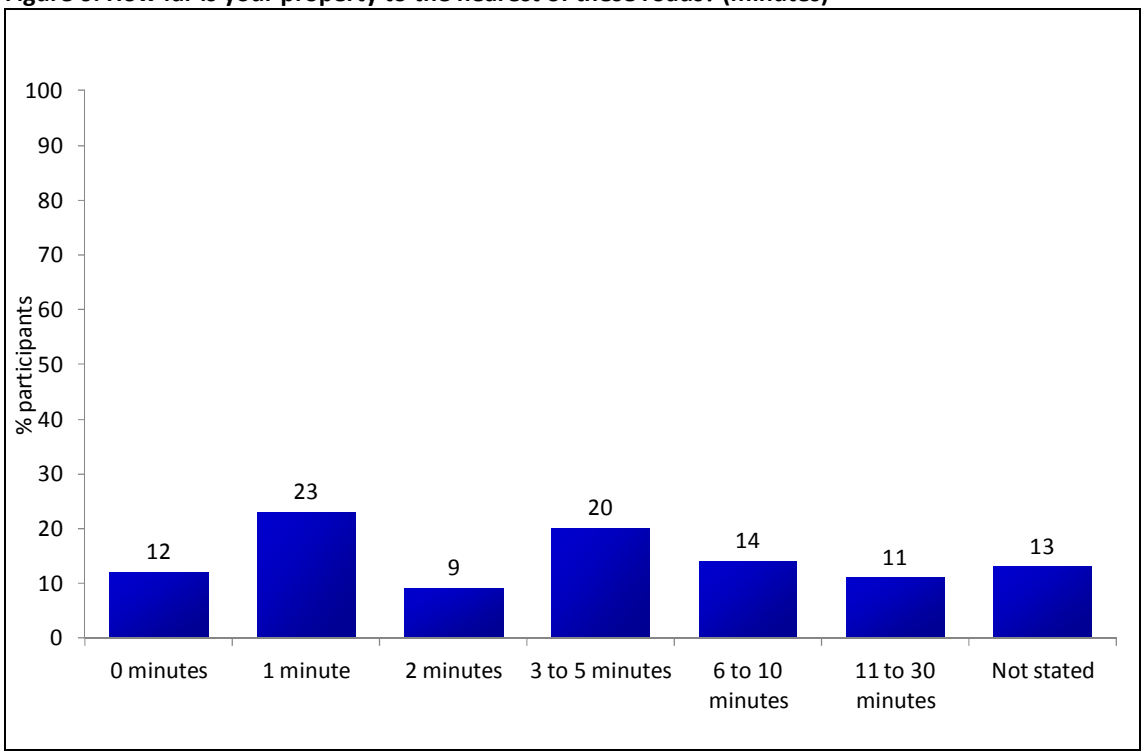
Statistically significant differences in views between participants living close or further away are reported throughout this chapter.

A larger proportion of participants living in Theberton had completed the survey online (41%) compared with those living in Theberton who had taken part in the face-to-face survey (25%). Conversely, a larger proportion of participants living in Middleton had completed the survey face-to-face (42%) compared with those living in Middleton who had completed the survey online (17%).

Respondents were asked about their access to roads along the proposed construction traffic route. Most commonly, participants had direct access to the B1122 (41%), while fewer had direct access to the A12 (9%) and/or the A1120 (16%). Roughly one-third (38%) of participants had no direct access to any of these roads.

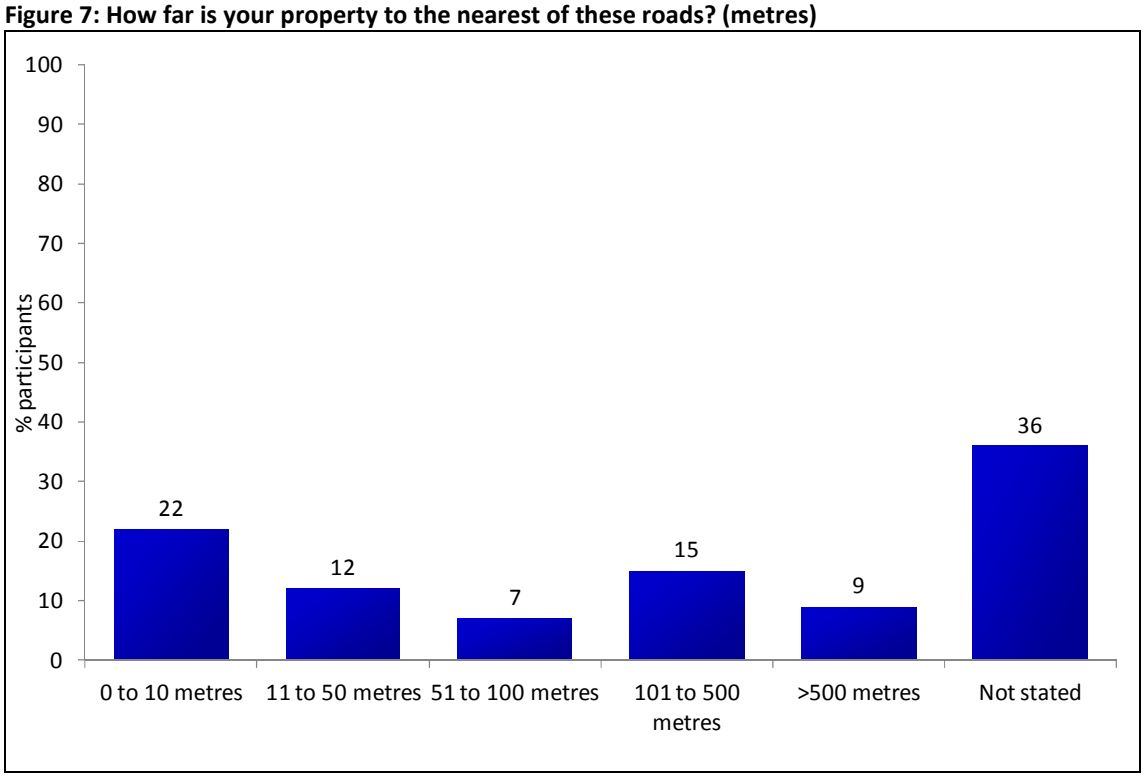
Participants were then asked to indicate how far away (in minutes, metres or both) they lived from the nearest road Figure 6 and Figure 7 show the distribution of distance to the nearest road in minutes and metres.

Figure 6: How far is your property to the nearest of these roads? (minutes)



Base: all participants (267)

Figure 7: How far is your property to the nearest of these roads? (metres)



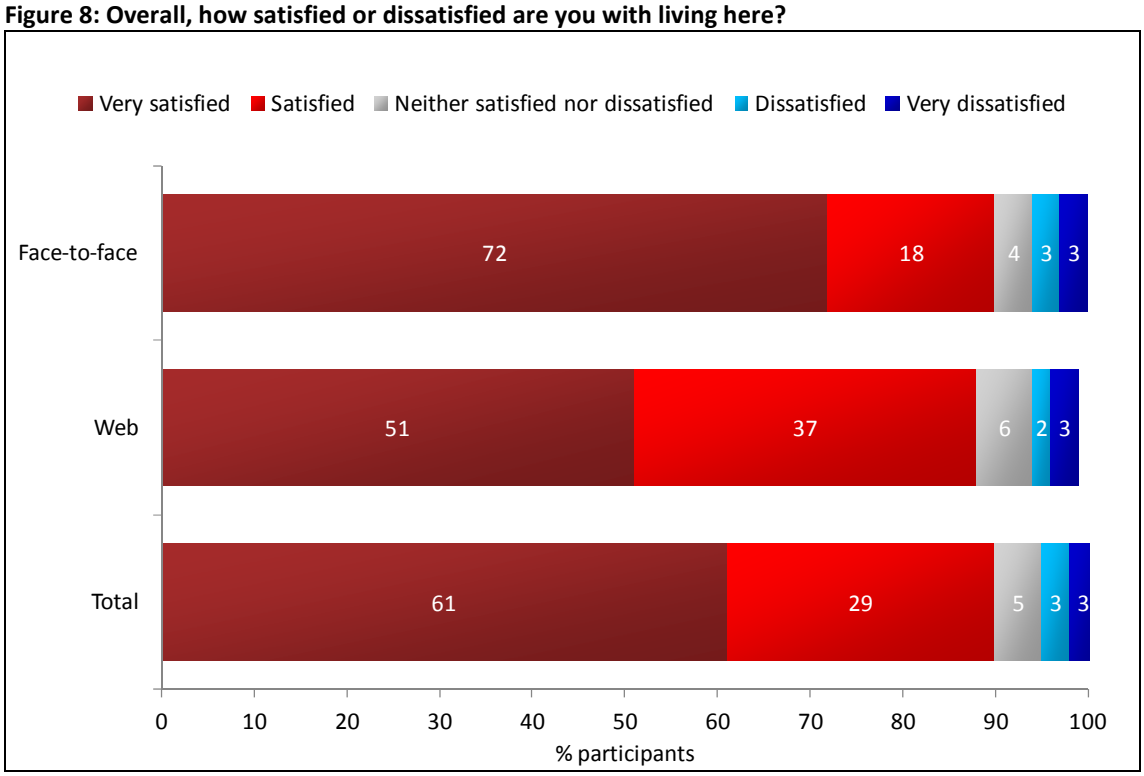
Base: all participants (267)

General views on location

The vast majority (90%) of participants are currently satisfied or very satisfied with where they live (Figure 8:). Face-to-face participants were more likely to be very

satisfied than online participants, although the overall proportion of those who were satisfied or very satisfied was similar in the two groups.

Figure 8: Overall, how satisfied or dissatisfied are you with living here?



Base: residential locations and farms with residential part: total 259, Face-to-face 117, Web 142

Participants living further away were also more likely to be very satisfied than those close:

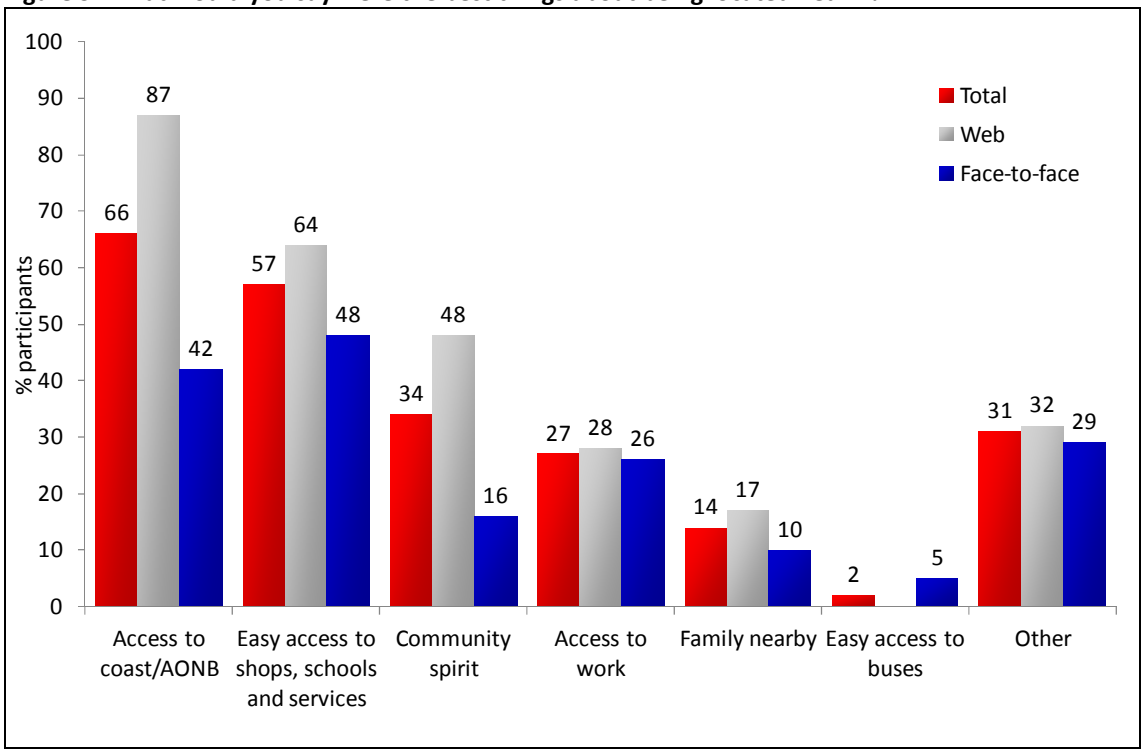
	1 minute or less	2 minutes or more
	%	%
• Very satisfied	42	74
• Satisfied	38	22
• Neither satisfied nor dissatisfied	12	1
• Dissatisfied	4	2
• Very dissatisfied	5	1
Base	111	148

Those from Theberton and Middleton were most satisfied with living there:

	Yoxford	Middleton	Theberton
	%	%	%
• Very satisfied	48	67	69
• Satisfied	38	22	27
• Neither satisfied nor dissatisfied	11	3	0
• Dissatisfied	1	4	4
• Very dissatisfied	2	5	0
Base	93	109	52

Overall, access to the coast/Area of Outstanding Natural Beauty (AONB) (66%) was most frequently mentioned as an advantage of the participants' location (Figure 9:). This was followed by easy access to shops, schools and services (57%), community spirit (34%), access to work (27%) and family nearby (14%). Participants were least likely to choose easy access to buses (2%) as an advantage of their location of residence. More online participants chose access to the coast/AONB, community spirit, and easy access to shops, schools and services than face-to-face participants. These differences were likely influenced by online participants having been shown a list of potential advantages, while the face-to-face participants had not been shown a list. On average, online participants mentioned 2.4 of the listed advantages (excluding 'other') compared with 1.5 mentions among face-to-face participants.

Figure 9: What would you say were the best things about being located near...?

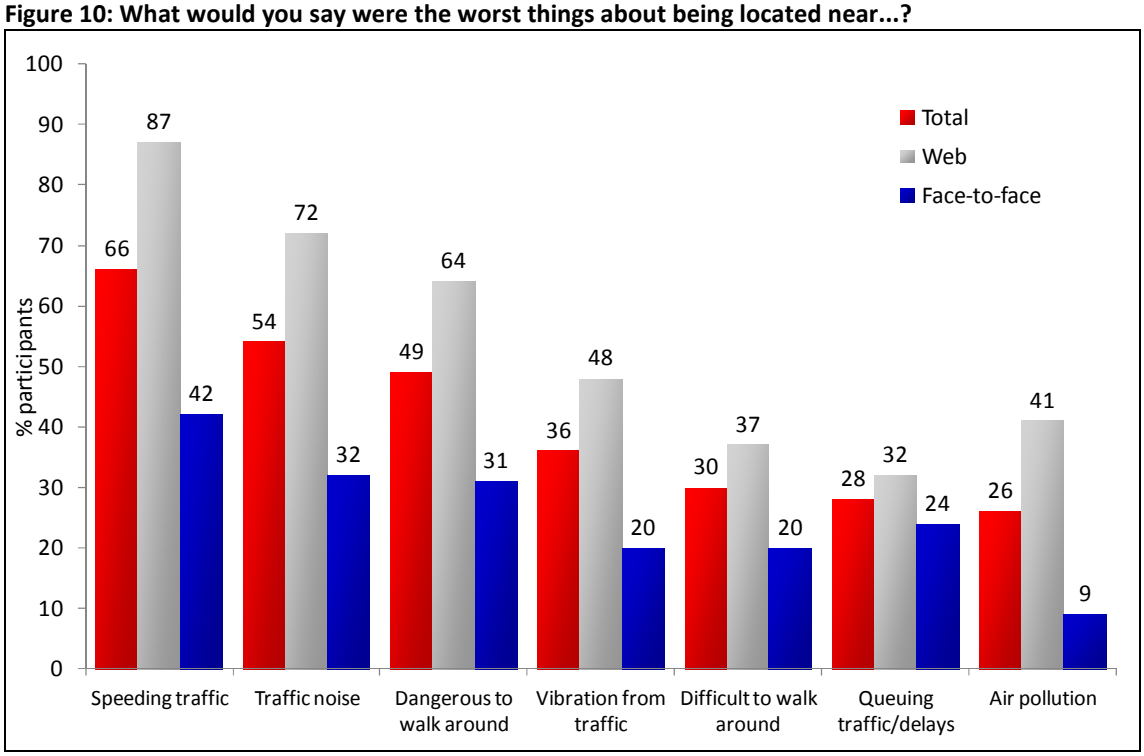


Base: total 267, Face-to-face 122, Web 145

Speeding traffic (66%) was most frequently seen as a disadvantage of the participants' place of residence, followed by traffic noise (54%) and it being dangerous to walk around (49%). See Figure 10. A substantial proportion also mentioned vibration from traffic (36%), it being difficult to walk around (30%), queuing traffic and delays (28%) and air pollution (26%). All disadvantages were mentioned more frequently by online participants than face-to-face participants, except for queuing traffic and delays.

Similar to the measure on advantages of the location of residence, online participants had been shown a list, whereas face-to-face participants had not been. On average, online participants mentioned 3.8 of the listed advantages (excluding 'other') compared with 1.8 mentions among face-to-face participants.

Figure 10: What would you say were the worst things about being located near...?



Base: total 267, Face-to-face 122, Web 145

All disadvantages were more likely to be mentioned by participants who lived closer than those living further away:

	1 minute or less	2 minutes or more
	%	%
• Speeding traffic	77	58
• Traffic noise	67	43
• Dangerous to walk around	58	42
• Vibration from traffic	56	20
• Difficult to walk around	32	27
• Queueing traffic/delays	36	23
• Air pollution	36	19
• Other	36	43

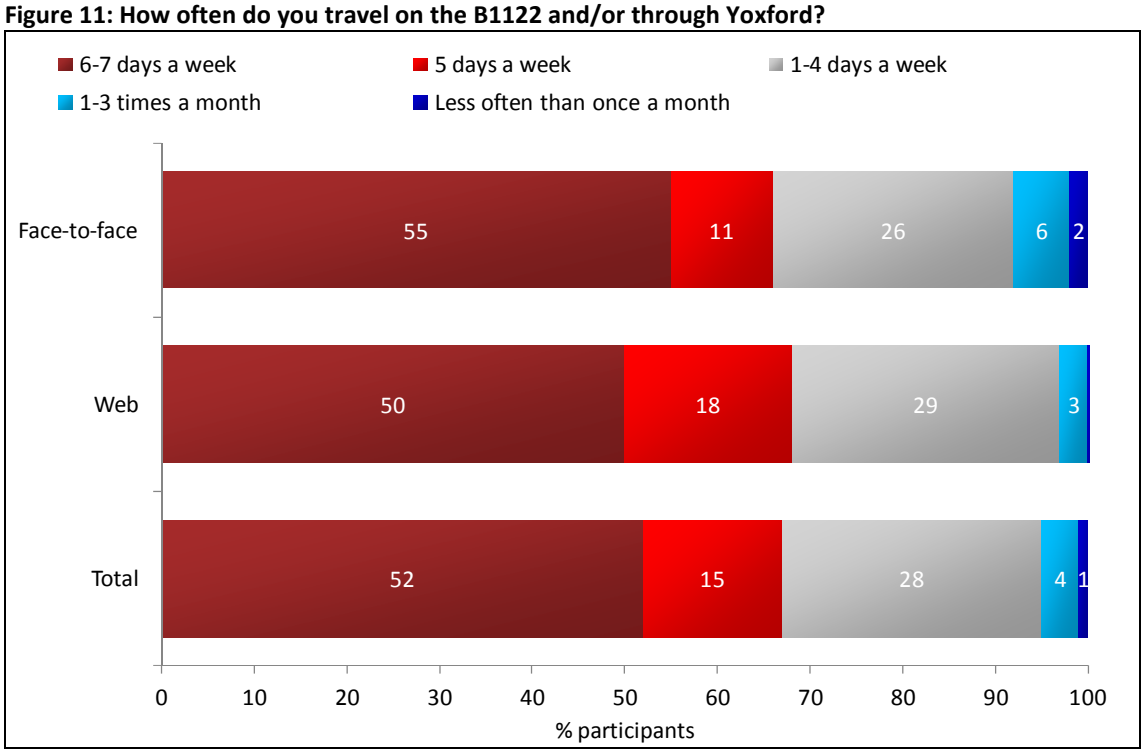
Base 117 1 minute or less, 150 2 minutes or more

Travel on local roads

Almost all (98%) participants had access to at least one car, mirroring the very small proportion of participants who had mentioned easy access to buses as an advantage of their location of residence. Roughly equal numbers had access to one (43%) or two (46%) cars within their household. Fewer had access to three (10%) or four (3%) cars. The vast majority (86%) of participants did not have a van. Only 14% had one or two vans.

Around half (52%) travelled on the B1122 and/or through Yoxford six or seven days a week (Figure 11). Slightly under half travelled on these roads five days a week (15%) or 1-4 days a week (28%). Only 5% travelled there less than once a week.

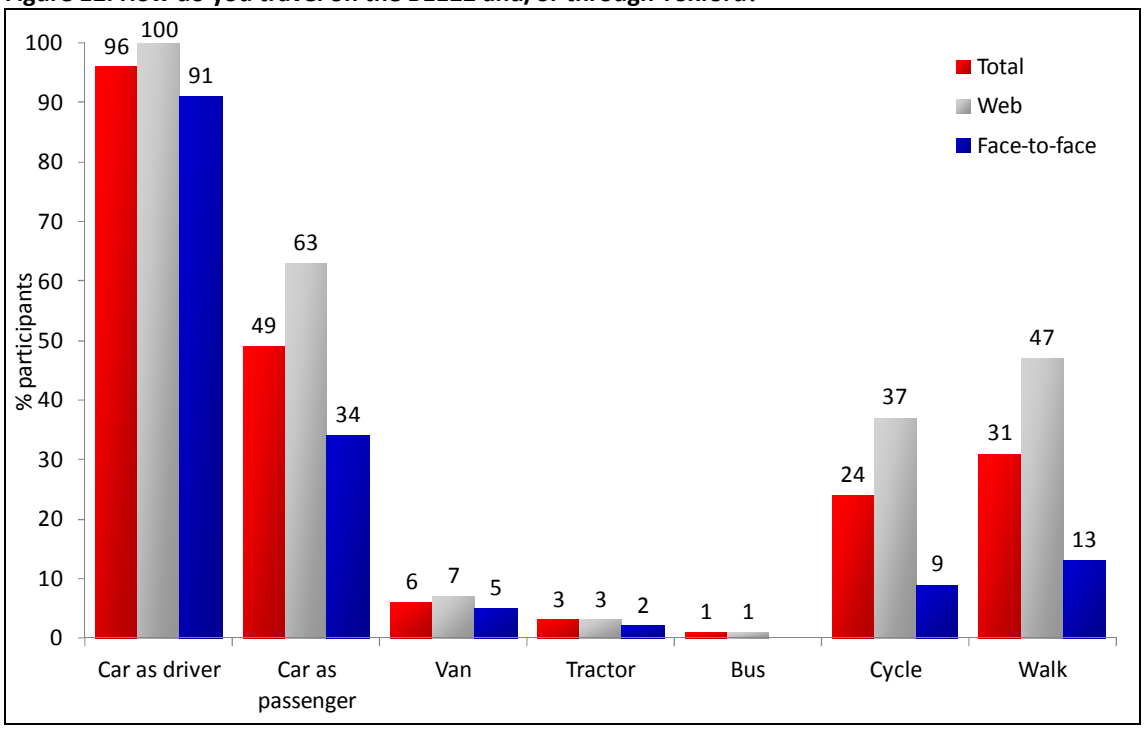
Figure 11: How often do you travel on the B1122 and/or through Yoxford?



Base: residential locations and farms with residential part: total 259, Face-to-face 117, Web 142

Almost all (96%) participants travelled as a car driver, followed by being a car passenger (49%), a pedestrian (31%), a cyclist (24%) and by van, tractor or bus (10%; Figure 12). Online participants were more likely to have stated being a car passenger, a pedestrian or a cyclist than face-to-face participants. Participants living close were more likely to walk than those living further away (44% compared to 21%).

Figure 12: How do you travel on the B1122 and/or through Yoxford?

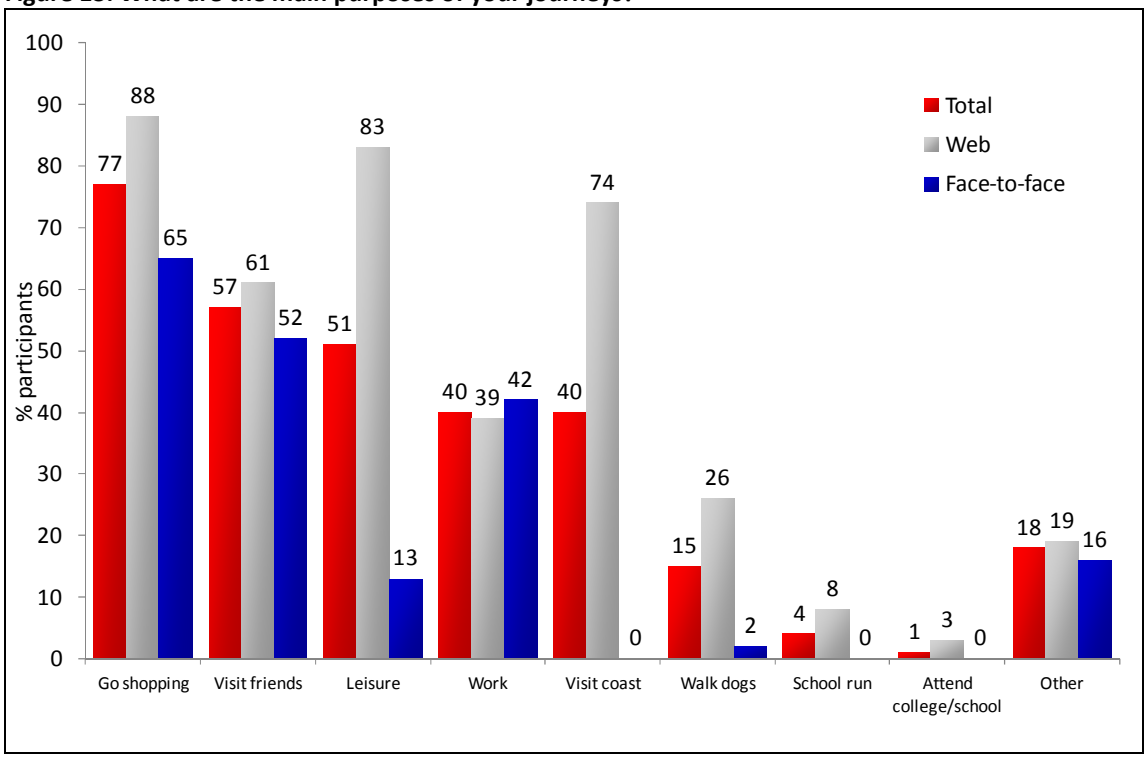


Base: residential locations and farms with residential part: total 259, Face-to-face 117, Web 142

Overall, shopping (77%) was the most frequently mentioned journey purpose, followed by leisure (59%), visiting friends (57%), work (40%), visiting the coast (40%), walking dogs (15%), school run (4%) and attending college/school (1%). See Figure 13.

Work, visiting friends, going shopping and leisure were response options in both the face-to-face and online surveys, although interviewers did not necessarily show these to face-to-face participants. Face-to-face participants' 'other' responses were recoded into the additional response options available in the online survey were appropriate.

Figure 13: What are the main purposes of your journeys?



Base: total 267, Face-to-face 122, Web 145

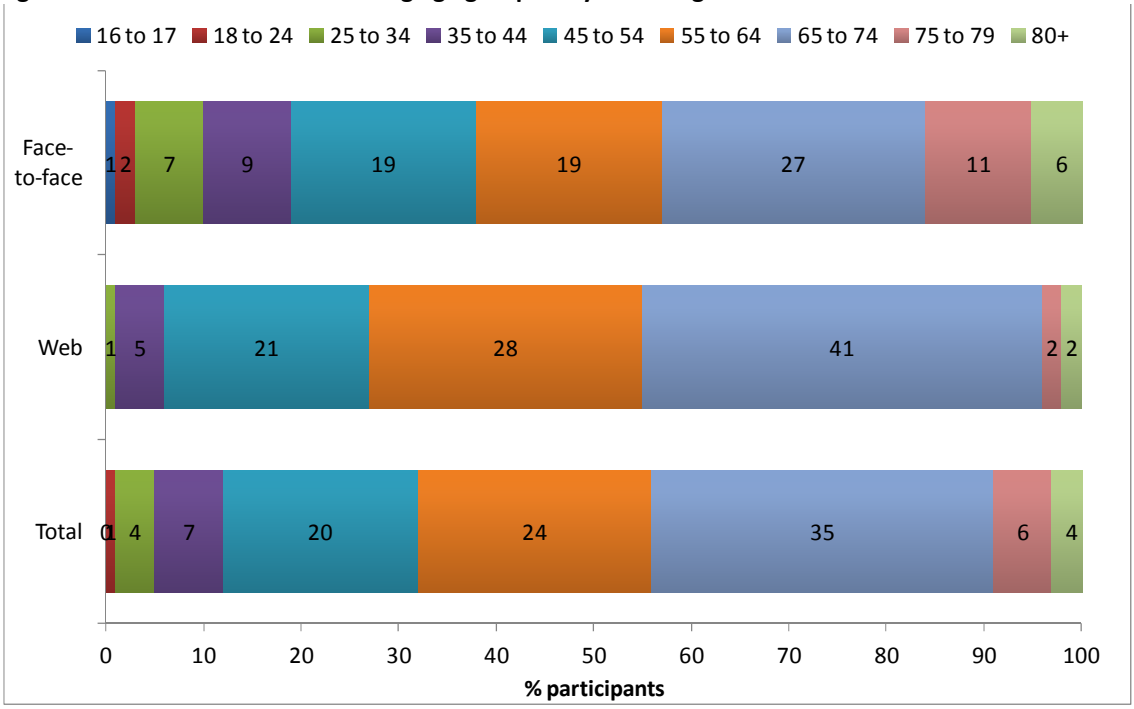
Demographics

There were slightly more female (55%) than male (45%) participants.

Most (69%) participants lived in a household with two adults, 18% lived alone and 12% lived in a household with three or more adults. One-tenth (10%) had at least one child under the age of 10 and 12% had at least one child between the ages of 11 and 17. Face-to-face participants were more likely to have children aged 11 to 17 than online participants (8% vs. 2%).

The largest age group were 65 to 74 year olds (35%), followed by 55 to 64 year olds (24%) and 45-54 year olds (20%). Fewer were aged 75 and over (10%), 35 to 44 years old (7%) and 34 and younger (5%). Figure 14 shows the overall age distribution and the distribution by survey mode. Online participants were more likely to be in the 65-74 age group than face-to-face participants. In contrast, the face-to-face participants were more likely to be aged 25-34 and 75-79 than online participants.

Figure 14: Which one of the following age groups do you belong to?

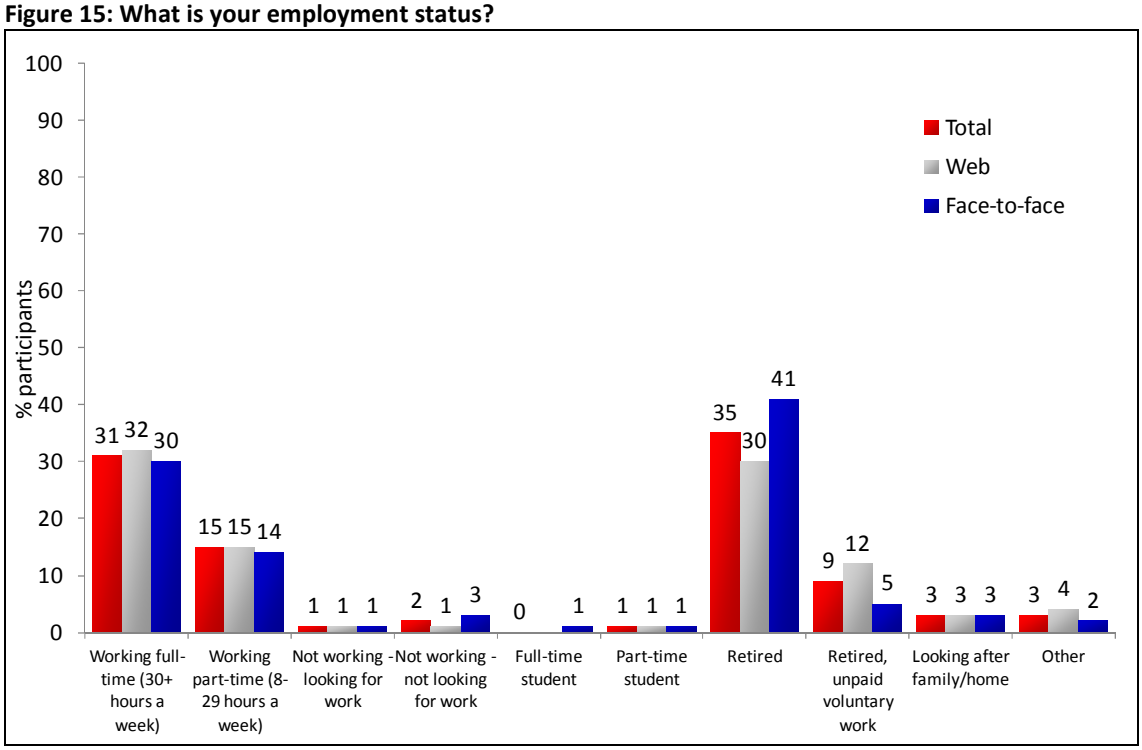


Base: total 267, Face-to-face 122, Web 145

Overall, there were roughly equal numbers of participants who were employed (full- or part-time; 46%) and who were retired (with or without unpaid voluntary work; 44%) (Figure 15). Online participants more likely to be retired and have unpaid voluntary work than face-to-face participants.

Very few (3%) participants stated that they had ever been employed by EDF Energy directly or as a sub-contractor of EDF.

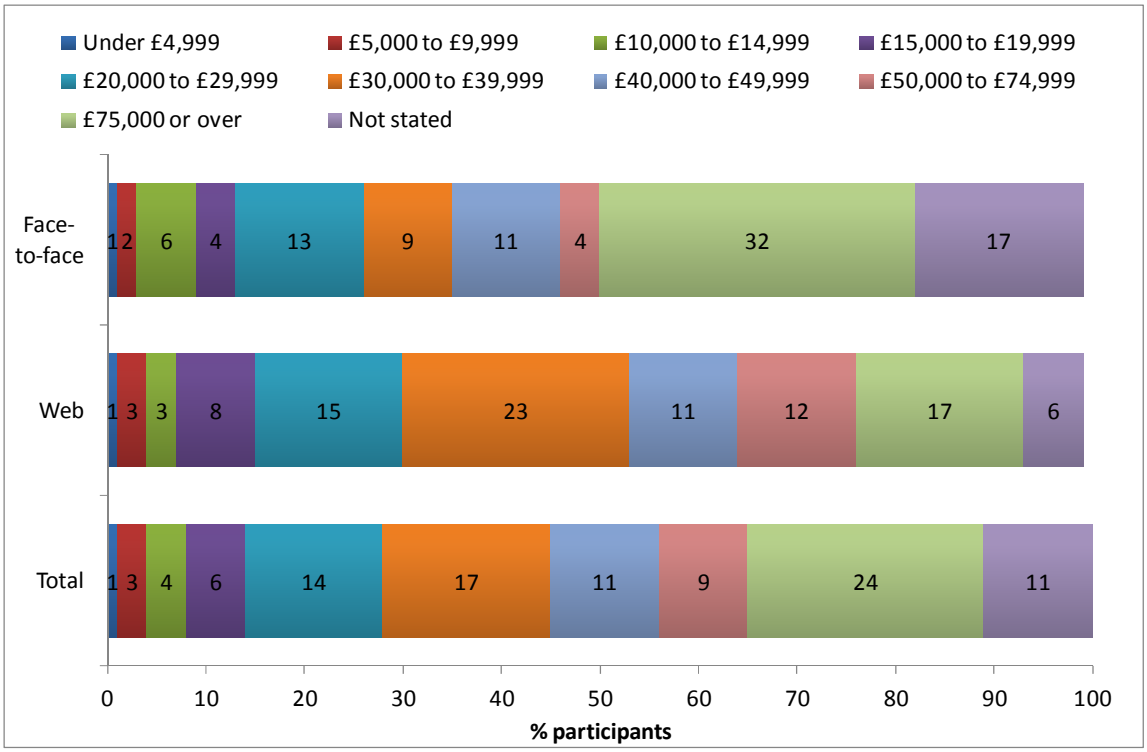
Figure 15: What is your employment status?



Base: total 267, Face-to-face 122, Web 145

Figure 16 shows the distribution of household income among the survey participants. Face-to-face participants were significantly more likely to be in the highest income bracket (£75,000 and over) and to not have answered the question than online participants. Online participants were more likely than face-to-face participants to be in the second highest (£50,000 to £74,999) and fourth highest (£30,000 - £39,999) income bracket.

Figure 16: Which of the following ranges best represents your household's total income from all sources over the last 12 months?

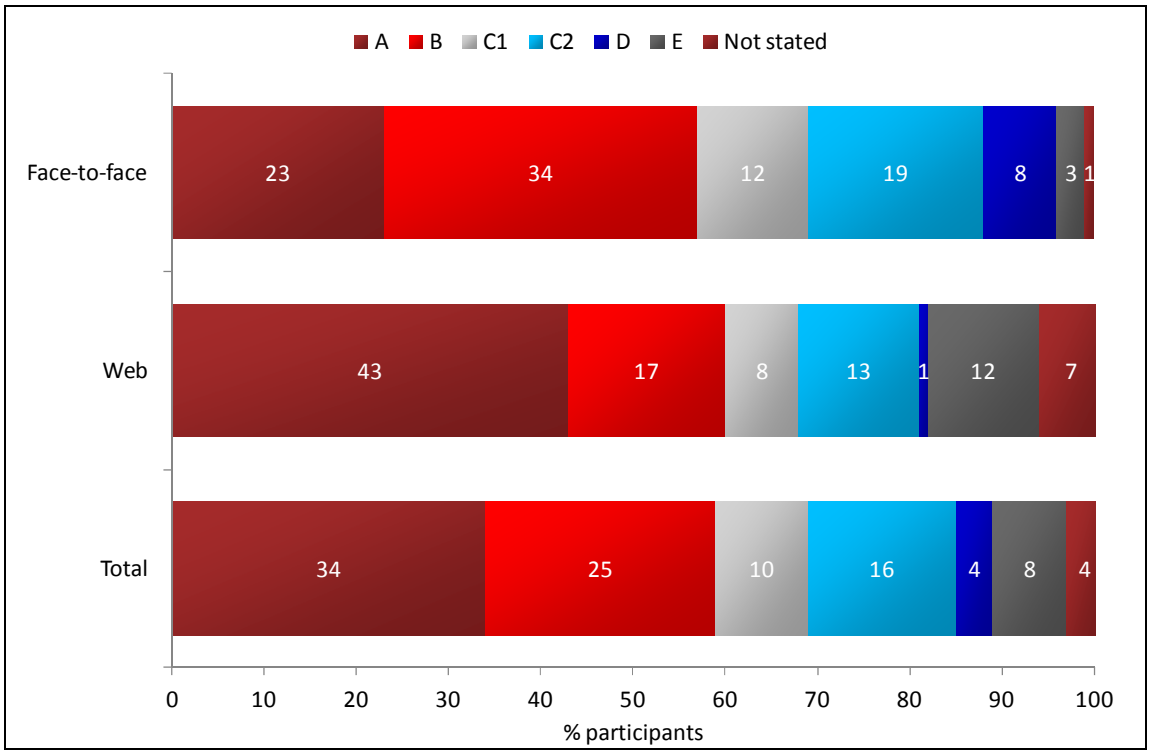


Base: total 267, Face-to-face 122, Web 145

Overall, participants were predominantly from higher social grades, with 34% in social grade A[4], 25% in grade B (See Figure 17). In contrast, only 10% were in grade C1, 16% in grade C2, 4% in grade D and 8% in grade E. Online participants were more likely to be in social grade A and E than face-to-face participants. Face-to-face participants were more likely than online participants to be in social grade B and D. Online participants were more likely to have stated that the main income earner was retired on a private pension or a state pension.

[4] See https://en.wikipedia.org/wiki/NRS_social_grade for an explanation of social grades.

Figure 17: Which of the following best describes the occupation of the main income earner in your household?



Base: total 267, Face-to-face 122, Web 145

3.4 Views on Sizewell C

All survey participants were aware of the planned construction of the Sizewell C power station at the time of survey completion. Overall, the majority (58%) had taken part in the Stage 1 consultation through attending meetings, responding to the consultation questionnaire or responding in another way. Face-to-face participants were less likely to have taken part in the consultation than online participants. Over half (55%) of face-to-face participants had **not** taken part in the Stage 1 consultation compared with only one third (32%) of online participants who had **not** taken part.

Furthermore, almost half (48%) had also taken part in other activities related to the planned construction of Sizewell C such as Parish Council or Local Authority meetings. Similar to participation in the Stage 1 consultation, face-to-face participants were less likely to have participated in other Sizewell C-related activities than online participants (38% vs 56%).

General views on Sizewell C

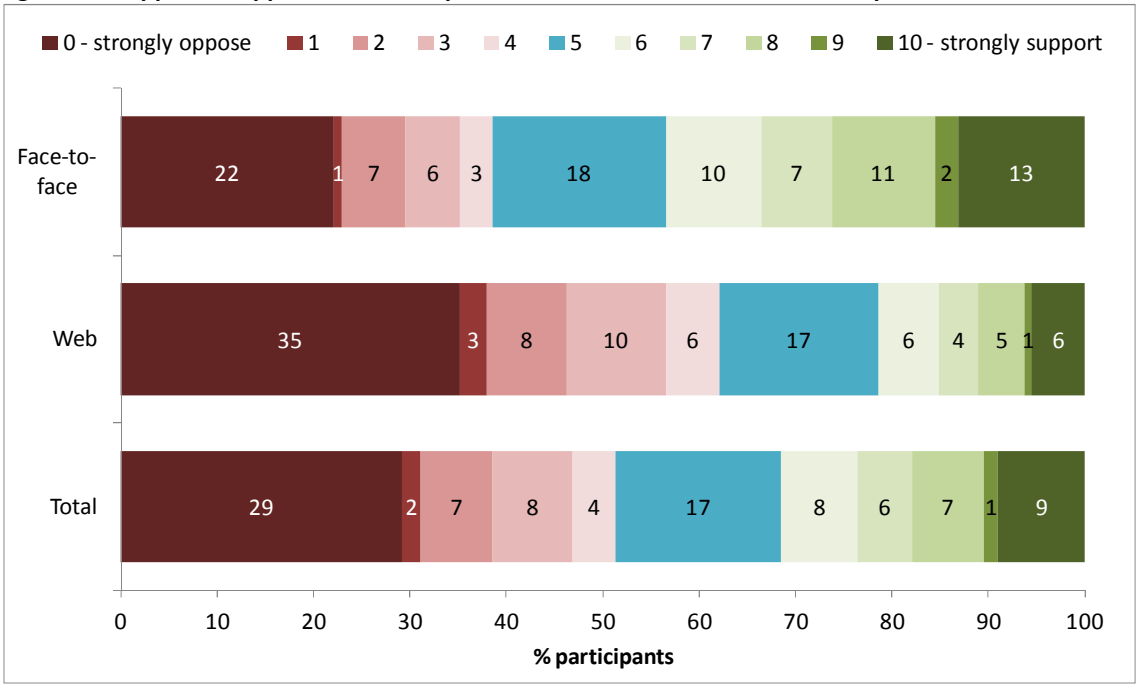
When asked their general views about the planned construction on a ten-point scale from 0 to 10, the overall mean score was 5.96 (SD[5]=3.33). Half were opposed (score of 0 to 4) and a third supportive (score of 6 to 10). Face-to-face participants (4.84, SD=3.41) had a higher mean score than for online participants (3.21, SD=3.08).

[5] Standard deviation

Half gave a score on the 'opposing' end (0-4) of the scale, 17% were in the middle (5) and 31% were on the 'supportive' end of the scale (6-10). See Figure 18.

Over one quarter were strongly opposed (29% code 0) to the planned construction of Sizewell C. This proportion was larger among the online participants (35%) than the face-to-face participants (22%). In contrast, less than one-tenth (9%) strongly supported Sizewell C (code 10). Face-to-face participants (13%) were more likely to strongly support Sizewell C than online participants (6%).

Figure 18: Support or opposition for the planned construction of the Sizewell C power station



Base: total 267, Face-to-face 122, Web 145

Participants from Yoxford were significantly more likely to support the planned construction of the Sizewell C power station than those from Middleton and Theberton (means of 4.74, 3.93 and 3.41 respectively).

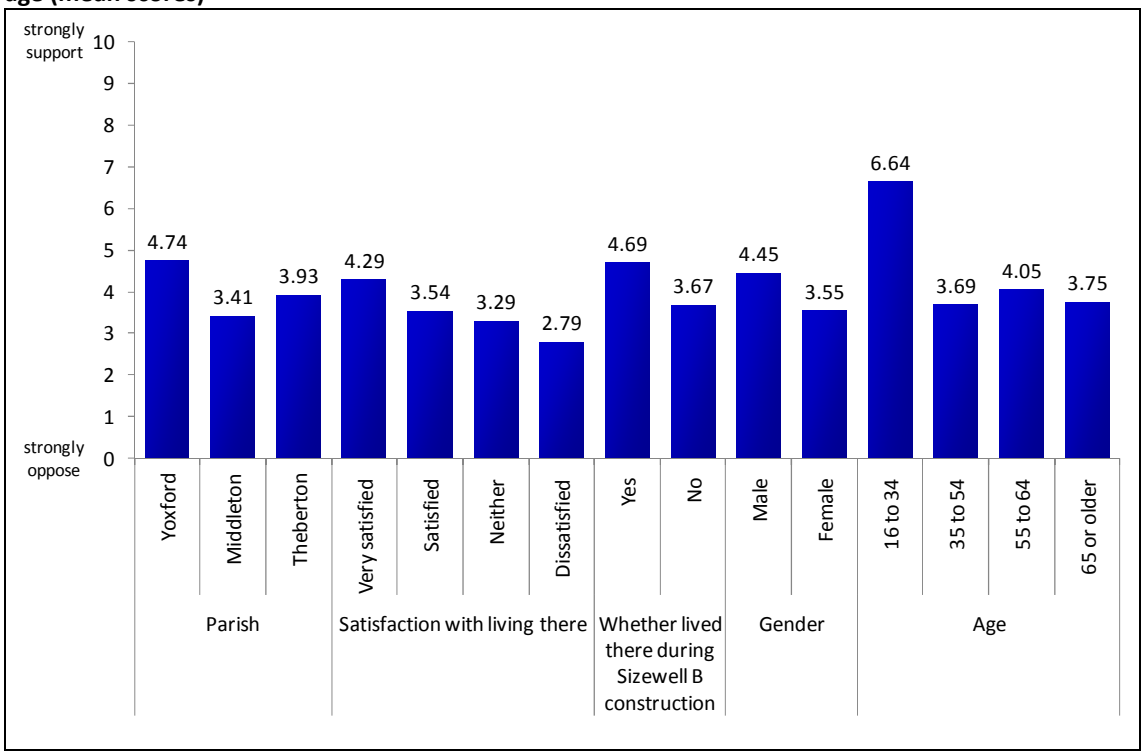
Those who were very satisfied with living in the area were more supportive than those who were dissatisfied with living in the area although the differences were not statistically significant.

Interestingly, participants who lived in the area during Sizewell B construction and therefore had some prior experience were significantly more supportive than those who did not (4.69 cf 3.67).

Men were significantly more supportive than women (4.45 cf 3.55) and the younger participants (aged between 16 and 34) were significantly more supportive than older participants (age bands over 34 years old) 6.64 cf 3.69-4.05.

There was no statistically significant difference in the level of support between participants living close to the proposed route and those living further away (means of 3.75 and 4.11 respectively).

Figure 19: Support or opposition for the planned construction of the Sizewell C power station by parish, satisfaction with living there, whether lived there during Sizewell B construction, gender and age (mean scores)

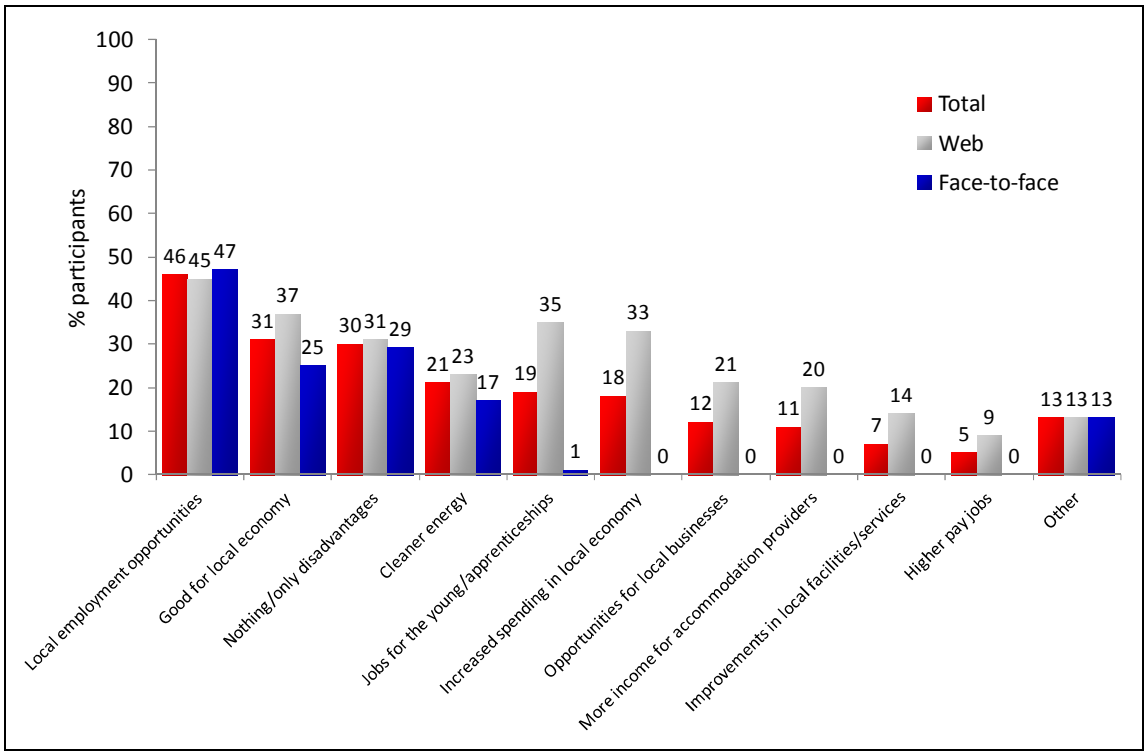


Base: total 267, Face-to-face 122, Web 145

Local employment opportunities (46%) were most frequently stated as a likely benefit of the planned Sizewell C construction, followed by good for local economy (31%) and cleaner energy (21%; Figure 20). Overall, 30% stated that there would be no benefit at all or only disadvantages.

Good for local economy, local employment opportunities, cleaner energy and nothing were response options in both the face-to-face and online surveys. However, interviewers were instructed not to show the response options to face-to-face participants. 'Other' responses from face-to-face participants were subsequently recoded into the additional response options available in the online survey were appropriate. On average, online participants mentioned 2.8 compared with face-to-face participants who mentioned 1.3 of the advantages that were response options for both survey modes.

Figure 20: What positive things may come from the planned construction of the Sizewell C power station?

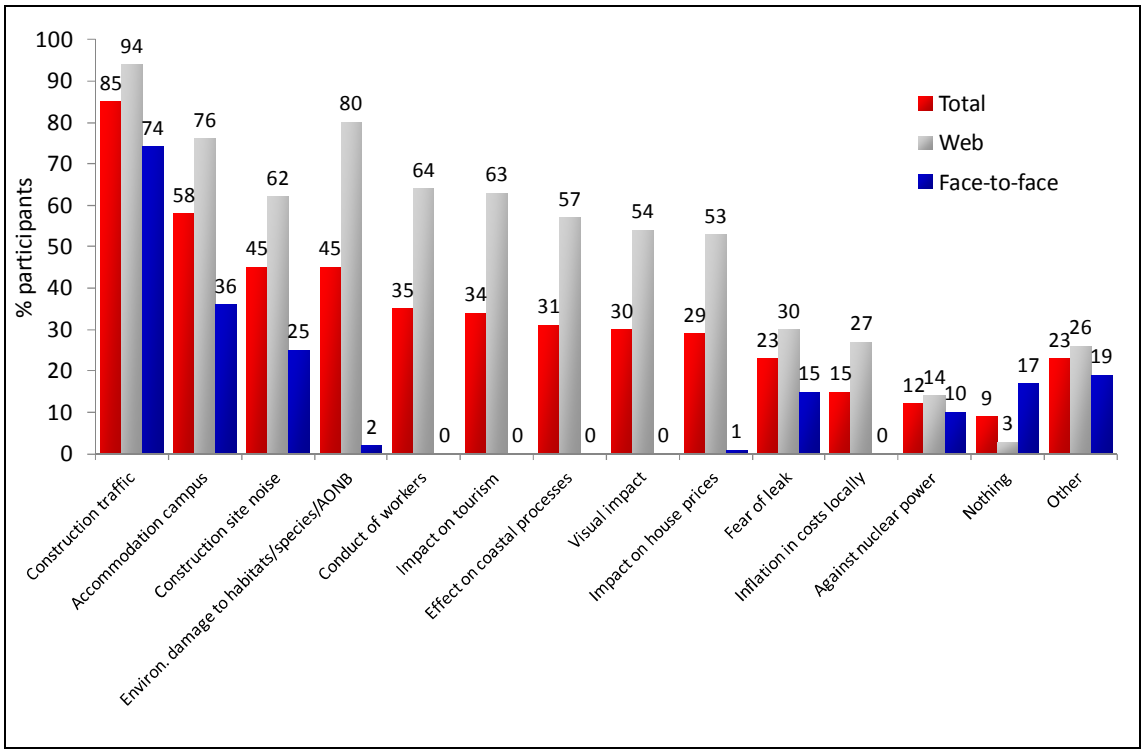


Base: total 267, Face-to-face 122, Web 145

Construction traffic (85%) was the single largest concern of residents with regard to the planned Sizewell C construction (Figure 21). Participants living close to the roads were more likely to be concerned about the construction traffic than those living further away (92% vs. 79%). In order of frequency, other oft-cited concerns were the accommodation campus (58%), environmental damage to habitats/species (45%), construction site noise (45%), conduct of workers (35%), impact on tourism (34%), effect on coastal processes (31%), visual impact (30%) and impact on house prices (29%). Less frequently cited concerns were fear of leak (23%), inflation in accommodation or other costs locally (15%) and being against nuclear power (12%). Less than one-tenth (9%) had no concerns, with face-to-face participants more likely than online participants to have stated they had no concerns. Online participants were more likely to endorse all concerns, with the exception of "being against nuclear power". Participants living further away were also significantly less likely to be concerned about anything than those living close (15% vs. 3%).

'Nothing, against nuclear power, fear of leak, construction site noise, construction traffic and accommodation campus were response categories in both the face-to-face and online surveys. Interviewers were instructed not to show the response categories to face-to-face participants. Where appropriate, 'other' responses from face-to-face participants were subsequently coded into the additional response categories available in the online survey. On average, online participants mentioned 7.0 compared with face-to-face participants who mentioned 2.0 of the concerns that were response options for both survey modes.

Figure 21: What, if anything, concerns you about the planned construction of the Sizewell C power station?

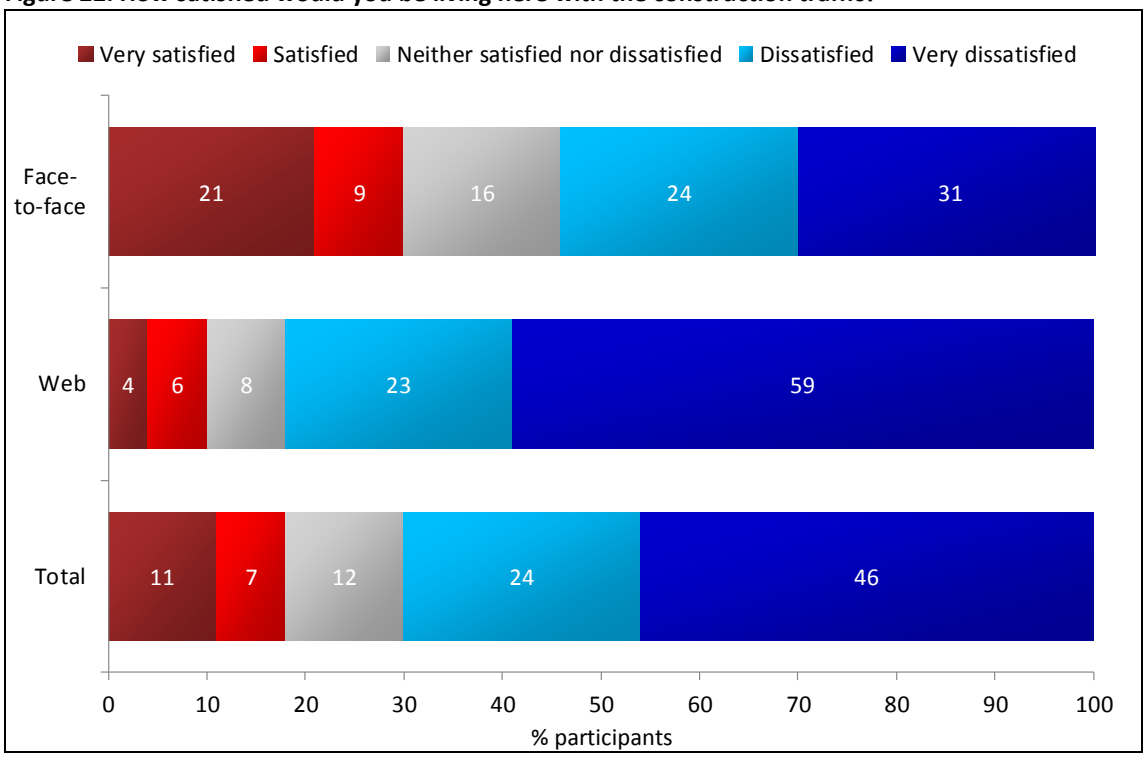


Base: total 267, Face-to-face 122, Web 145

Views on Sizewell C construction traffic

Overall, a large majority (70%) of residents would be dissatisfied or very dissatisfied living with the construction traffic (Figure 22). Less than one-fifth (18%) would be satisfied or very satisfied and 12% would neither be satisfied nor dissatisfied. Online participants were more likely than face-to-face participants to be very dissatisfied living with the construction traffic (59% vs. 31%). Conversely, face-to-face participants were more likely than online participants to be very satisfied (21% vs. 4%) or neither satisfied nor dissatisfied (16% vs. 8%).

Figure 22: How satisfied would you be living here with the construction traffic?

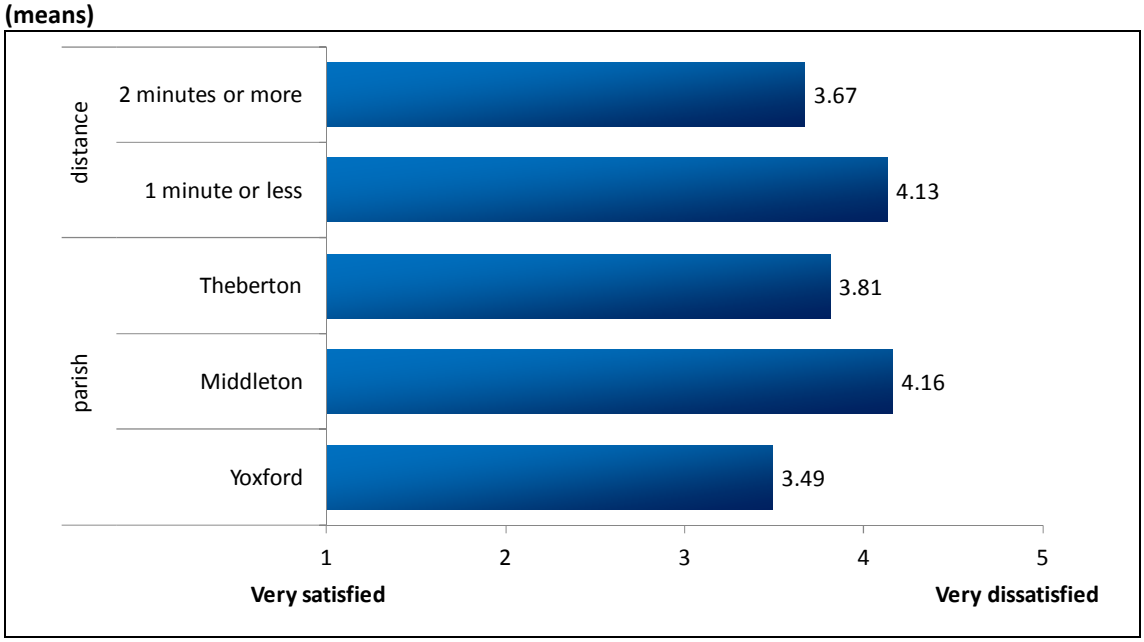


Base: residential locations and farms with residential part: total 259, Face-to-face 117, Web 142

The overall mean score was 3.86. Participants living close to the roads were significantly more likely to be dissatisfied living with construction traffic than those living further away.

Those from Middleton were significantly more likely to be dissatisfied than those from Yoxford.

Figure 23: How satisfied would you be living here with the construction traffic? By parish and distance (means)



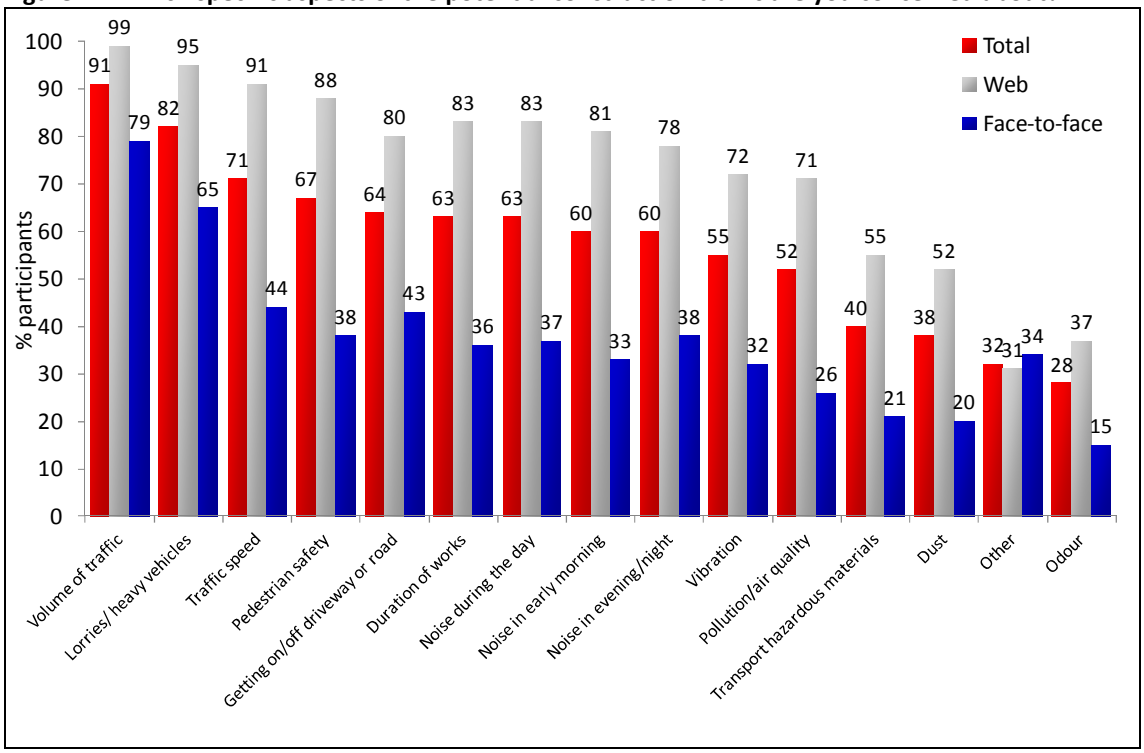
Base: Yoxford 93, Middleton 109, Theberton 52, 1 minute or less 111, 2 minutes or more 148

Even among the minority (19% of total) who had not mentioned construction traffic when asked about their concerns in general, 54% stated that they were concerned when they were prompted to comment on the potential construction traffic specifically.

The most common specific aspect of the potential construction traffic that participants were concerned about was the volume of traffic (91%; Figure 24). Other common aspects of concern were lorries and other heavy vehicles (82%), traffic speed (71%), pedestrian safety (67%), not being able to get in or out the driveway or on to the B1122/A1120/A12 (64%), duration of the works (63%), noise during the day (63%), noise in the early morning (60%), noise in the evening or at night (60%), vibration (55%) and pollution/air quality (52%). The least commonly cited were transport of hazardous materials (40%), dust (38%) and odour (28%). All aspects were more likely to be mentioned by online participants, who were prompted with a list of aspects, compared with face-to-face participants, who were not prompted. On average, online participants mentioned 11.0 concerns compared with face-to-face participants who mentioned 5.6 concerns.

Participants living close to the roads were significantly more likely to be concerned about vibration, noise (at any time), the volume of traffic, pedestrian safety and not be being able to get in/out of the driveway on to the roads than those living further away.

Figure 24: Which specific aspects of the potential construction traffic are you concerned about?



Base: those who are concerned about the potential construction traffic: total 243, Web 139, face-to-face 104

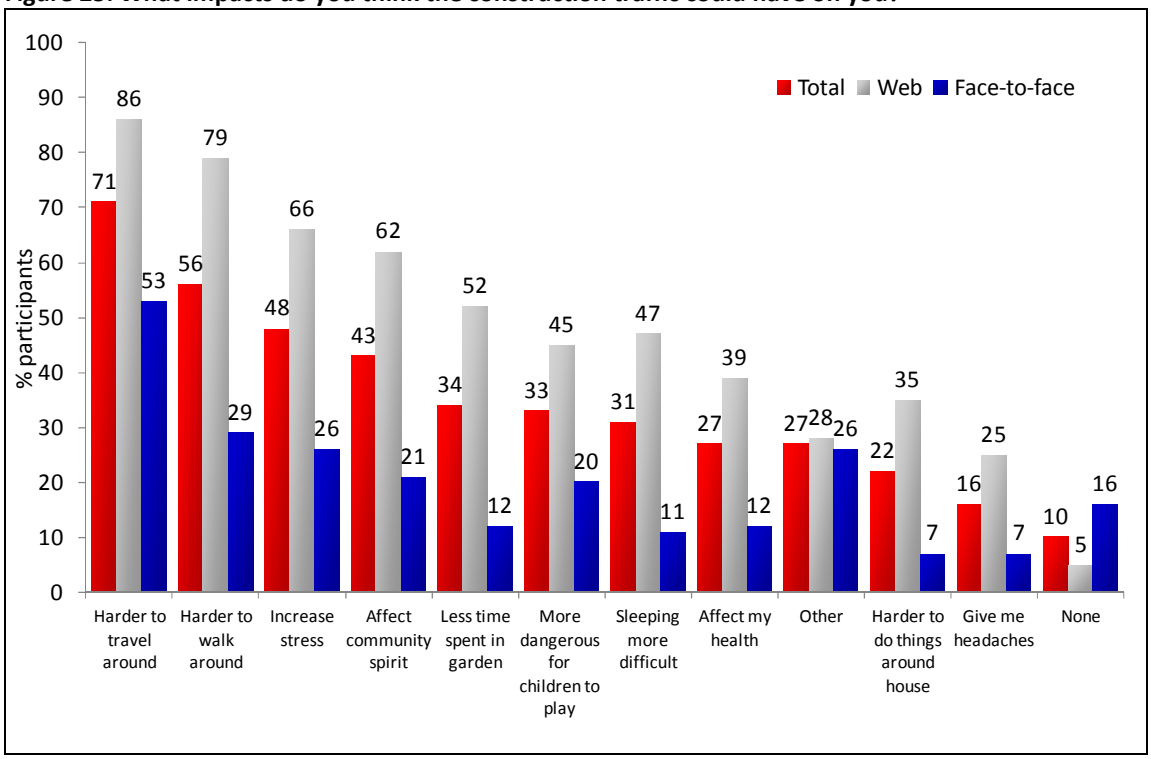
Personal impacts

Participants were asked what impacts they thought the construction traffic could have on them. The most commonly mentioned impact on themselves was making it hard to

travel around by car or bus (71%), followed by making it hard or dangerous to walk around (56%) and increased stress (48%; Figure 25). At least one-third also mentioned an impact on the community spirit or interaction with neighbours (43%), spending less time outside in the garden (34%) and making it more dangerous for children to play outdoors unsupervised (33%). Other personal impacts mentioned were making sleep more difficult (31%), an impact on personal health (27%), making it harder to do things around the house (22%) and headaches (16%). Only 10% believed that there would be no personal impact on them resulting from the construction traffic. Online participants were more likely to mention any of the potential construction traffic impacts than face-to-face participants, while face-to-face participants were more likely to state it would have no impact on them personally. On average, online participants mentioned 5.7 impacts compared with face-to-face participants who mentioned 2.4 impacts.

Participants living closer to the roads were more likely to mention all personal impacts than those living further away, with the exception of an impact on the community spirit or interaction with neighbours and making it harder to travel around by car or bus. Conversely, participants living further away were more likely to state that the construction traffic would have no impact on them personally than those living close (13% vs. 5%).

Figure 25: What impacts do you think the construction traffic could have on you?



Base: total 267, Face-to-face 122, Web 145

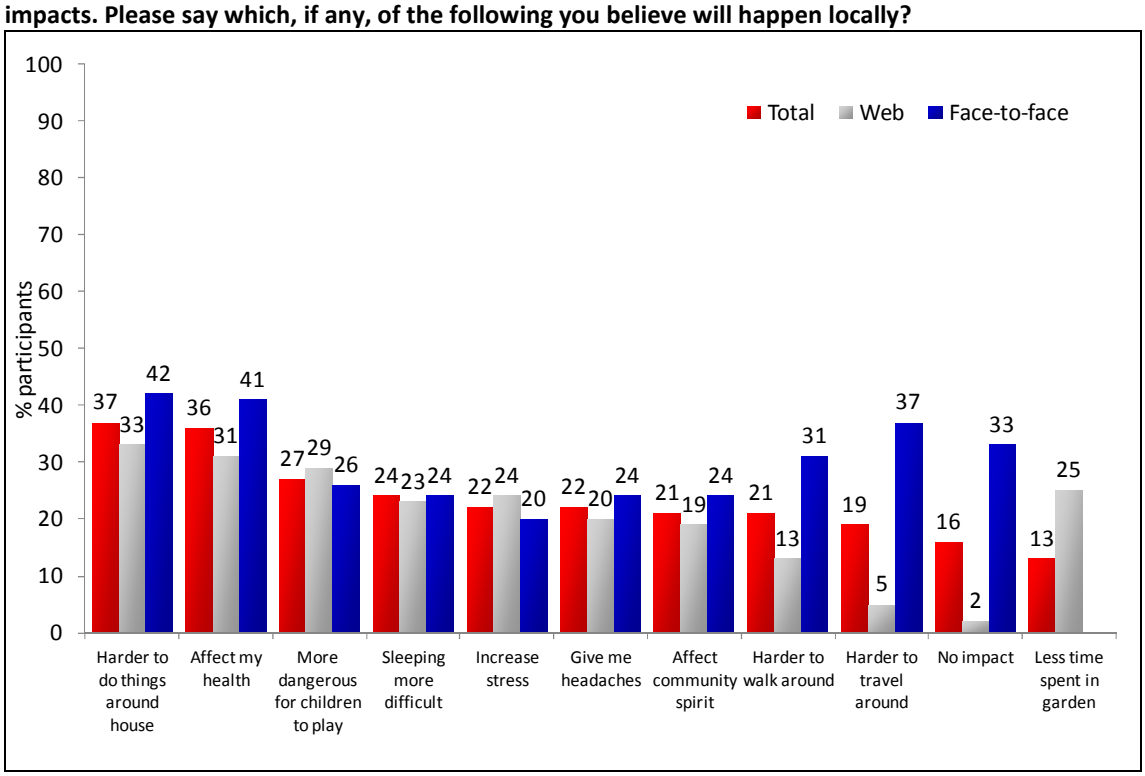
Local impacts

Participants were then asked which potential impacts would happen locally (Figure 26). Making it harder to do things around the house (37%), impact on health (36%) and making it more dangerous for children to play outdoors unsupervised (27%) were the most frequently mentioned local impacts of construction traffic. Face-to-face

participants were more likely than online participants to mention making it harder or dangerous to walk around (31% vs. 13%) and making it harder to travel by car or bus (37% vs. 5%). Face-to-face participants were also more likely than online participants to endorse no local impact (33% vs. 2%), suggesting they were less concerned about both the personal and the local impact of Sizewell C construction traffic.

There was no statistically significant difference in perceived potential local impacts between participants living close to the proposed route and those living further away.

Figure 26: Research from elsewhere has shown that construction traffic can have the following impacts. Please say which, if any, of the following you believe will happen locally?



Base: All except those who mentioned all impacts and those who didn't mention any in Q24: total 243, Web 118, face-to-face 98

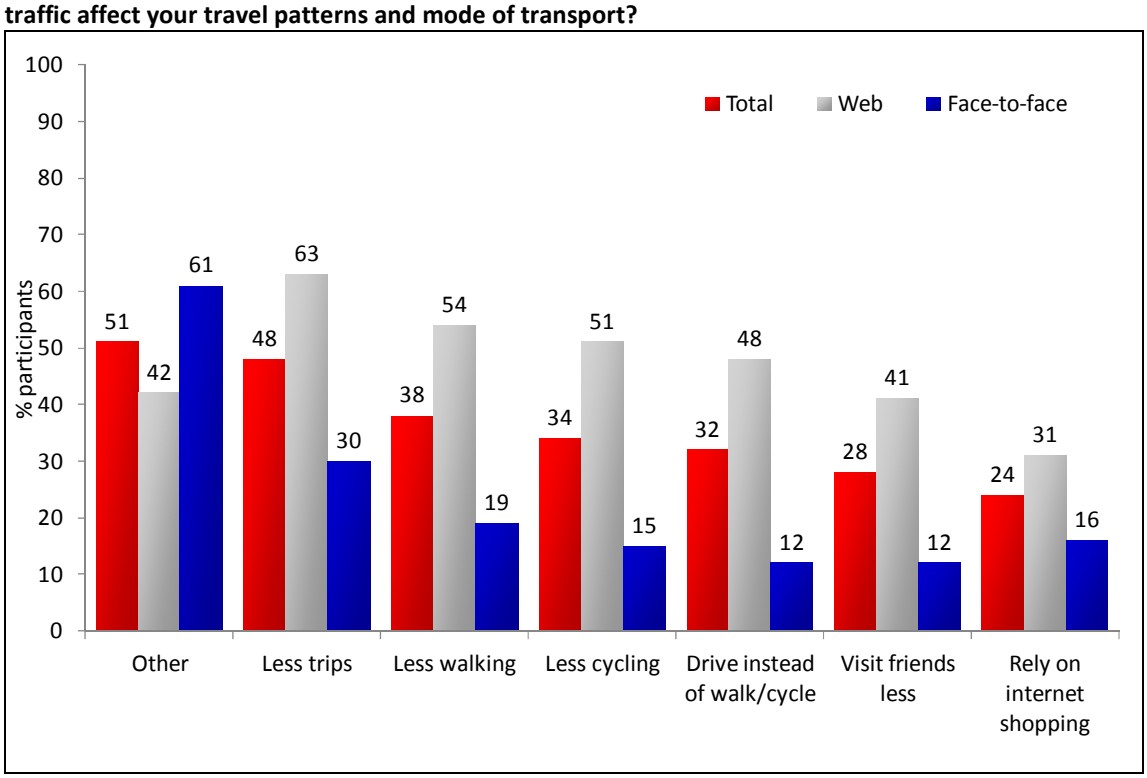
Travel impacts

Almost half (48%) of participants who travel on the B1122 and/or through Yoxford stated that they would make fewer trips (Figure 27). Around one-third thought they would walk less (38%), cycle less (34%) and/or drive instead of walk/cycle (32%). Some also believed they would visit friends less (28%) and rely on internet shopping (24%). Online participants were more likely to mention all of the listed travel impacts than face-to-face participants. Around half (51%) stated that it would have an 'other' impact on their travel patterns and mode of transport. Common 'other' impacts were increased journey time, delays, change in time of travel, change in travel route, increased stress/frustration when travelling and no impact. Face-to-face participants were more likely to have given an 'other' response than online participants.

Participants living close the proposed route were more likely to state that they would walk less than those living further away; there were no other significant differences

between participants living close and further away: 49% lived near compared to 30% who lived further away.

Figure 27: You said you travel on the B1122 and/or through Yoxford. How would the construction traffic affect your travel patterns and mode of transport?



Base: total 267, Face-to-face 122, Web 145

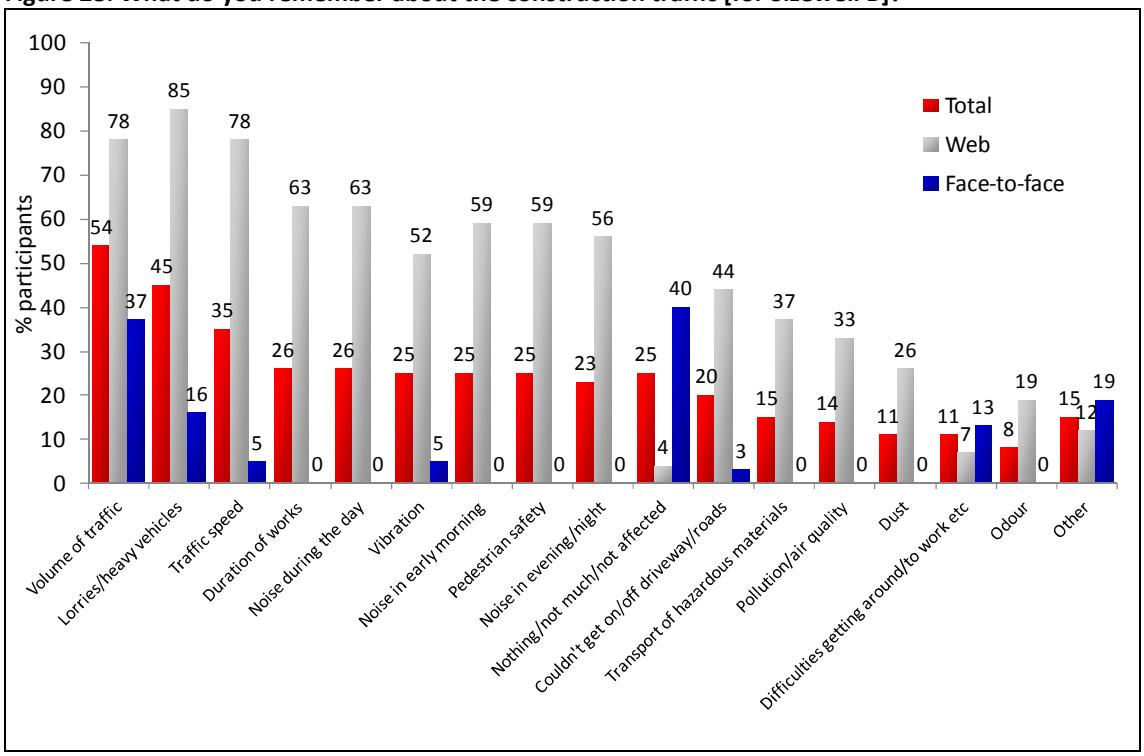
Views on Sizewell B

Sizewell B construction

Around one-third (31%) of participants had been living in the area for more than 20 years and could therefore have experienced the Sizewell B construction. Among this group of 83 respondents, 78% confirmed they were living in the area during the Sizewell B construction, 13% stated they were not and 8% did not remember. Views of the Sizewell B constructions are based on the responses of 65 participants who confirmed they were living in the area at the time. Due to the small sample size, differences between face-to-face (27) and online (38) participants could not be examined reliably. Differences between face-to-face and online participants and those living close and further away were therefore not examined in the statistical analysis. Equal proportions thought the impact was worse (40%) or about the same (40%) as they had expected. Only 5% said the impact was better than expected and 15% could not remember.

Among participants who had confirmed they were living in the area at the time, volume of traffic (54%) was most frequently remembered, followed by lorry and other heavy vehicles (45%) and traffic speed (35%). Detailed results are presented in Figure 28. Face-to-face participants were asked an open-ended question, and responses were subsequently coded into the same response options as in the online survey.

Figure 28: What do you remember about the construction traffic [for Sizewell B]?

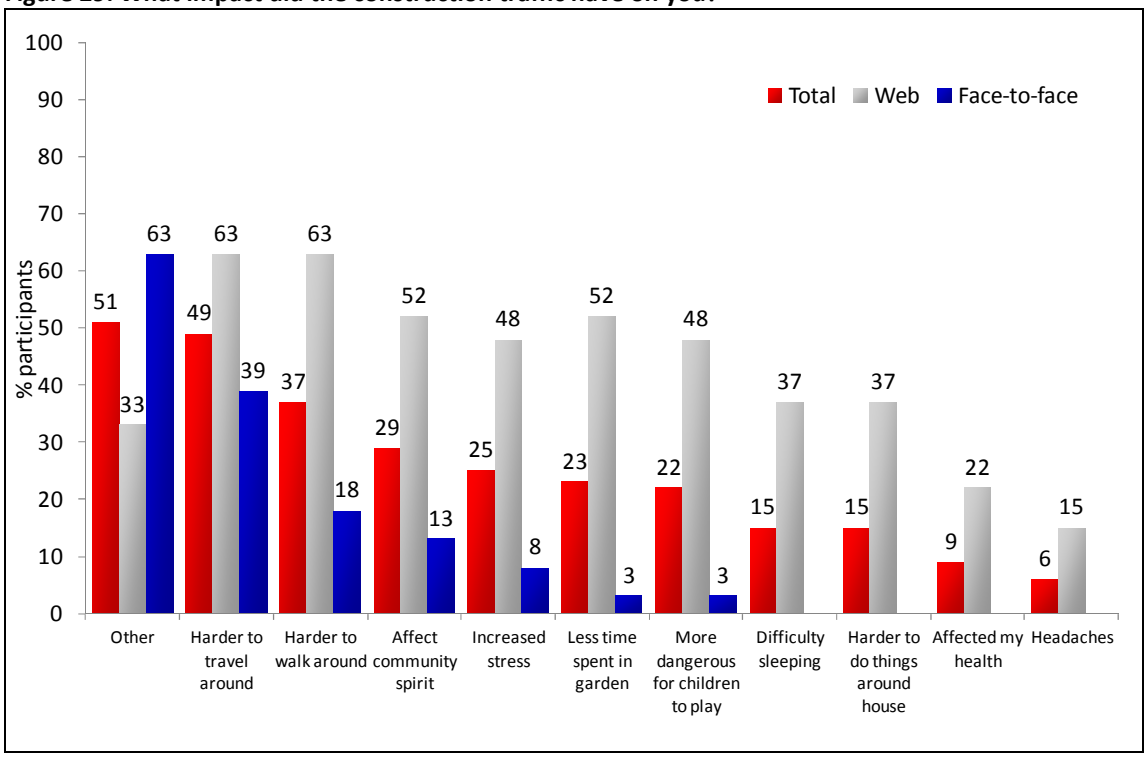


Base: participants who were [living/located] in the area during the Sizewell B construction: total 65, Web 27, Face-to-face 38

The most commonly reported impact of the Sizewell B construction was it being harder to travel around by car or bus (49%), followed by it being harder or dangerous to walk around (37%; Figure 29). At least a quarter also believed it had affected the community spirit/interaction with neighbours (29%) and increased stress (25%).

Online participants, but not face-to-face participants, were also asked if they had made any complaints about the construction traffic at the time of the Sizewell B construction. Over one-third (37%) stated they had made a complaint (more than once). Of the ten participants who had made a complaint, four had received a response to their complaint and eight made further complaints.

Figure 29: What impact did the construction traffic have on you?



Base: participants who were [living/located] in the area during the Sizewell B construction: total 65, Web 27, Face-to-face 38

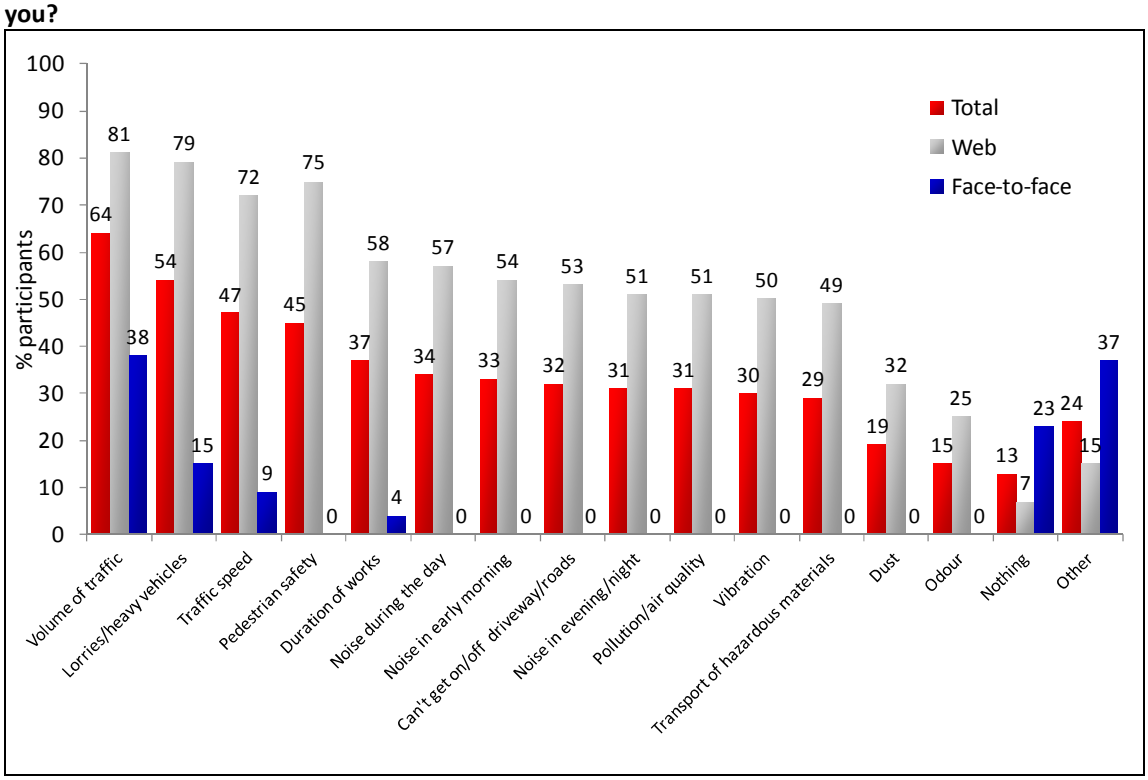
Sizewell B Dry Fuel Store construction

Overall, almost half (46%) were aware of the Sizewell B Dry Fuel Store construction. Among those who were aware, 50% thought the impact was about the same as expected, 33% thought it was worse. Only 2% thought it was better than expected and 15% could not remember. Participants living close to the roads were more likely to state that the impact was worse than expected compared with those living further away (44% vs. 24%).

When asked about the nature of/concerns about the Sizewell B Dry Fuel Store construction traffic, participants most frequently commented on the increased volume of traffic (64%), followed by lorries and heavy goods vehicles (54%), and traffic speed (47%). Around one-eighth (13%) had not noticed anything. Responses to the nature of/concerns about the Sizewell B Dry Fuel Store construction traffic are presented in more detail in Figure 30. However, note the question was worded differently in the face-to-face and online surveys. Responses of face-to-face participants were coded into the same response options as in the online survey. Differences between online and face-to-face were nearly always statistically significant. This is likely due to face-to-face participants having been asked an open-ended question without probes.

Participants living close to the roads were more likely to mention most concerns, except for the volume of traffic, pollution/air quality, dust and odour, than those who lived further away. Conversely, participants living further away were more likely to have had no concerns than those living close to the roads.

Figure 30: What was the nature of the construction traffic/ aspects of the construction traffic concern you?

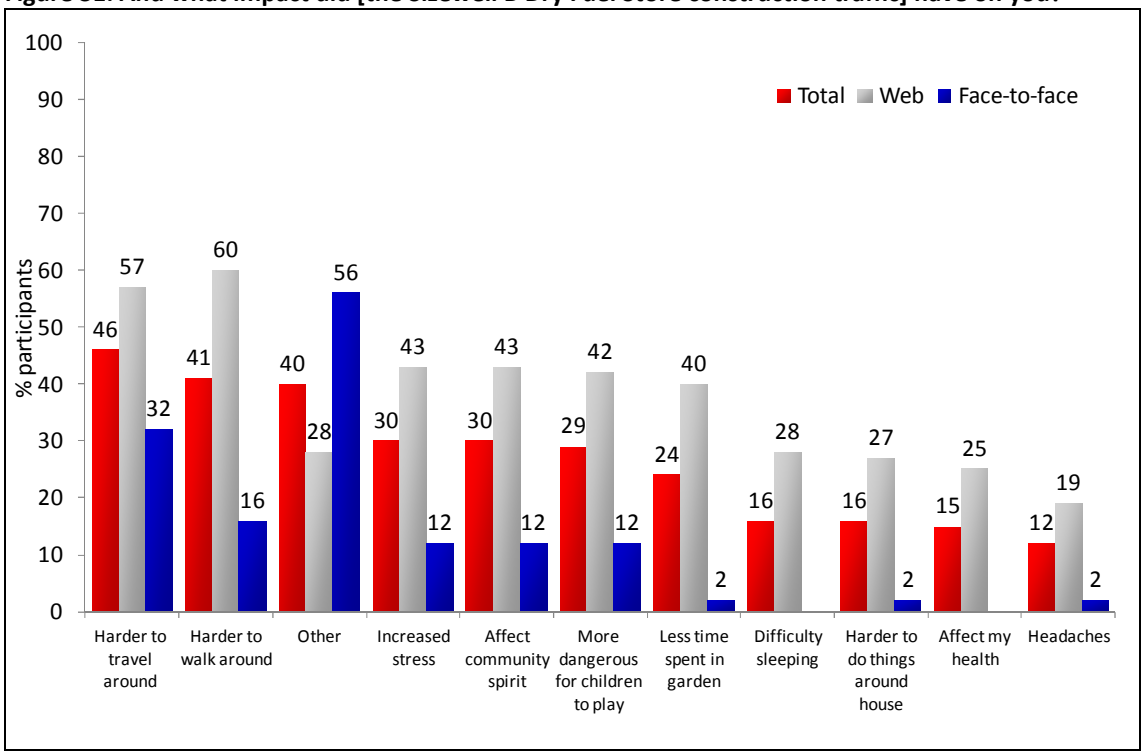


Base: participants who are aware of Sizewell B Dry Fuel Store construction (119)

Among those who were aware, the most common impact of the Sizewell B Dry Fuel Store construction traffic was it being harder to travel around by car or bus (46%; Figure 31). Being harder or dangerous to walk around (41%), increased stress (30%), on the community spirit/interaction with neighbours (30%) and less time spent outside in the garden (24%) were also mentioned by a quarter or more. Difficulty sleeping (16%), harder to do things around the house (16%), an impact on personal health (15%) and headaches (12%) were less frequently mentioned. All impacts were more frequently endorsed by online participants than face-to-face participants. In contrast, the latter gave an 'other' response, with the most frequent reason being that they had experienced no impact. On average, online participants mentioned 4.1 impacts compared with face-to-face participants who mentioned 1.5 impacts.

Most impacts were more likely to have been experienced by participants living close to the roads than those living further away, with the exceptions being increased stress, headaches and an impact on the community spirit/interaction with neighbours.

Figure 31: And what impact did [the Sizewell B Dry Fuel Store construction traffic] have on you?



Base: those who are aware of Sizewell B Dry Fuel Store construction: Total 117, Web 67, face-to-face 50

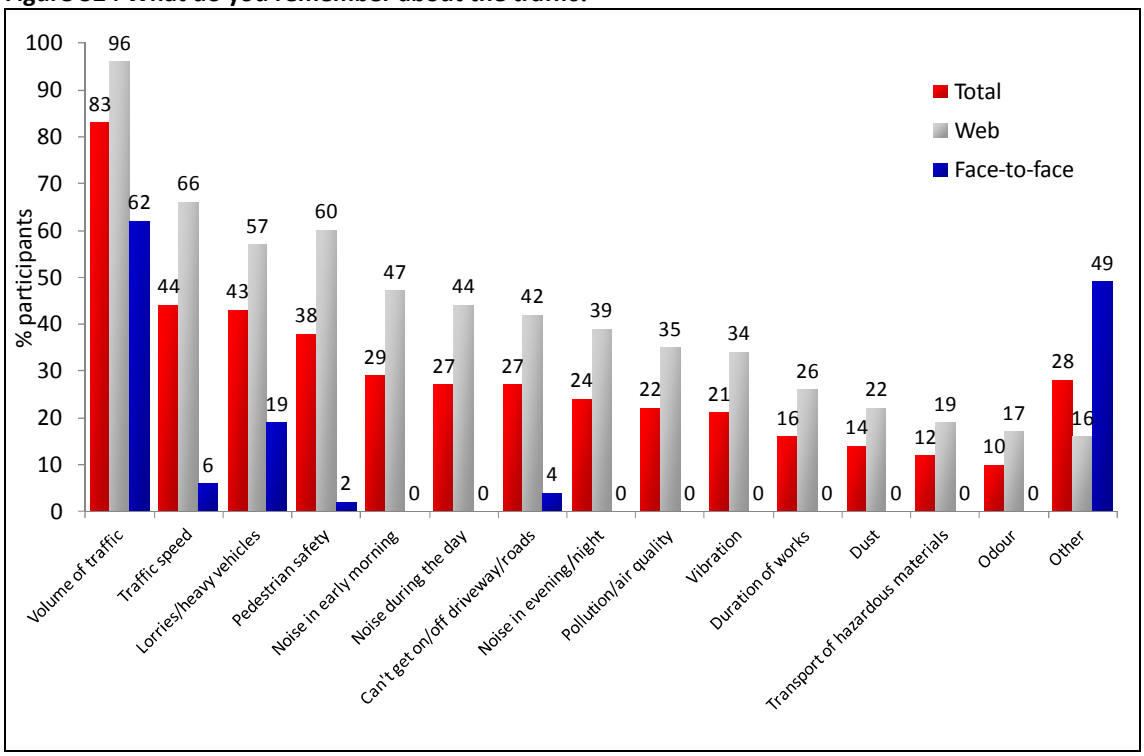
Around 30% had made a complaint about the construction traffic. Of those who had complained, half (50%) had received a response to their complaint and 40% had made further complaints.

Sizewell B outages

Almost half (46%) of the participants had been aware of changes in traffic during the last Sizewell B outage in October 2014. Participants living close to the roads were more likely to be aware than those living further away (54% vs. 41%). When asked what they could remember about the traffic, participants who had been aware of changes most commonly commented on the increased volume of traffic (83%), followed by traffic speed (44%) and lorries and other heavy goods vehicles (43%). Detailed findings of participants' observations on the traffic impact of Sizewell B outages are presented in Figure 32. Responses of face-to-face participants were coded into the same response options as in the online survey. Differences between online and face-to-face were nearly always statistically significant. This is likely due to face-to-face participants having been asked an open-ended question without probes.

Participants living close to the roads were more likely to remember the duration of the works, vibration, noise (any time of the day) and speeding traffic than those living further away.

Figure 32 : What do you remember about the traffic?

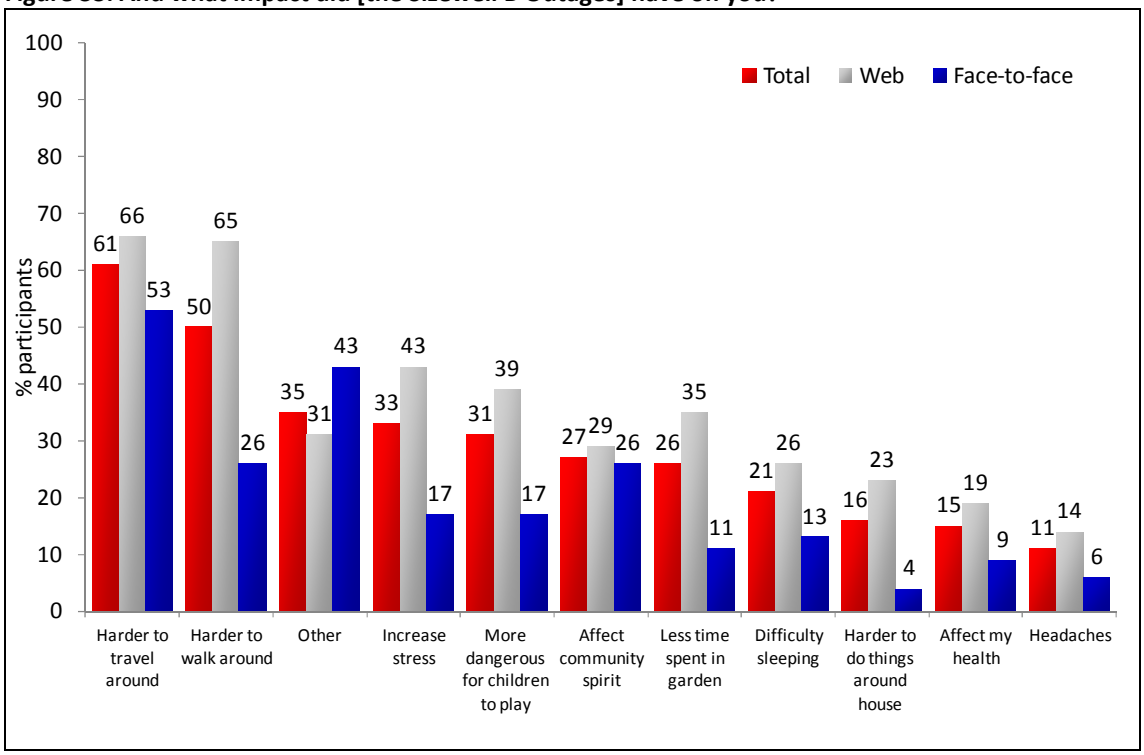


Base: participants who were aware of the traffic changes during the last outage: Total 124, Web 77, face-to-face 47

The most common personal impact was it being harder to travel around by car or bus (61%; Figure 33). Harder or dangerous to walk around (50%), increased stress (33%), more dangerous for children to play outdoors unsupervised (31%), effect on community spirit/interaction with neighbours (27%) and less time spent outside in the garden (26%) were also mentioned by more than a quarter. Less frequently mentioned impacts were difficulty sleeping (21%), harder to do things around the house (16%), an impact on personal health (15%) and headaches (11%). Around half of the listed impacts (harder or dangerous to walk around, more dangerous for children to play outdoors, increased stress, harder to do things around the house) were more frequently mentioned by online participants than face-to-face participants. On average, online participants mentioned 3.9 impacts compared with face-to-face participants who mentioned 2.2 impacts.

Participants living close to the roads were more likely to have experienced difficulty sleeping than those living further away; there were no other statistically significant differences related distance from roads.

Figure 33: And what impact did [the Sizewell B Outages] have on you?

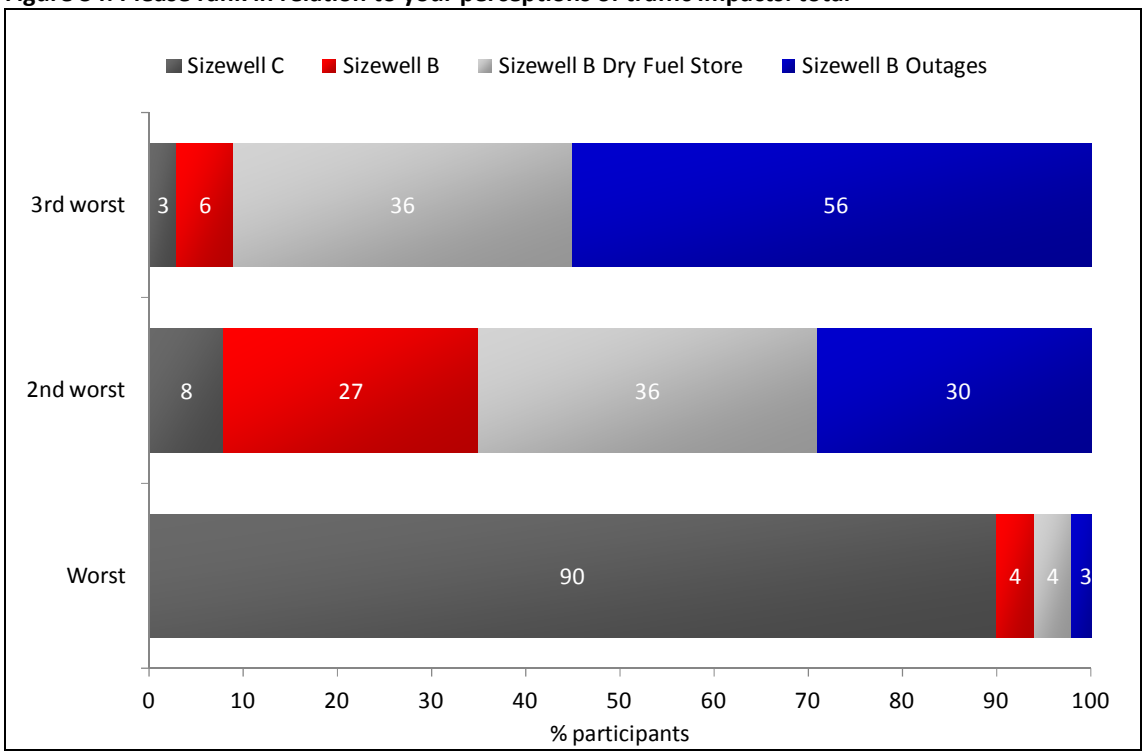


Base: participants who were aware of the traffic changes during the last outage: Total 124, Web 77, face-to-face 47

Relative impact of Sizewell works

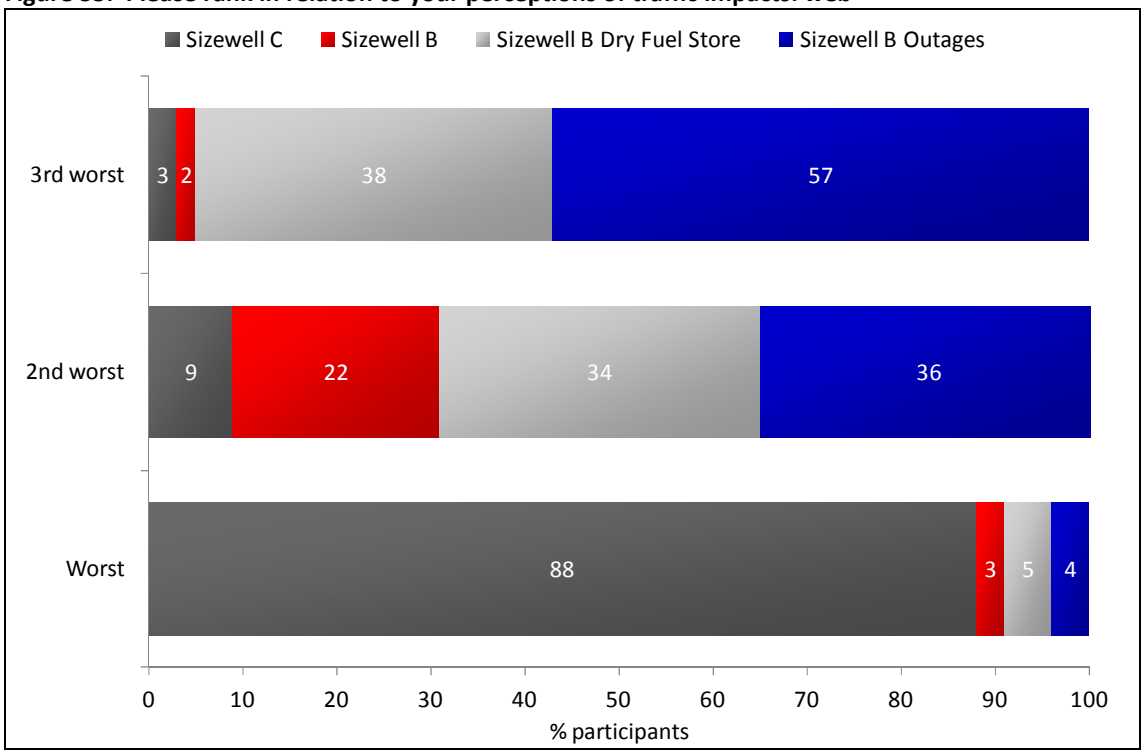
All participants who had been aware of at least one of the Sizewell B works (Sizewell B construction, Dry Fuel Store construction and the outages) were asked to rank the perceived traffic impact of those and the estimated impact of the planned Sizewell C construction. Results for all participants are presented in Figure 34. Findings for online participants and face-to-face participants are shown in Figure 35 and Figure 36 respectively. A vast majority (90%) expected Sizewell C to have the worst impact on traffic. The second rank was assigned in roughly similar proportions to the Sizewell B construction (27%), the Dry Fuel Store construction (36%) and the outages (30%). Online participants were more likely to assign the second rank to outages than face-to-face participants. Over half (56%) ranked the outages as the third worst, followed by the Dry Fuel Store construction (36%) and the Sizewell B construction (6%). Face-to-face participants were more likely to rank the Sizewell B construction as the third worst than online participants. Participants living close to the roads were more likely to rank the outages as the third worst than those living further away. There were no other statistically significant differences in ranking between those living closer and further away.

Figure 34: Please rank in relation to your perceptions of traffic impacts: total



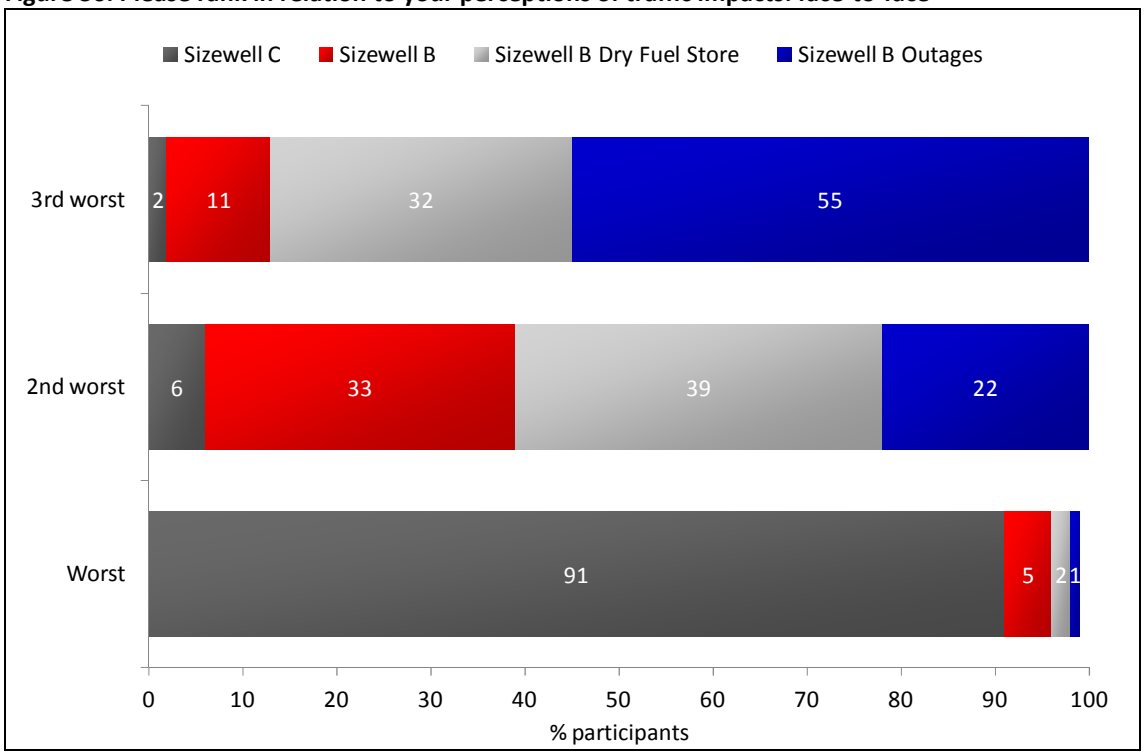
Base: Those who were [living/located] during the Sizewell B construction, were aware of Sizewell B Dry Fuel Store construction or were aware of Sizewell B outages: Total 183, Web 101, face-to-face 82

Figure 35: Please rank in relation to your perceptions of traffic impacts: web



Base: Those who were [living/located] during the Sizewell B construction, were aware of Sizewell B Dry Fuel Store construction or were aware of Sizewell B outages: Total 183, Web 101, face-to-face 82

Figure 36: Please rank in relation to your perceptions of traffic impacts: face-to-face



Base: Those who were [living/located] during the Sizewell B construction, were aware of Sizewell B Dry Fuel Store construction or were aware of Sizewell B outages: Total 183, Web 101, face-to-face 82

3.5 Conclusions

A total of 267 participants took part in the initial consultation survey; 122 were completed face-to-face and 145 online after the face-to-face interviews were finished.

All survey participants were aware of the planned construction of the Sizewell C power station at the time of survey completion. Overall, 58% had taken part in the Stage 1 consultation through attending meetings, responding to the consultation questionnaire or responding in another way. Furthermore, 48% had also taken part in other activities related to the planned construction of Sizewell C such as Parish Council or Local Authority meetings.

Residents from the Yoxford, Middleton and Theberton/Eastbridge were roughly equally represented in the survey. Over one-third lived within close proximity (one minute or 100 metres) of the nearest road to their home. The survey population was older and from relatively affluent backgrounds compared with the general UK population. Almost all participants had access to at least one car and travelled on the B1122 and/or through Yoxford on a daily or weekly basis.

General views of the planned Sizewell C construction were negative: half were opposed (score of 0 to 4) and a third supportive (score of 6 to 10).

Local employment opportunities were most frequently stated as a likely benefit. Construction traffic was the single largest concern. Other common concerns were the accommodation campus and environmental damage to habitats/species.

A considerable majority anticipated that they would (become) dissatisfied living where they are with Sizewell C construction traffic. This contrasts sharply with a vast majority of participants being satisfied living where they were at the time of survey completion. The most commonly cited benefit of where they lived was access to the coast and an Area of Outstanding Natural Beauty. However, a majority believed that speeding traffic was an issue under current circumstances.

The most common specific aspect of the potential construction traffic that participants were concerned about was the volume of traffic (91%). Other common aspects of concern were lorries and other heavy vehicles (82%), traffic speed (71%), pedestrian safety (67%), not being able to get in or out the driveway or on to the B1122/A1120/A12 (64%), duration of the works (63%), noise during the day (63%), noise in the early morning (60%), noise in the evening or at night (60%), vibration (55%) and pollution/air quality (52%).

The most commonly anticipated impact from the construction traffic on participants' personal life was making it hard to travel around by car, followed by making it hard or dangerous to walk around and increased stress. At least one-third also endorsed an impact on the community spirit or interaction with neighbours, spending less time outside in the garden and making it more dangerous for children to play outdoors unsupervised. Only a small minority believed that there would be no personal impact on them resulting from the construction traffic.

Almost half of participants who travel on the B1122 and/or through Yoxford on a regular basis stated that they would make fewer trips. Around one-third thought they would walk less, cycle less and/or drive instead of walking/cycling. Other commonly mentioned impacts were congestion-related consequences. Some also stated that the construction traffic would not have an impact on their personal travel patterns.

Around one-third of participants had been living in the area for more than 20 years and could therefore have experienced the Sizewell B construction. Around three-quarters confirmed they were living in the area during the Sizewell B construction. Almost half were aware of the Sizewell B Dry Fuel Store construction and the last Sizewell B outage in October 2014. Among those who had experienced Sizewell B works, the vast majority (90%) expected Sizewell C to have the worst impact on traffic.

To conclude, the vast majority of residents had (grave) concerns regarding the construction traffic that would be associated with the construction of the Sizewell C power station.

4. PHASE II: DEPTH CASE STUDIES

4.1 Introduction

We undertook follow up in-depth interviews with a sub-sample of the households from Phase I. Households representing a range of initial views were recruited. The objective of the depth case studies was to gain deeper insight into the views of residents within the catchment area of the route. In particular, we aimed to understand in detail what the issues were, how impactful they were expected to be and what interventions might help mitigate against the impacts.

4.2 Methodology

Sampling strategy

The sampling strategy aimed to ensure that a range of views on the impact of the proposed Sizewell C construction traffic (SZC) were represented. Recruitment was broadly based on the prevalence of their views in the wider sample (see Chapter 2 Figure 22), with a slight overrepresentation of those with less prevalent views to ensure that a comprehensive range of views was covered within the limited number of in-depth interviews. Furthermore, we included participants with different demographic profiles and recruited roughly equal numbers in each of the three affected parishes. To ensure a good coverage of demographics with less flexible time schedules, we conducted five out of 20 interviews by telephone; the remaining 15 interviews were conducted face-to-face in participants' homes or business premises. A more detailed breakdown of participant characteristics is provided in Table 3.

Table 3: participant characteristics depth case studies

Perception of impact Sizewell C development	10 would be (very) dissatisfied living with SZC construction traffic 6 would be neither satisfied nor dissatisfied living with SZC 4 would be (very) satisfied living with SZC
Parish	7 interviews in Yoxford 6 interviews in Middleton 7 interviews in Theberton
Proximity to affected roads	16 in most affected zone (blue zone Appendix C) 4 in less affected zone (red zone Appendix C)
Age	4 aged <44 4 aged 45-54 3 aged 55-64 6 aged 65-74 3 aged 75+
Employment status	8 retired 5 working full-time 3 working part-time 2 not working 1 part-time student 1 other (self-employed)
Residential or business	18 residential homes 2 businesses (both in the food and drink industry)

Procedure

Two qualitative researchers conducted 20 in-depth interviews for this phase of the research. Participants were asked open questions regarding their views on the proposed Sizewell C development and their experiences with Sizewell B. A copy of the topic guide is attached in Appendix E. See Appendix J for a description of the process for recruiting the depth interviews.

Analysis

All interviews were transcribed in full. Transcripts excerpts were grouped by the main research questions they addressed:

- How do residents and businesses think they and the local community will be impacted by the Sizewell C construction traffic?
- What are residents' and businesses' views on mitigation of this impact?
- How do residents and businesses think Sizewell C will impact on them and the local community more generally?
- How has experience with the Sizewell B construction, Sizewell B Dry Fuel Store Construction, and Sizewell B Outages affected residents' and businesses' views?

Excerpts were coded to identify themes. Excerpts with similar themes and contrasting themes were compared to identify areas in which there was consensus and areas in which opinions were more divided. Participant characteristics were also compared to examine whether these could explain differences and similarities in participants' views. For example, participants living closer to the affected roads may have more serious concerns about the construction traffic than those who live further away.

4.3 Findings

This section describes the key themes identified through the analysis as described above. Themes are illustrated by selected quotes from the transcripts presented in tables at the end of each section.

Views of Sizewell C construction traffic

The construction traffic was one of the main concerns if not the single biggest concern of most participants. Perhaps understandably, all participants who had residential homes on the affected roads were extremely concerned about the impact of the proposed Sizewell C construction traffic. There was a widely-held belief among this group of residents that the sheer volume of traffic was too large for the roads along the proposed route, especially the B1122, to handle. Mitigation measures along the proposed route were perceived to be inadequate and/or not feasible. This view was shared by many other participants who lived further away, although a minority thought that concerns were exaggerated or had not taken a firm view due to being

insufficiently informed. Table 4 presents illustrative quotes of participants' views of the impact of Sizewell C construction traffic as currently proposed.

Table 4: Illustrative quotes of participants' views of Sizewell C construction traffic

Themes	Quotes
Road not fit for purpose **Destruction of village character**	What I'm opposed to is the fact that they are talking of running the supplies for the building down the road which is to quote the expression **'not fit for purpose'**…It's a **single lane**. It's **very narrow**…There are **small villages** all the way through... The traffic is going to come up the A12 or down the A12 …It's then going to turn into and I believe there's talk about a **big roundabout** at Yoxford which is going to **devastate Yoxford village** and then it's going to come down the **1122** which is a very narrow road with **no pavements**, **no street lighting** and in a **very bad state of repair** if you look at it. – *Middleton Participant 3*
Noise **Air pollution** **Damage to buildings**	"There is the **pollution**… there is the potential of obviously the **noise** and the impact on the road, impact potentially on the building if we're looking at **very heavy traffic** coming through on a regular basis, we are looking at a **building that is early 19th century** here... There is definitely a concern if we are looking at particularly **heavy traffic coming through** and whether that does **create problems with the building**" – *Theberton Participant 1*
Road safety concerns	"There are **safety issues on this road**... It looks fairly straight but there are **bends** and we have difficultly pulling out of our drives because we have **very poor visibility**. One of my neighbours, …he will come out to the other side of the road to tell [his wife] it's clear because she cannot see. If she pulls out when one of those lorries goes by I mean there's going to be an **accident**." – *Yoxford Participant 2*
Emergency route for Sizewell **Quality of life**	"In the event of **something going horribly wrong** like in Fukushima in Japan or Chernobyl in Russia, there has to be good ways of getting people in and out of this area and **this road would become that conduit as well. That cannot be right.** I think when you're planning something, you need to plan for the 'What if'? And that must involve **how to supply and build the place initially** and secondly some sort of **escape route** if something went horribly wrong. So to me, it really does quite simply come back to this road because that will have a major effect on people's **quality of life." –** *Middleton Participant 1*
Exaggerated concerns	"I think **they'll do their very, very best to cut down the impact** [of the construction traffic] … I don't think that it will cause much [trouble], **I'm pretty relaxed. People haven't got patience these days that's the trouble.** It's the same as if they get caught up behind a tractor or something, it's the end of the world for some people, whereas if you only use a little bit of patience and sort of." – *Yoxford Participant 1*
Insufficiently informed to take a view	"There's a lot of people with signs up that say...'We don't want an extra 600 trucks a day', in terms of traffic. Now **I don't know where that figure of 600 came from**. Is that day and night, or is it just during the day? How many days is that for? Is it just during the week? I've got no idea... **It's very hard to say, 'Actually, I'm completely opposed to this and I really want the relief road', without being completely clear** on, you know, what sort of extra traffic we might be looking at." - *Yoxford Participant 7*

Perceived impact of Sizewell C construction traffic on personal lives

Among those who were concerned, the general sentiment was that their overall quality of life would be affected to various degrees by the Sizewell C construction traffic.

Those living on the affected roads were concerned about the direct impact of heavy construction traffic on many aspects of their day-to-day lives. Constant traffic noise, vibration from heavy traffic, air pollution, and safety issues were the most frequently cited direct concerns. These traffic externalities were perceived to impact on people's health (including sleeping problems and stress), the enjoyment of their immediate environment, their ability to get around, and the likelihood of road accidents. Wider concerns included devaluation of their property and/or difficulties selling their property, a negative impact on local tourism and to a lesser extent agriculture, and the impact on more vulnerable residents, such as the elderly and children, and the local community more generally.

Residents living further away from the proposed routes had more diverging views. Many had similar concerns to the residents living along the affected roads. Traffic congestion and difficulties getting around were the most frequently mentioned impacts on their personal lives. However, a minority who were living further away were less concerned about the construction traffic that would be associated with the Sizewell C development. Reasons for these views included a belief that traffic would not be an issue provided that it was properly managed, lack of negative experiences from Sizewell B, and the opinion that residents along the proposed routes should have been aware of the potential construction of Sizewell C when they decided to live there.

The two businesses in the sample felt ambivalent about the Sizewell C construction traffic. On the one hand, a larger volume of traffic could potentially lead to more passing trade. On the other hand, traffic congestion could keep their existing customer base away from their premises.

Traffic congestion was the single factor that would most likely impact on participants irrespective of their proximity to the affected roads. Table 5 shows illustrative quotes of the perceived impact of Sizewell C construction traffic on congestion and access issues. Table 6 presents quotes concerning perceived impacts other than traffic congestion. Finally, Table 7 provides examples of factors that participants believed would reduce the impact on them personally.

Table 5: Illustrative quotes of the impact of Sizewell C construction traffic on congestion

Themes	Quotes
Difficult to get around, but would not stop going out **Concern for vulnerable local residents**	**"We live tucked away up here, it's a cul de sac**, so people come up here and turn a little bit…. It will be **difficult** for me personally **to drive and get out onto the A1122**… I **don't envisage myself sitting in the house not going anywhere** because I'll be worried about the construction traffic. But there are **people older than me** that do drive around and **I would be concerned for some of them**. It wouldn't keep me stuck in the house, but it **would make my journeys longer and more stressful** I think." – *Yoxford Participant 3*
Difficult to get	"I mean, **I'm disabled**. …that **would be pretty intimidating with that amount of**

around, would stop going out **Disability**	**traffic**. I don't drive that much but I would imagine **it would probably stop me doing that**...But you know, I'm one person, you know, I don't have to live here, I rent. So I don't have to live here but I kind of want to live here." – *Middleton Participant 6*
Difficult to get around, need for frequent travel **Business travel**	**"We're in and out of our drive a lot**, several times a day,… so in and out all the time. I have to come backwards and forwards, it would have a **very severe impact on our lives just trying to get out onto the A12** with the proposals as they are at the moment" – *Yoxford Participant 5*
Longer travel times	…**it won't stop me doing what I want to do, it might take me a bit longer to get there** and do it but it won't stop me doing what I want to do. – *Theberton Participant 5*
Shop less frequently to adapt	…**rather than popping to the shop 3-4 times a week to go and get a few bits for a couple of days. I'll do 1 big shop a week**, I'll get everything I need, so just reduce the amount of time that I am on the road. – *Yoxford Participant 4*

Table 6: Illustrative quotes of perceived impacts of Sizewell C construction traffic other than congestion-related impacts

Themes	Quotes
Sleep disturbance **Traffic vibration** **Air pollution** **Large parts of the house unusable** due to noise	"…the **noise impact which will be massive in spite of the fact the house is double glazed…** At the moment **we live on…** a country road, but **this proposal turns it into something akin to a motorway**. … Well it **wakes you up in the morning**. It's quite quiet here most of the time, but **when there's big lorries** going past… the **reverberation is huge**. It's a **very big impact** from being relatively quiet to having lorries thundering past day in and day out... Then there's the **exhaust fumes** as well, which all add to it… Yeah the **noise impact is a real worry** for us. **We are close to the road**… and the noise there will be, **it'll make those rooms** [uninhabitable] **so that we can't use them**." – *Yoxford Participant 5*
Quality of life **Devaluation of property**	"Well just the **quality of life**, **in every respect** really, the quality of life that will be affected… **our house is up for sale**, another big issue. **What's the chances of selling it at the moment**, very unlikely... We love it here. We're so upset that we're going to have to move basically or think we're going to have to move, so it's **very difficult to think of anything would mitigate that situation**." – *Middleton Participant 2*
Negative impact on **tourism**	"We are a **very big tourist area**…. There's lots of holiday cottages and people come because it's peaceful. They come for the bird watching… If we're going to have all these **huge great lorries rumbling past all the time then people won't want to come**. They might come to begin with but then they'll think to themselves 'Oh dear, it's a job to get out on that road' or 'There was lorry after lorry and there was noise', they won't come so that's going to totally destroy our tourist area." – *Middleton Participant 5*
Noise **Light pollution** **Damage to buildings**	**"Noise** pollution and **light pollution**. At the moment you can look up at the sky round here and **you can see the stars when the clouds aren't there and it's beautiful**... The noise, like I say depending on which way the wind is blowing is going to be a nightmare because we'll a **single-glazed windows** here as well. We **can't have double-glazing** because of the **listed building** thing so you can hear." – *Theberton Participant 2*
Road safety for children **Speeding traffic**	"My children are older now **but talking to other mums**, there's a playing field. **We're this side, the playing field is the other side of the village**. **Again for the bus stop, they have to cross that road on their own to get to the bus stop from**

	here... For the school bus. It's danger all the time...With the heavier traffic. If the one in front is doing 40 then the one behind will be doing 40. This **lack of regard for our speed limits** and for our children and our village, they're just not going to take care as they go through the village." – *Theberton Participant 3*
Potential negative impact on **trade**	"So **constant stream of traffic** which **makes it very difficult to leave or access your property which again has a big impact potentially on me** because **whilst it could increase passing trade**, **if that trade can't actually get on the road to access the [business]** then it makes us… it's a real negative." – *Participant X*
Cycling unpleasant and dangerous in heavy traffic	"I'm a very keen cyclist, **I go out cycling every day**, I do a, it's just one of my hobbies… but I think that I wouldn't, **it would not be a pleasurable experience to cycle** along that road, you know, with the level of traffic that are likely. I mean, **at the moment**, I wouldn't use that, I would **deliberately avoid it during the rush hour periods**… there are plenty of other times in the day when it's fine. So that would, **it would affect me**...And also I think that **I'm a pretty experienced** and okay kind of person on a bike, **but** I mean, you know**, I wouldn't take [others] up there…**." – *Participant X*

Table 7: Illustrative quotes of factors reducing the impact of construction traffic

Themes	Quotes
Impact differs by **demographics**	"I think **retired people** move into the area and it will be a disruption and there probably will be some noise element and **I suppose if you're retired and here all day**, you will notice it a lot more. **I'm not, I'm out most of the time and here at weekends**." – *Theberton Participant 5*
Cannot hear heavy traffic from home	"I've just had 40ft lorries just come past my house, right? **I see it, I didn't hear it and I didn't hear any vibration...So it's not going to affect me**, I'm what…40ft away from the road." – *Theberton Participant 6*
Grown up with traffic noise	**"I've spend my entire life** up until the last 3 months **living in houses that are actually on the A12**, so**… I don't even hear it now** but that's just me. It's different for everyone." – *Participant X*

Mitigation of traffic impact

For those who had concerns about the sheer volume of traffic along the proposed route for the Sizewell C construction traffic, a relief road was the most popular if not the sole adequate solution. Some participants, who were aware of the original Sizewell C plans from two decades ago, had come to the view that the preferred "D2" relief road or perhaps one of the alternative relief roads should be constructed. Perceived advantages included that the relief road would mainly pass (less fertile) farm land and very few houses, would be a shorter route into Sizewell than the route via the three parishes, and would provide a direct exit route out from Sizewell in case of an emergency in future. A number of participants mentioned local bypasses to avoid segments of the proposed route which they did not favour.

A considerable number of participants also favoured transport by sea and/or rail where possible. A few participants thought those alternative means of transport had been too easily dismissed; others merely commented that these options should be considered.

Mitigation measures along the proposed route mostly received a cold to lukewarm response. Those most concerned about the construction traffic perceived these measures as inappropriate or ineffective. In their view, the narrow roads and the proximity of dwellings along the proposed route would preclude consideration of mitigation measures such as noise screening, pedestrian crossings, bicycle lanes, and widening of the roads. Some others thought pedestrian crossings and bicycle lanes had some potential to improve road safety. The most popular mitigation measures were speed restrictions and restricted hours for construction traffic. However, many participants living in areas where speed restrictions were already in place expressed doubts about the enforcement of speed limits. Similarly, many were unsure that restricted hours would be feasible and/or would lead to reduction in traffic impact as traffic would be compressed within the designated hours. Furthermore, participants had contrasting opinions on the hours most appropriate for construction traffic. Some preferred day time traffic to avoid sleep disturbance for residents close to the affected roads, whereas others favoured night time traffic to limit congestion during the day.

Table 8 presents quotes illustrating participants' views on a relief road and local bypasses. Quotes concerning views on alternative transport modes and mitigation measures along the proposed route are provided in Table 9 and Table 10 respectively.

Table 8: Illustrative quotes of participants' views on a relief road and local bypasses

Themes	Quotes
Relief road as the only adequate solution	"I really don't think there are [adequate mitigation measures]... My preference would be to have a **relief road**. If that for whatever reason doesn't happen then clearly **this place is almost unlivable** in. We live with that road at the moment and it's quite a busy little road but it's not Hyde Park Corner.., it's okay, I get used to it, I filter out the noise, it doesn't bother me but **I can't filter 600 lorry trips**." – *Middleton Participant 1*
Relief road in original Sizewell C proposal ("D2") as best solution	"…there was an **initial proposal for Sizewell C back in 1989** I think or something, where a number of options were produced from a **relief road**. This **D2 route was the preferred option** then, and this has been looked at, this would bypass Yoxford totally. **Very, very few people would be affected** on that road, there are **hardly any houses** there, and it would solve a lot of problems for EDF. It would **shorten the journey**, it would save a lot of effort for everybody but **it will cost money**, and they don't seem to want to spend any money." – *Yoxford Participant 2*
Relief road as best but most costly solution **Dual function of relief road** for construction and regular traffic	Because if you had **the bypass and the relief road they could use that 24/7 and it wouldn't have any impact on us**. So like yes it **would cost a ridiculous amount** of money to build that road to cut. **This area has been crying and screaming for a bypass** of these half a dozen villages **south of us** for about 12 years, and it still hasn't happened, but now they probably would **benefit a lot more by just paying for the bypass and having it done when everyone needed it**. – *Yoxford Participant 4*
Dual function of relief road as construction and emergency route	"… **should there be an accident**,...I know it's unlikely but it's always possible that Sizewell B or Sizewell C while it's being built, **how do all these people get out**. Because **at the moment this road is designated the main route** out for everyone in Leiston, **well it wouldn't cope with that**. If you think that also at any one time they're going to have 3000 workers down there as well and they will want to get out, **you can imagine the chaos**, and how are the emergency vehicles going to get in. There is **no decent road of access**..." – *Middleton Participant 2*
Environmental	"I think the **environmental impact of a new road** into the site into Sizewell over

impact of a relief road	its life of maybe 100-200 years **will far exceed what is likely to be the impact on the people on the 1122 during the construction period** because I would suspect that in excess of 75% of the **people on that route knew what they were buying into when they bought the property**." – *Middleton Participant 4*
Local bypass not favoured as a solution	"Now, **if they bypass my village** which is Theberton, right, **then you kind of change from green belt to brown belt**, you see? Because every other bypass I've seen and I've seen quite a few, as soon as they build a bypass it then makes it easier for people to build factories, houses and everything else between the road that runs right past my house and the bypass... And really and truthfully **it'll spoil Suffolk**, by adding two or three hundred houses in a piece of land, is my concern...**Oh yes, I'm all for the relief road but the relief road has got to come off the A12**, no matter what you say, it's got to come off the A12 and go straight into Sizewell." – Theberton Participant 6

Table 9: Illustrative quotes of participants' views on alternative transportation modes

Themes	Quotes
Transport by rail and ship as better transportation modes	"I'm opposed to the fact that **there's a railway line there**, there is the **North Sea there** and **they're going to bring it all by lorry**. Can you explain that to me? **It's nonsensical** isn't it?" – *Middleton Participant 3*
Transport by ship as an attractive option if feasible	"One of the things that **I like is the concept of bringing in stuff via, from the sea**, but **I don't know how, how realistic that is**, you know, but I think there is some kind of, **they're talking about 20%** of the, of the materials being bought in that way, I don't know, because obviously I'm not an expert in that field." – *Theberton Participant 7*
Transport by rail as an attractive option if feasible	"Maybe somebody could come up with... **to increase the stuff that could be run in and out via rail**. It's probably not gonna happen, but that way you could run a lot more on trains than you could on roads. I don't know whether it's been thought of or if it's been discounted for certain reasons. **It's not really for me to know**. It's down to the planners and people like that...Yeah. **We already run a line down there.** I'm sure it would need increasing or upgrading..." – *Yoxford Participant 6*
Transport by rail and ship not sufficient to relieve the roads	"… as you say locally it's been said to be sort of 600 movements a day…I think that's come from EDF's own information that's been...Well I know there's going to be **some by train but they'll have to come to some load points and then be transferred onto the road**…I know that there's **talk of a jetty being built** at the site but **given the nature of the shifting sand and stone** that there is on our coast that's **not going to be a huge amount of freight and it's going to have to come by road** which you know, you know, I'm for it happening and it will have to come by road but the issue is that it's all relying on existing roads which are going to serve for the build phase and also as an emergency route..." – *Middleton Participant 6*

Table 10: Illustrative quotes of participants' views on mitigation measures along the proposed route

Themes	Quotes
No adequate mitigation measures along proposed route **Double glazing** to screen noise not	"**I don't think that there will be anything in way of mitigation** that they could offer which would compensate for the disruption that this would cause to our lives. **Offering double glazing is an insult frankly** because it's just **not going to make any difference whatsoever**. **We had double glazing last time**, we say that from experience, apart from the fact that the house is already double glazed…

effective	They put in acoustic secondary double glazing last time. **You can't even open the windows because of the fumes and noise** that comes in so no I can't think of anything really that could be offered in terms of making it acceptable. I think it's probably slightly worse because of the level crossing…And because of the proximity of our house to the road..." – *Yoxford Participant 5*
Enforcement of traffic management rules will be an issue	"It's **all very well to say "We can do this and we can have a Park & Ride"** and what have you. You've got to be realistic. **People won't do what they're told to do.** They will still get in their car and go in and construction lorries will find the easiest route. Their **sat nav will put them along the B1122**. All of the roads that go into Sizewell really now, they're not adequate to take the kind of construction vehicles that are going to go in there." – *Middleton Participant 5*
Speed cameras to enforce speed limits	"One of the things that I would say that would be beneficial as an immediate thing on this piece of road is some **speed cameras** or some kind of... **because the traffic now comes through here significantly faster**. There's **already a 30 mph limit through Theberton but it is largely ignored** and I think that is probably a good point and I think that the majority of people within the village would say that that is a concern." – *Theberton Participant 1*
Restrict traffic to daytime but unsure about feasibility	"[would restricted hours for construction traffic be helpful?] Yes, definitely. Mind you, the only trouble with that is, if they can't come through at a certain time, there's no other way round. [Laughs]... But then I'd rather, I guess... – **during the day – than obviously at night when you're trying to... trying to sleep.** – *Yoxford Participant 7*
Restrict traffic to night time but unsure about feasibility	"If you can get **construction traffic away from peak time traffic**, it can only be a good thing. I think that may be an option to think of, because people who are using that during the day, it's not gonna impact if **they're coming in after 9 o'clock at night until, say, 6 in the morning**. I don't know what the logistics would be because **you need stuff during the day to be delivered**." – *Yoxford Participant 6*
Noise screens as ineffective and unsightly	"I don't think that they [noise screens] would work and I think they'd probably **be quite unsightly** as well to be honest. I'm not sure that they would make a lot of difference because if you can hear a dog barking in the village, I **don't think some barriers are going to do a lot**." – *Theberton Participant 2*
Pedestrian crossings not feasible due to width of road and would slow down traffic	"There would have to be a pedestrian crossing to get from this part of the village to this part of the village,… and I can imagine if there were pedestrian crossings there would have to be one here. Trouble is, **there's no pavement there because the house is right on the road…** And there are houses up here, but there is no pavement there. If there's no room for a pavement **there's no room for a pedestrian crossing**... I **don't think a pedestrian crossing is feasible**, and **if it was, it would slow the traffic down**." – *Yoxford Participant 3*
Pedestrian crossings for child safety	"Zebra crossing possibly for the children" – *Theberton Participant 3*
Cycle lanes not feasible due to width of road	"The **road's too narrow** to take the traffic anyway. This is the **whole point about using that little road as a motorway is there's no room for a bike lane**. This is **irrelevant because you hardly ever see people riding bikes**." – *Yoxford Participant 5*
Cycle lanes could improve safety	"For the cyclists it means that they're going to have those **great big long lorries on the road**, **a cycle path**, something like that just so that **if anything did happen, it's not our fault**, it's the car or the lorry or whoever's fault **because they shouldn't have been up on the path or in the cycle lane**" – *Theberton Participant 7*

Other aspects of the proposed Sizewell C development

Almost all – bar one – who were concerned about the Sizewell C construction traffic emphasised that they were supportive of or not against nuclear energy and/or that they perceived the need for nuclear energy. Most were also supportive of the Sizewell C development in general.

Apart from the construction traffic, the most commonly cited concern was the proposed sited of the accommodation campus for Sizewell C workers between Theberton and Eastbridge. The main reasons were the impact on the local environment and flora and fauna as well as the disruption that thousands of workers would bring onto these small villages. The movements of workers from and to the accommodation campus increasing traffic, overburdening local services such as GPs, and misconduct of workers were among the specific concerns residents had about construction workers. More generally, the influx of construction workers into the wider area caused concern about social unrest and a negative impact on the local community. More specifically, participants were concerned about prostitution, fights, and not feeling safe in the presence of construction workers.

The minority who had no concerns about the Sizewell C construction traffic were also supportive of the Sizewell C development. The most frequently cited reasons for their support were the perceived need of nuclear power and benefits for the local economy and employment opportunities.

A number of participants had grievances about the lack of transparency regarding the proposed plans. They explained that access to information had been restricted or that there was a degree of dishonesty in EDF's communication with the local community. Some participants felt ambivalent about the proposed Sizewell C construction plans or felt they should have been better informed about the impact of the construction project on their lives, even if they had not made it to (any of) the consultation meetings. Having said that, a few other participants had commented that information about the projected construction traffic was openly available.

The quotes in Table 10 illustrate the range of views on nuclear energy and the proposed Sizewell C development in general. Table 12 and Table 13 show quotes regarding the impact of Sizewell C beyond the construction traffic and perceptions of the quality of communications about Sizewell C respectively.

Table 11: Illustrative quotes of participants' views on nuclear energy and the proposed Sizewell C development in general

Themes	Quotes
Not anti-nuclear energy nor anti-Sizewell C	"And you will find that the **majority of people round here are not anti-nuclear**, and not anti-building a nuclear power station here. We live 4 miles from one, we're all used to it. **We chose to live here**. We've one down the end of the road, well 2 at the time. That's not the issue...And I know I'm not, that most people around here are not anti-nuclear..." – *Middleton Participant 2*
Pro-nuclear energy and **Sizewell C**, but against proposed	"**I'm actually quite pro-nuclear power** and things. **I don't have a problem with the construction**. I really feel they should **just put in a proper road**, simple as that, problem solved." – *Middleton Participant 5*

route	
Renewable energy preferred **Doubts about need of nuclear energy**	"Whether anything happens or not, being here, you're not going to know much about it anyway **which is kind of scary and when you consider what happened** is, it **the Japanese one**, they had that incident where they had the leak and everything and then you've got **Chernobyl**, you think **why do we honestly need another nuclear power station? Surely they must have come up with something a little bit safer for now? You've got air and they've got the sea there; they could make use of that**, use the water to generate some electricity." – *Theberton Participant 2*
Nuclear energy desirable To sustain **long-term employment**	"**Nuclear energy** provides the **ideal** solution to the base load requirement for electricity. It is **reliable**, it **doesn't generate carbon** and is admirable and we've had **no trouble with it in the probably 40 years it's been in this area**… It will **maintain long term employment** because there was employment with Sizewell A before that was decommissioned and it will supplement the employment that exists from Sizewell B. I think you've got to **differentiate between construction workers and operatives for the power station** when it's complete." – *Middleton Participant 4*

Table 12: Illustrative quotes of participants' views on aspects of proposed Sizewell C development other than the construction traffic

Themes	Quotes
Employment opportunities **Accommodation campus closer to Sizewell**	"..it'll **create a lot of employment for the people around here**. The only concern I've got is **where they're going to put the accommodation units**...Well according to what they've told us, **it's going to be in the green belt**... [for] Sizewell B they had the accommodation on-site and **I think Sizewell C should be exactly the same... Down at the power station...Well if they've got the land to build a double power station, surely they can have a little bit of space for the men** that are going to move into the site to build it…It didn't create any problems for the last two, and it probably won't cause any problems for this one." – *Theberton Participant 6*
Accommodation campus closer to Sizewell **Permanent accommodation as legacy**	"…**we don't understand why EDF want to build a worker's camp**, **which is**, potentially, **it's extremely close to where we live**, in what we consider to be **quite a beautiful part of Suffolk**. We don't understand **why it's not built much closer to**, to where **the actual site** will be, where it's a **loss of land that is not, shall we say, in such a beautiful position**, and **close to a site of special scientific interest**… when, after it's been used for the site's 3,000 workers, it will then become an **amenity for Leiston**…it would be far more sensible… if the centre was built nearer to Leiston, between Leiston and the actual power station… then it would be **far more beneficial in that area than two miles out of town**, where we are. – *Theberton Participant 7*
Bust and boom **Educational investment in local area a condition for employment**	"Well I think they're talking in total about **employing 8000 people over time**…. You don't **need a campus for 3000 people or 2000 if you're employing a lot of local people**… I don't believe more than 1000 I suspect it will be more like 500. It will also be, **what happened before when they built Sizewell B, because it's boom and bust**, you have all these people come into the area and they potentially spend in the area and things like that, and then **when it's built they go. What's left?** There's probably a maximum of 500 **jobs** at the power station **most of which require very particular skills** which won't necessarily be fulfilled by people around here, and they **certainly wouldn't be fulfilled if EDF is not investing in our school leavers** and people like that and actually training them up to become skilled to work at that power station when it is running online. People do talk about, and certainly the **government and MPs and people like that will talk about the benefits of employment, rather overstated I think**." – *Middleton Participant 2*

Table 13: Illustrative quotes of participants' views on communications about the proposed Sizewell C development

Themes	Quotes
Distrust of EDF regarding the construction traffic	"And they are proposing to use mathematical models to look at this problem, and my experience tells me that **the results are very sensitive to certain parameters**. And if they don't do the job properly, **if they want to cheat they can cheat**. And I have asked Suffolk County Council if I could look at the results of their modelling, and I was told that it's confidential. So we have no trust in EDF. That's the main problem. **We've asked them lots of questions, we get hardly any answers, and therefore we've totally lost trust**..." – *Yoxford Participant 2*
Dishonest communication regarding the accommodation campus	"**EDF doesn't do itself any favours by pretending to be terribly decent and fair and interested in everybody's views, but quietly doing things** that are under the radar. **I happen to know that there are compulsory purchase orders** being put forward, because one of them has been put forward to my neighbour." – *Theberton Participant 7*
Communication has been relatively open	"locally it's been said to be sort of 600 movements a day…**I think that's come from EDF's own information** that's been…**we do get information every so often sent** through and **they did give sort of numbers and figures** and we had a lot of consultation about the…not consultation, but i**nformation about the Park & Ride schemes**, various ones that were going to be potentially built, though **we've been sort of informed quite candidly**… or **quite openly** about the amount of stuff there may well be with it all being by road..." – *Middleton Participant 6*
More concrete information for those who have not attended consultations	"…there's so much information flying around about, you know, campuses being built for staff, how much extra traffic there's going to be, how long the building work goes on for, all that sort of thing. So that's the bit that I don't feel supportive of. **I don't feel informed in terms of what it means for us as a family and where we live**. No, so I think... not so much about the actual power station, but it's just... So I... we quite regularly get leaflets through, which say you know, this is how far we've got to, you know, from EDF for example, this is how far we've got to in our discussions and these are the meetings we've had, da da da... But **I'd quite like a map** which says: 'Right, we're going to build extra parking here; we're going to build some accommodation for people who are going to be involved in the construction in this village here. We're talking about a relief road which might go from here or it might go from here'. You know, it's... and it's all very well to have a leaflet which says: 'Oh, you know, it was discussed in such and such a meeting'. Well, you know, perhaps, well... **I certainly haven't been able to get to any meetings that explain what the proposals are**, so it's almost like: **don't just send me a generic leaflet**, you know, **where's the detail to help me understand** this better and **make an informed choice about how it's going to impact me**?" – *Yoxford Participant 7*

Perceived impact of Sizewell B

Experiences with the Sizewell B construction, Sizewell B Dry Fuel Store construction, and/or Sizewell B outages varied widely. Perhaps most comparable to the proposed Sizewell C development, the Sizewell B construction was perceived by some to have caused major upheaval but by others to have caused minimal to no disruption to their lives. Most significantly, stories from residents who had been around at the time of the construction influenced the views of others who were not living in the area at the time.

Construction traffic and the social disruption caused by construction workers were the most frequently mentioned problems that residents had experienced. Disruption of the local economy was also mentioned by a few who believed it had caused discontinuity in the tourism industry.

Increase in traffic was the most frequently observed impacts of the Dry Fuel Store construction and the outages. However, a significant proportion of participants stated that they had not noticed any impact or were at least not aware of any being due to these works. Most believed that the impact of the Sizewell C construction would not be comparable to these small works.

Table 14 presents illustrative quotes of participants' experiences with Sizewell B. Quotes in Table 15 compare the relative perceived impact of Sizewell C compared to Sizewell B-related projects.

Table 14: Illustrative quotes of participants' (second-hand) experiences with Sizewell B

Themes	Quotes
Social disruption **Drugs** **Prostitution**	"And **sadly I lived through Sizewell B being built**… and **Leiston was a no-go area** because, and this sounds prejudiced or I don't know how you describe it but the **kind of people that came to build in those days,** and I'm sure it won't be a lot different in these days, **were not very nice**. We had **drugs**, we had **prostitutes**, we had all sorts." - *Middleton Participant 5*
Impact on services **Family break-ups** **Changes in local population**	"It has an **effect on our schools, on the surgeries**, everything in our area has a knock-on effect. It has a knock-on effect on the families. How can I put this? The **attention of the men in previous times has turned ladies' heads and families have broken up**. Also **people have stayed possibly from building** so of course once the majority of people go, **we've still got quite an influx of people** because they stay, they like the area and they make their lives here**. After each power station, there is always change and it's not always for the good**." – *Theberton Participant 3*
Employment, long-term and short-term **Increased local trade**	"People in Leiston, **when B was being built, there was masses of employment**. People were having their garages turned into bed sitting rooms to rent to the workers. It was amazing, the difference in Leiston and that area with the work that it brought to people, B&B places, and even out further... the **B&B trade was amazing**. And then **some of it continued on** too...Well that was while they're building, and then afterwards, then the houses, **people who were there permanent you see were buying up the houses here**. And of course that then helps the little shops. It all sort of **helps the village shops when people move in**. And of course, the **houses will have to be built somewhere, and that will be builders** as well you see, so I think yeah." – *Yoxford Participant 1*
Employment, short-term **Violence**	There was **a lot of excitement**. I was working in Leiston at the time… and **lots of people got a little bit wealthier in the Leiston area** because there were **local jobs for local people**. But **when Sizewell B was finished all the jobs finished** and then people had to go out and find work elsewhere.... People moved in out of the area and there was some violence in Leiston because there were **fights between locals and construction staff**. – *Yoxford Participant 3*

Table 15: Illustrative quotes of the relative impact of Sizewell C vs. Sizewell B

Themes	Quotes
Impact Sizewell C larger than Sizewell B due to larger size	"... it's huge. If you look out over it now, you've got a square thing which is Sizewell A and then you've got another square thing with a dome on top which is Sizewell B. The **new one is going to be basically Sizewell B twice over** because it's got two domes, **it's massive so hence why it's going to be such a lengthy build**." – *Theberton Participant 2*
Impact Sizewell C similar to Sizewell B Technological improvement lessens impact	"Yes, it's double and a bit isn't it but the actual structures I don't think are that much bigger, **in fact they're possibly smaller because of the miniaturisation that's taken place in the intervening 20 or 30 years**...It's going to be generating more than twice as much as Sizewell B...Well I've not seen the plans as yet but I would **assume that it wouldn't be much bigger** and certainly when you look at the sites allocated for it, I don't think it's much bigger...M**y assumption is it would be fairly similar**. I haven't seen a drawing; I haven't seen any construction drawings of either B or C." – *Middleton Participant 4*
Impact of Sizewell C as a commercial enterprise **worse than Sizewell B** as a governmental project	"I didn't live here but **when Sizewell B and probably A were built, and they were Government schemes**, there was **a lot of work done by the Government to make it a bit nicer. It's not being done by the Government now, EDF doesn't need to soft-soap us** but a lot of people say 'EDF ought to build this, EDF ought to do that' and the other, and there's a lot of 'they should be building a relief road' but it's nothing to do with EDF **they're doing this as a business**…" – *Middleton Participant 6*
Impact of Sizewell C worse than Sizewell B due to larger size **Sat nav availability** will worsen impact	"This was a B road **so the B roads weren't available to be used** [for Sizewell B], there was no sat nav or anything, so construction traffic moved from the A14 up the A12, **but now there's sat nav and the sat nav will often just direct a driver to the most convenient route** ... They would have come from along the A14 and then you can just cut off and the B1122 is the cut off, that will cut out 35 miles of driving. And I can imagine that even though EDF say they're going to tell their construction drivers to use the A14 and the A12 that won't happen, **it will act as a rat run**...Yes it's **not going to be the same, it's going to be bigger because there's going to be a C and D**…The number of lorries we're told would be 600 a day. From EDF themselves. – *Yoxford Participant 3*

4.4 Conclusion

Few were opposed to the build of Sizewell C *per se*. Participants' main concerns about the proposed Sizewell C development were pertaining to the proposed route for construction traffic and the accommodation campus. The volume of the traffic over a long period of time was the primary concern for most, with many stating that they perceived the existing roads to be inadequate and a relief road to be the preferred or only solution to the construction traffic. Many also suggested transport by rail or over sea, although views differed on the feasibility of alternative modes of transport. There was no consensus on measures along the existing roads that would help mitigate the construction traffic impact.

Concerns about the impact of the construction traffic included traffic noise, speeding traffic, vibration from traffic, air pollution, congestion, accidents and safety, devaluation of property and loss of tourism.

The proposed location of the accommodation campus was the main cause of concern among those who were opposed to the campus plans. It was deemed too close to Theberton and too far from the Sizewell C site. Many also feared the social impact caused by an influx of construction workers. Participants were divided on the subject of the economic impact of the Sizewell C construction on the local economy and employment opportunities. Some expected a significant positive contribution, whereas others thought the economic or employment effects would be marginal and/or temporary.

While some had commented on the relatively open communications of EDF, others were dissatisfied with how EDF had communicated about and handled the proposal. Among those dissatisfied, some believed the communications to have been misleading or dishonest, whereas others thought they could have been better informed.

5. PHASE III: STATED PREFERENCE FOLLOW UP SURVEY

5.1 Introduction

The final phase of the research was a stated preference survey designed to understand the relative importance local residents attach to the different impacts of the potential increased traffic and to the different possibilities for intervention to mitigate those impacts.

5.2 Method

The approach was designed to ensure all in the three parishes had the opportunity to complete the survey.

A further letter was therefore sent to all addresses in the parishes introducing the survey and including an open link to the online questionnaire. See Appendix F.

Those who had taken part in the initial consultation survey (See Chapter 3) had been asked if they wished to take part in further research.

These participants, who also provided email addresses, were sent an email inviting them to take part in the research. The email invite is shown in Appendix G.

The questionnaire repeated questions from the phase 1 survey on location and demographics (although those who used the link in the email were not asked these questions again).

The survey was live from 6 to 22 February 2016.

Three participants contacted Suffolk County Council as they were unable to complete the survey online and the interviews were administered by telephone by Suffolk County Council.

Structure

The survey questionnaire (Appendix H) contained the following groups of questions:

- Questions about residence location (parish and distance to the road)
- A stated preference exercise (SP1) with six questions asking participants to choose the aspect of the increase in traffic that would have the most impact and the aspect that would have the least impact, from a set of 4 shown to them
- Questions to gather general views on measures to manage the expected increase in traffic and its associated impacts
- A stated preference exercise (SP2) with six questions asking participants to choose the measure they would like to see given the highest priority and the measure they would they like to be given the lowest priority, from a set of 4 shown to them

- Questions about household characteristics, gender, age, employment status, household income, occupation

Feedback

A number of parishioners contacted Accent and/or Suffolk County Council expressing concerns with the survey method. These concerns centred on:

- The stated preference method (eg no option to say 'none of these' or 'all of these')
- Coverage (ie since a third of properties to be affected by construction traffic are weekend or holiday let properties and these people were not directly sampled, their views would be under-represented)
- Inability to propose alternative mitigation measures, such as relief roads

Suffolk County Council responded to these parishioners. With respect to the stated preference method, the following description was provided:

> *"The stated preference (SP) method we are using to measure the relative harm of the impacts and the relative priority of the mitigation options, is the 'MaxDiff' technique, otherwise known as best-worst scaling. This technique is a well-established means of obtaining robust preference scores for a list of items that is too long to ask respondents to rank as a whole. In contrast to ranking, it is much easier for respondents to answer MaxDiff questions. There is less information obtained from each question, but respondents answer a sequence of several questions and the sequences are varied over the sample so that the sample as a whole contains a rich set of data on preferences between the list of items. The other main alternative in this context would be to ask respondents to rate each member of the list on a scale. This method tends to elicit lots of high scores, however, which does not allow an understanding of the relative importances of each item. The MaxDiff method yields quantitative measures for each item which can be interpreted and understood with respect to their relative size as well as in terms of the order of importance. It therefore gives a much more valuable set of results."*

With respect to coverage, Suffolk County Council had been through the Valuation Office website identifying all registered business in the three parishes. It identified 25 self-catering properties, for approximately a third of which email addresses were located and those proprietors were notified of both online surveys.

Response

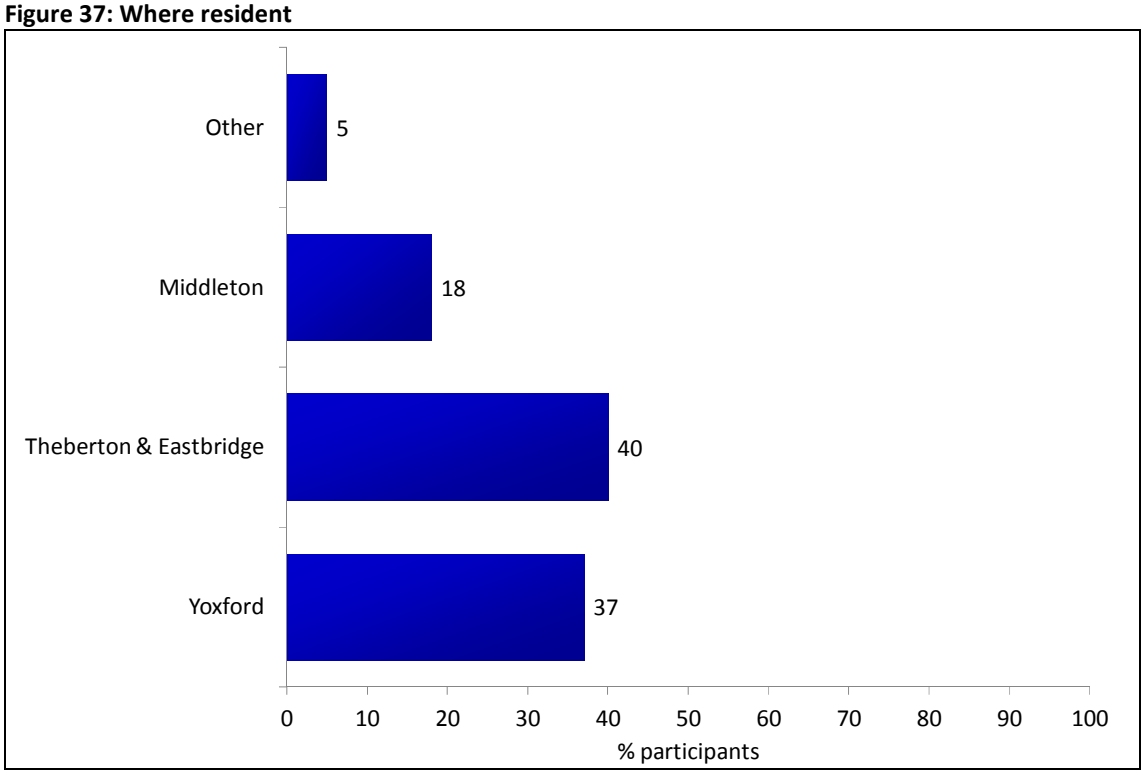
There were 105 completed questionnaires.

5.3 Sample Characteristics

Location

Just over three quarters of the sample were from Theberton or Yoxford.

Figure 37: Where resident

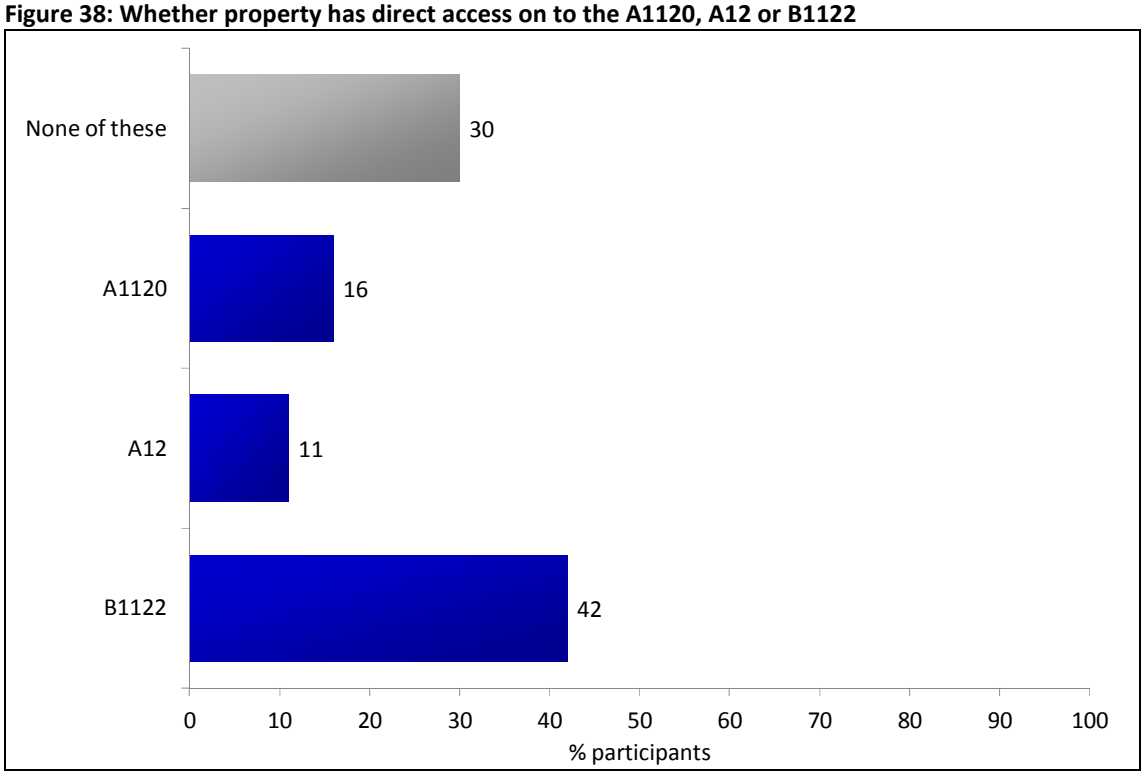


Base: 105

Almost all were responding as residents: 95% residents, 3% businesses and 2% farms.

Forty two per cent said they had direct access the B1122, 16% to the A1120 and 11% to the A12. Thirty per cent did not have direct access to any of these roads.

Figure 38: Whether property has direct access on to the A1120, A12 or B1122



Base: 105

Household size

The median number of adults in the household was two, representing 74% of households. 7% of households had one or more children aged between 11 and 17 and 9% had children aged 10 or under.

Table 16: Household structure (row percents)

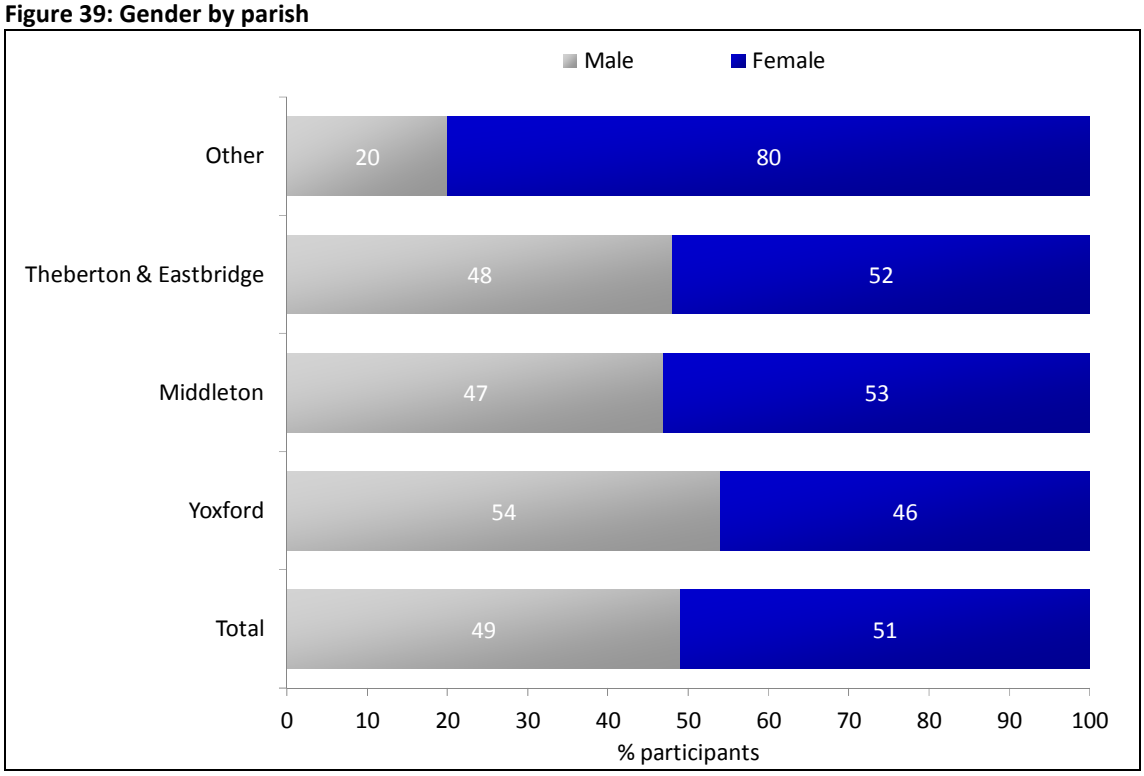
	0 %	1 %	2 %	3 %	4 %n
Adults, including self		18	74	7	1
Children aged 11-17	93	3	4	0	0
Children aged 10 or under	91	6	2	1	0

Base: 104

Gender

Overall, about half the sample was male and half female. See Figure 39.

Figure 39: Gender by parish

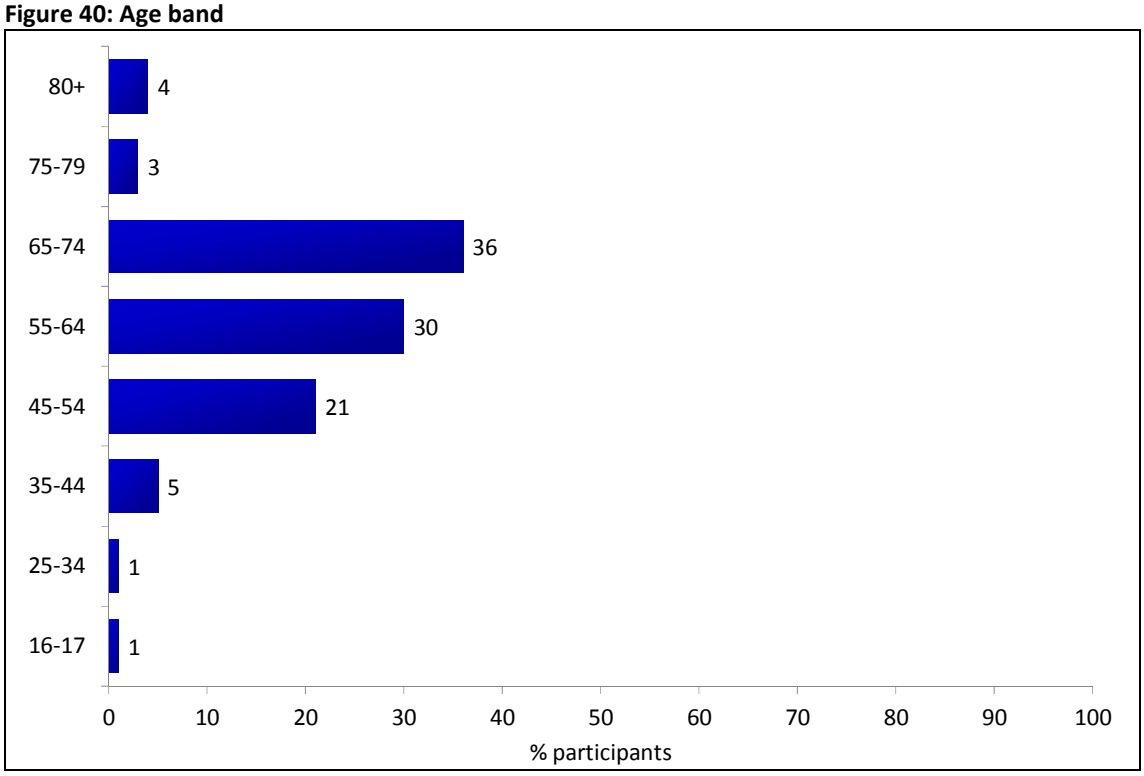


Base: total 105, Yoxford 39, Middleton 19, Theberton & Eastbridge 42, Other 5

Age

The sample was quite elderly with 43% aged 65 years old or older. See Figure 40 for the overall sample and Table 17 for the data by parish.

Figure 40: Age band



Base: 105

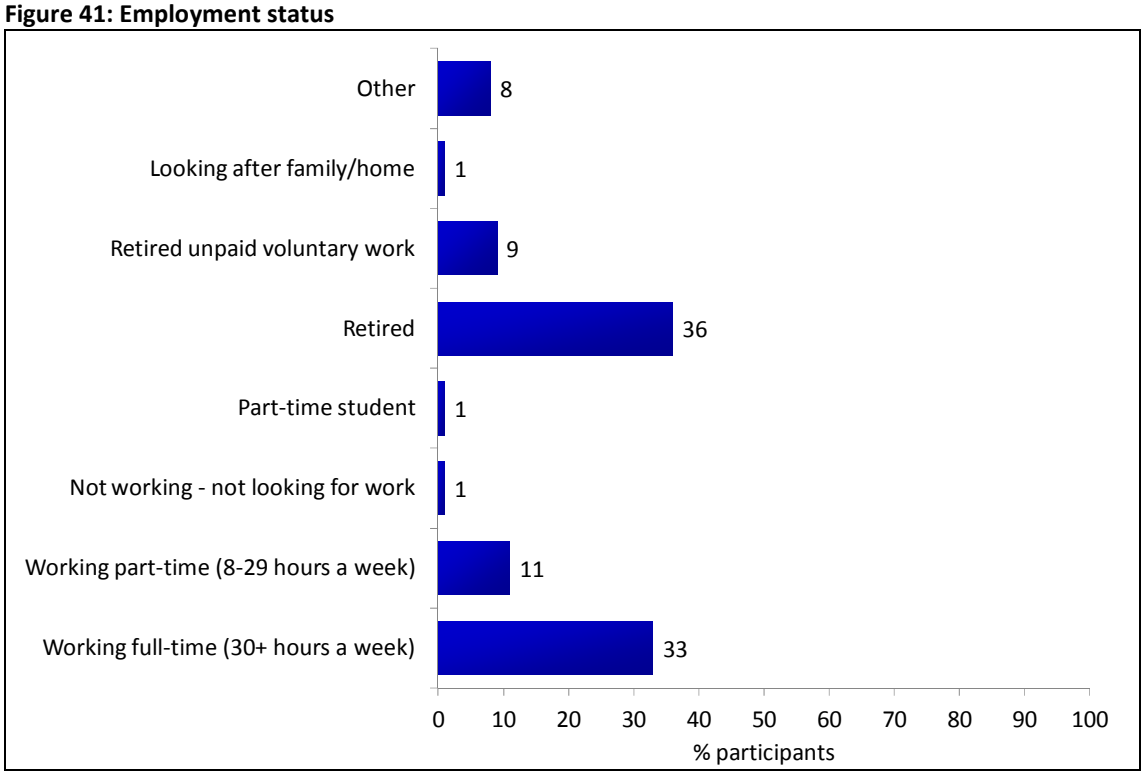
Table 17: Age range by parish

	Yoxford %	Middleton %	Theberton & Eastbridge %	Other %
16-17	3			
25-34	3			
35-44	8	5	2	
45-54	21	21	21	20
55-64	26	32	29	60
65-74	38	32	38	20
75-79			7	
80+	3	11	2	
Base	**39**	**19**	**42**	**5**

Employment status

Similar proportions of the sample were employed (44%) or retired (45%). See Figure 41 for the overall sample and Table 18 for the data by parish.

Figure 41: Employment status



Base: 105

Table 18: Employment status by parish

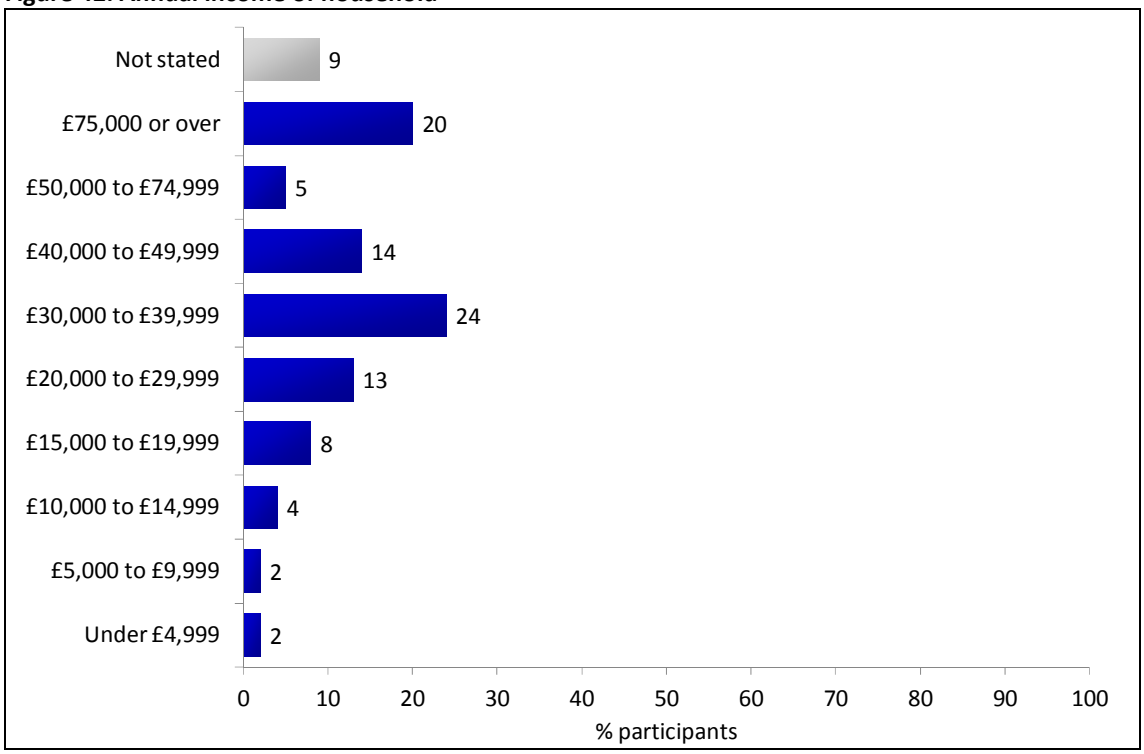
	Yoxford %	Middleton %	Theberton & Eastbridge %	Other %
Working full-time (30+ hours a week)	28	37	36	40
Working part-time (8-29 hours a week)	18	11	7	
Not working - not looking for work			2	
Part-time student			2	
Retired	36	47	31	40
Retired unpaid voluntary work	10	5	10	
Looking after family/home			2	
Other	8		10	20
Base	**39**	**19**	**42**	**5**

Household income

There was a fairly high income distribution with 39% of households with incomes of over £40,000 per annum. The median income band between £30,000 and £39,999.

See Figure 42 for the overall sample and Table 19 for the data by parish.

Figure 42: Annual income of household



Base: 105

Table 19: Annual income of household by parish

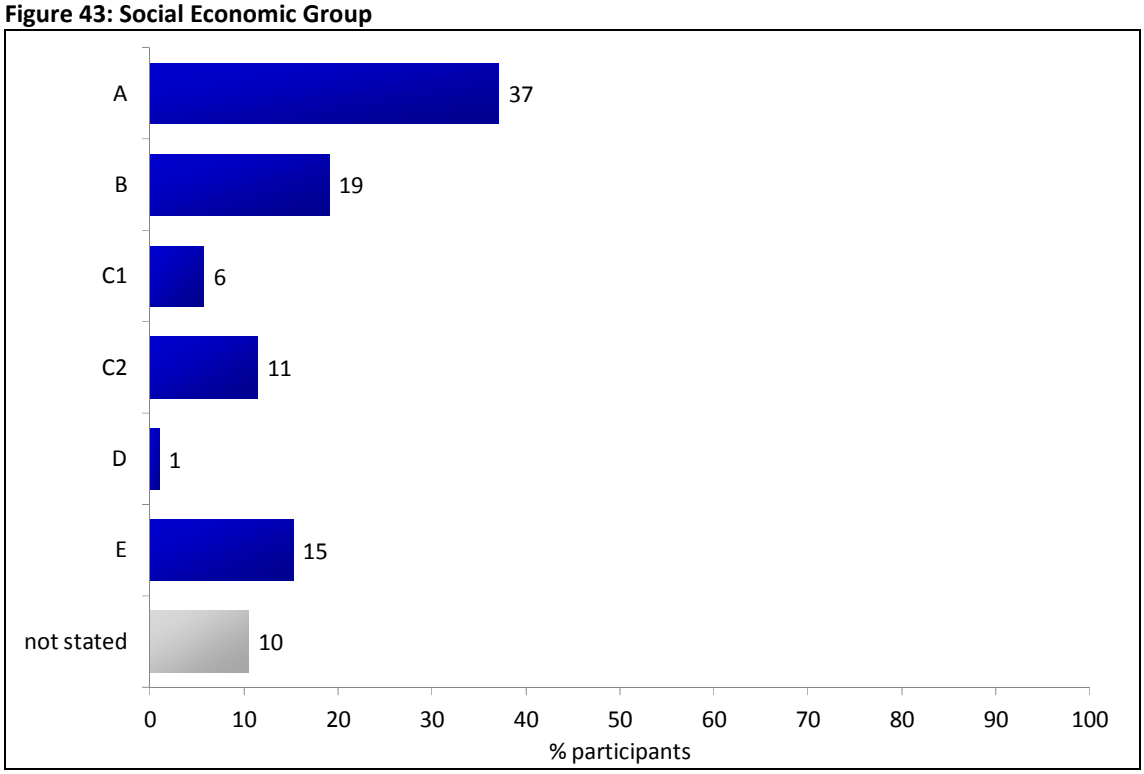
	Yoxford %	Middleton %	Theberton & Eastbridge %	Other %
Under £4,999	5			
£5,000 to £9,999	3		2	
£10,000 to £14,999	5	5	2	
£15,000 to £19,999	3	21	5	20
£20,000 to £29,999	15	11	14	
£30,000 to £39,999	31	16	21	20
£40,000 to £49,999	15	16	10	40
£50,000 to £74,999	5	5	5	
£75,000 or over	13	21	29	
Not stated	5	5	12	20
Base	**39**	**19**	**42**	**5**

Socio Economic Group

The occupation of the main income earner in your household was probed. If retired on a private pension or not working for less than six months the previous occupation was probed. This was used to assess the socio economic group (see definition in note 4).

37% of the participants belonged to socio-economic group "A" and 19% belonged to group "B".

Figure 43: Social Economic Group



Base: 105

5.4 Traffic Impacts (Stated Preference Exercise 1)

The first stated preference exercise focused on the relative impact participants felt would be attached to the different traffic aspects. The exercise involved a sequence of questions where participants were asked which aspect of the increase in traffic would have the most and the least impact, from a set of four shown to them, drawn from a list of 16 possible impacts (Table 20).

Table 20: Traffic aspects

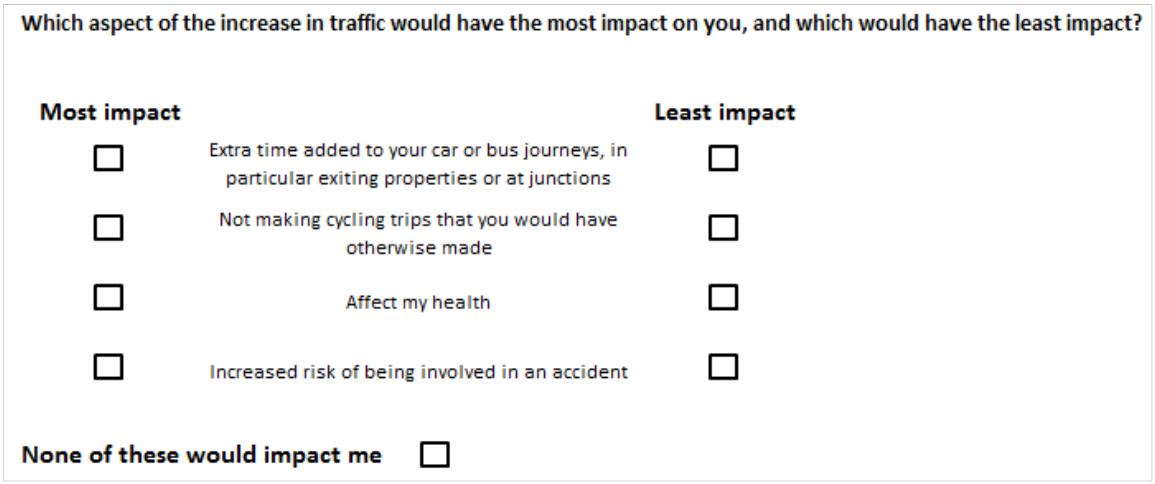
Name	Description
risk	Increased risk of being involved in an accident
airpol	Worsening of the local air quality
noise	Greater traffic noise
vibration	Greater vibration from traffic
visual	The sight of all the extra traffic
walktriptime	Increased journey time when walking due to it taking longer to cross the road
carbustriptime	Extra time added to your car or bus journeys, in particular exiting properties or at junctions
walkavoid	Not making walking trips that you would have otherwise made
caravoid	Not making driving trips that you would have otherwise made
bikeavoid	Not making cycling trips that you would have otherwise made
community	Loss of community cohesion or character
stress	Increased stress
health	Affect my health
sleeping	Make sleeping more difficult
gardenavoid	Less time spent outside in garden
roomsavoid	Make some rooms in the house unusable

Figure 44 shows an example of the type of question asked in the SP1 exercise. This type of question is known in the literature as MaxDiff, or Best-Worst Scaling, and is a valid and statistically efficient means of obtaining quantitative measures of relative preference between a long list of objects or features.[6]

Six questions of this kind were asked to each participant. The set of impacts shown was different in all six questions. Participants could also choose an option stating that none of the four aspects would have an impact to them.

[6] Louviere, J., Flynn, T. and Marley, A. (2015) *Best-Worst Scaling: Theory, Methods and Applications*, Cambridge University Press.

Figure 44: SP1 question format



Choices were analysed for the whole sample and separately for each parish (Theberton, Middleton, or Yoxford) and according to distance from the road ("near" or "far"). Participants were classified as living near the road if their home was located either less than 100m or less than 1 minute walk from the road.

The data was analysed via econometric models, using the conditional logit estimator. The main outputs from the analysis are estimated 'impact scores', which represent the relative impacts of each of the traffic aspects. One aspect must be chosen as the comparator under this approach, and this is assigned a value of 1. All other impact scores are then interpretable relative to this aspect, with scores less than 1 indicating a lower impact than the base category, and scores greater than 1 indicating a higher impact.

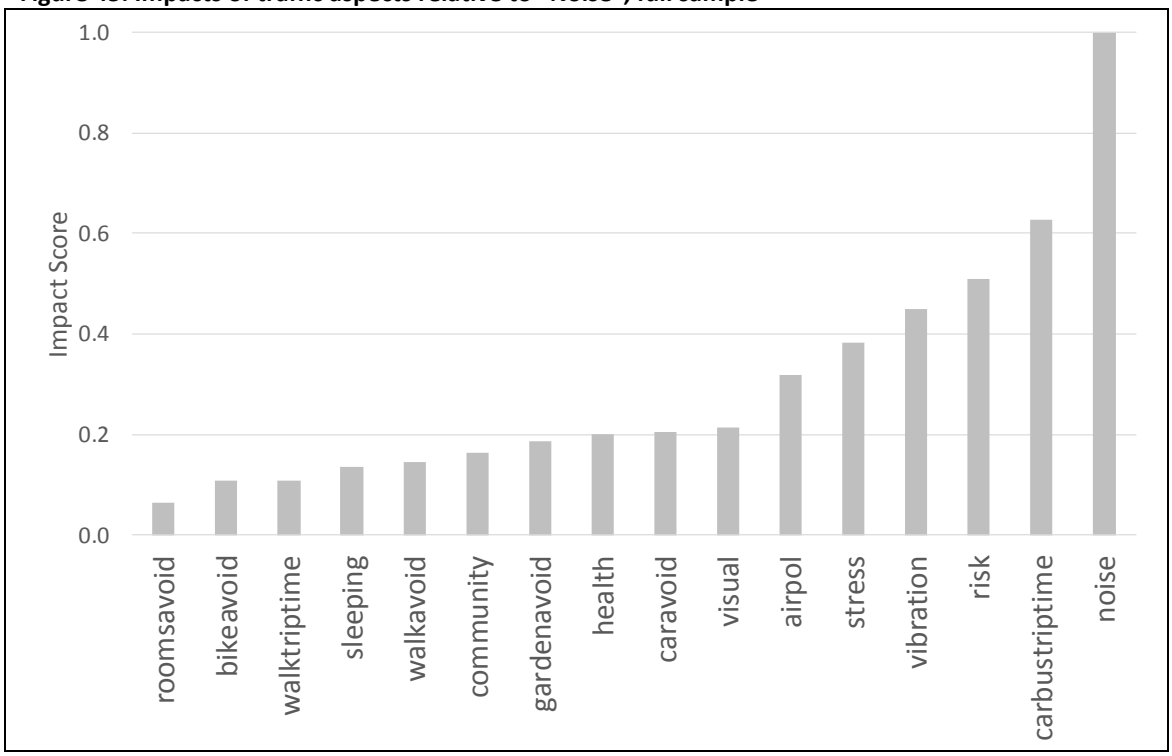
The analysis also examined the influence of demographic variables such as gender, age (below or above 65), household type (with or without children aged below 10), and income (below £20,000/year, between £20,000-30,000/year, and above £30,000/year), when controlling for the influence of location (distance from the road and parish).

The reasons given by participants for the choice of the most important impact in the last question of the exercise were also coded and analysed.

Results: full sample

Figure 45 shows the impact scores for each of the traffic aspects included in the SP1 design, relative to "Greater traffic noise" (which is the highest-impact traffic aspect), for the full sample.

Figure 45: Impacts of traffic aspects relative to "Noise", full sample



Source: Accent analysis of SP1 data; See Table 20 for definitions of traffic aspects; Base= 105 respondents each answering six choice questions.

- The most impactful traffic aspects, after “Greater traffic noise”, were “Extra time added to your car or bus journeys, in particular exiting properties or at junctions” (0.63 times the impact of noise), “Increased risk of being involved in an accident” (0.51) and “Greater vibration from traffic” (0.45).

- The least impactful aspects were "Make some rooms in the house unusable" (0.06 times the impact of noise), “Increased journey time when walking due to it taking longer to cross the road” (0.11) and “Not making cycling trips that you would otherwise have made” (0.11).

Results: segments

Separate models were estimated for different segments of the sample according to parish and distance to the road. Each model yielded a separate set of impact scores.

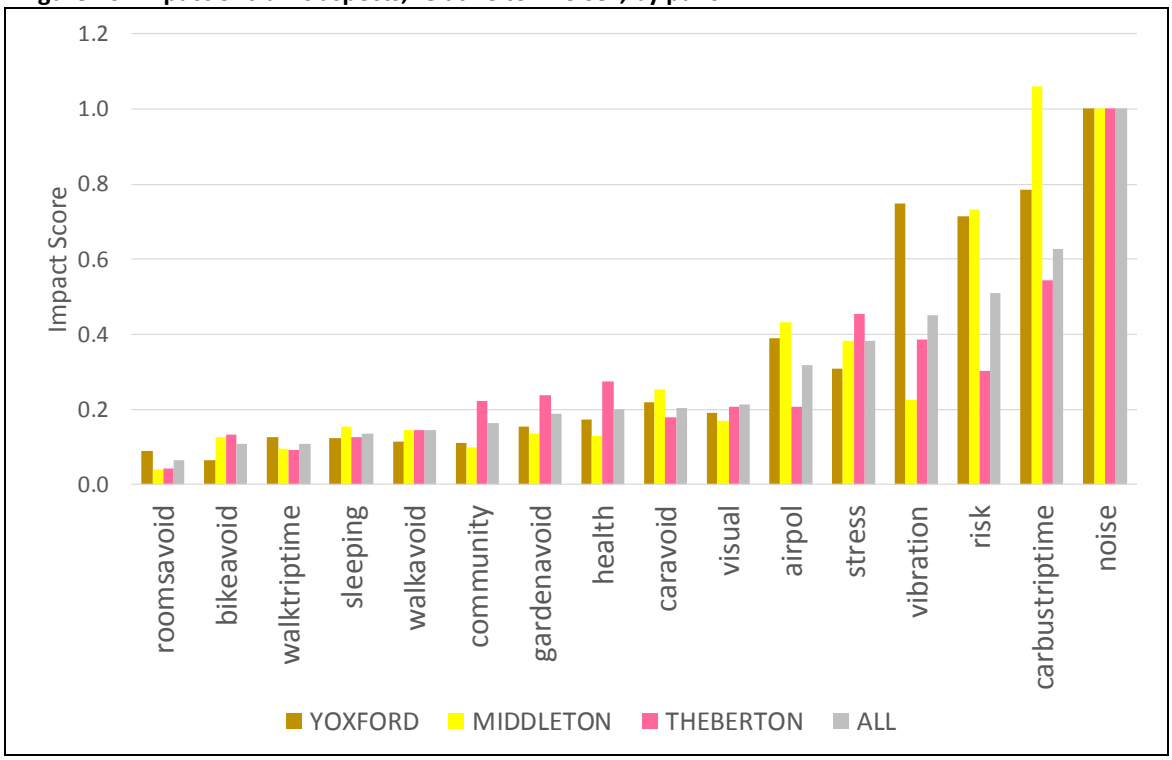
Figure 46 shows the impacts due to each traffic aspect, again relative to "Greater traffic noise", by parish. The biggest differences in the impacts occurred for car and bus travel times, accident risk, vibration, stress, and air pollution impacts. In Middleton, the extra time added to car and bus journeys had an impact score above 1, which means that it was regarded as more impactful than traffic noise. In addition, the impact scores of accident risk and air pollution were higher, and the impact due to vibration was lower than the average for the whole sample. In Yoxford, the impacts of car and bus travel time, accident risk, vibration, and air pollution were higher, and the impacts of the stress impact were lower than average.

Figure 47 shows the impact scores, again relative to "Greater traffic noise", by distance to the road. The main differences occurred for the effect on car and bus travel times (which was more likely to be chosen by participants living far from the road) and for the vibration impact (which was more likely to be chosen by people living near the road).

The analysis by distance to the road can be further disaggregated by parish. Figure 48 shows the impact scores, relative to "greater traffic noise", by parish, for participants living near the road. The results for Middleton are not shown because the sample contained only 8 participants living near the road in that parish[7]. The main differences between the preferences of participants living near the road in Yoxford and Theberton and the average of the whole group of individuals living near the road are the higher impact scores of the vibration, stress, and health aspects in Theberton, and the higher impact of accident risk in Yoxford.

Figure 49 show the impact scores, relative to "greater traffic noise", by parish, for participants living far from the road. The results for Yoxford are not shown because the sample contained only 7 participants living far from the road in that parish. The figure shows that the impact of the car/bus trip time was much higher for participants living far from the road in Middleton than for the whole group of participants living far from the road. The impact due to air pollution was also higher in Middleton.

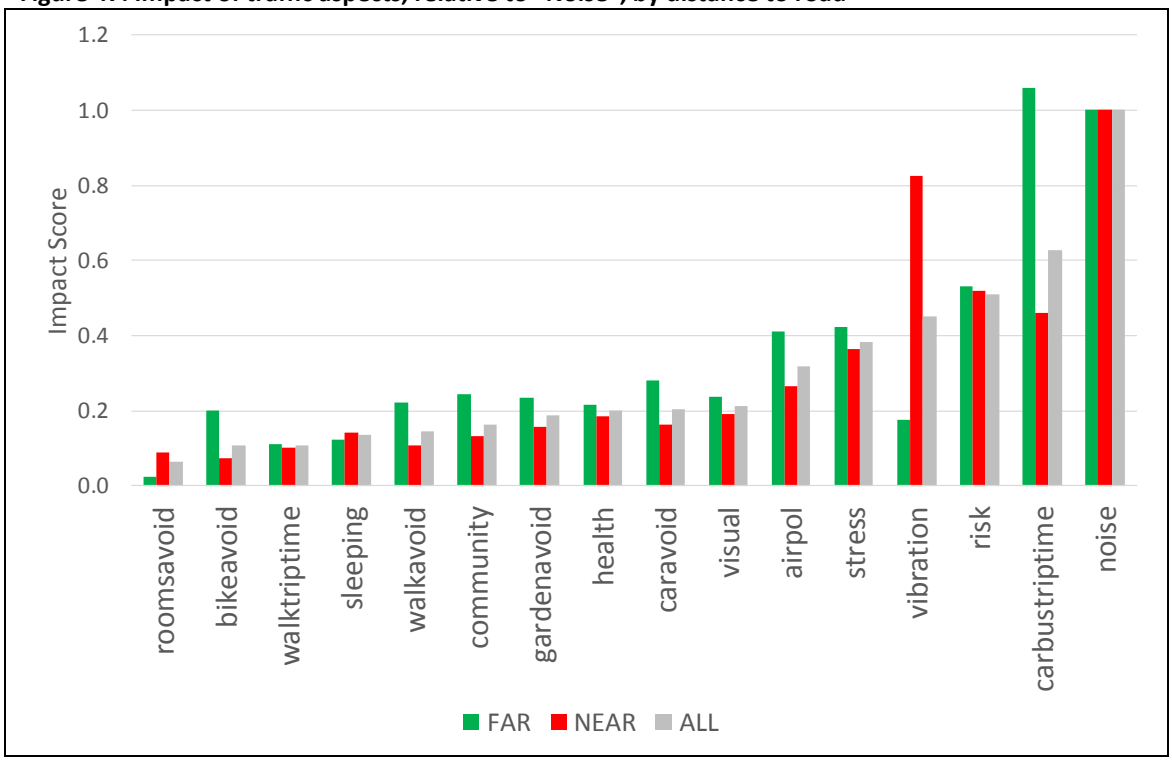
Figure 46: Impact of traffic aspects, relative to "Noise", by parish



Source: Accent analysis of SP1 data; See Table 20 for definitions of traffic aspects; Base: total 105, Yoxford 39, Middleton 19, Theberton & Eastbridge 42 respondents each answering six choice questions.

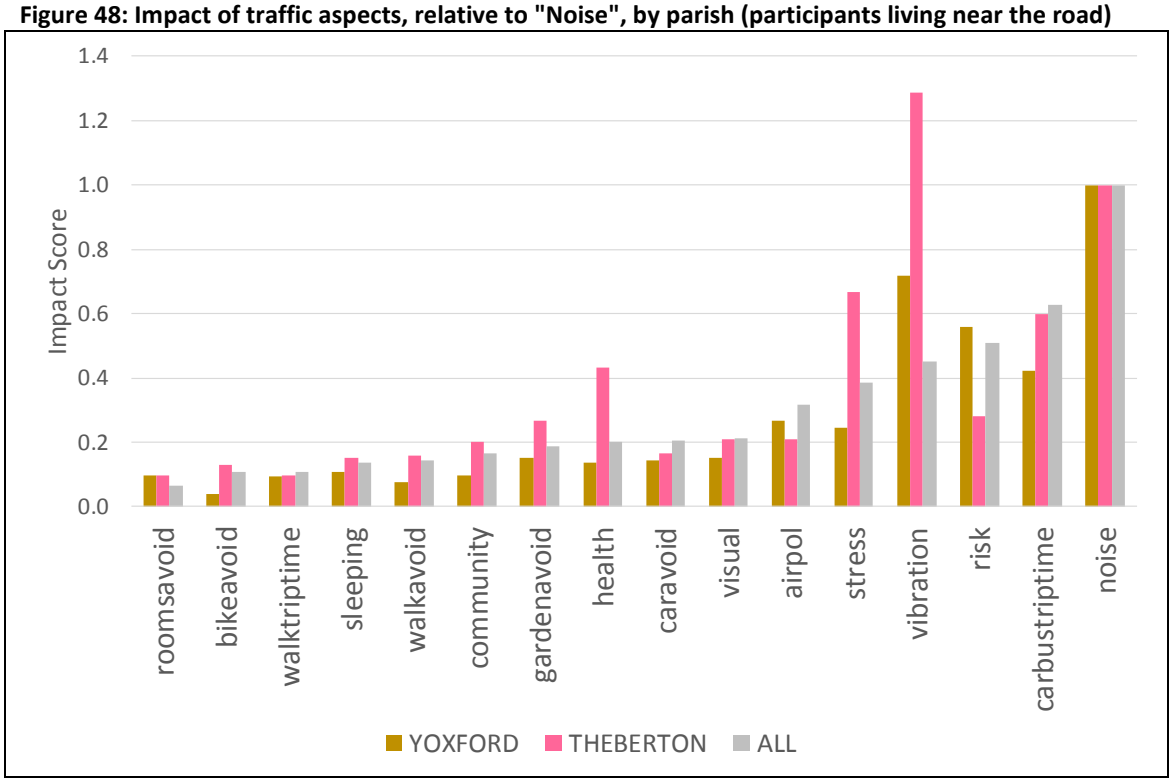
[7] The small sample leads to imprecise results

Figure 47: Impact of traffic aspects, relative to "Noise", by distance to road



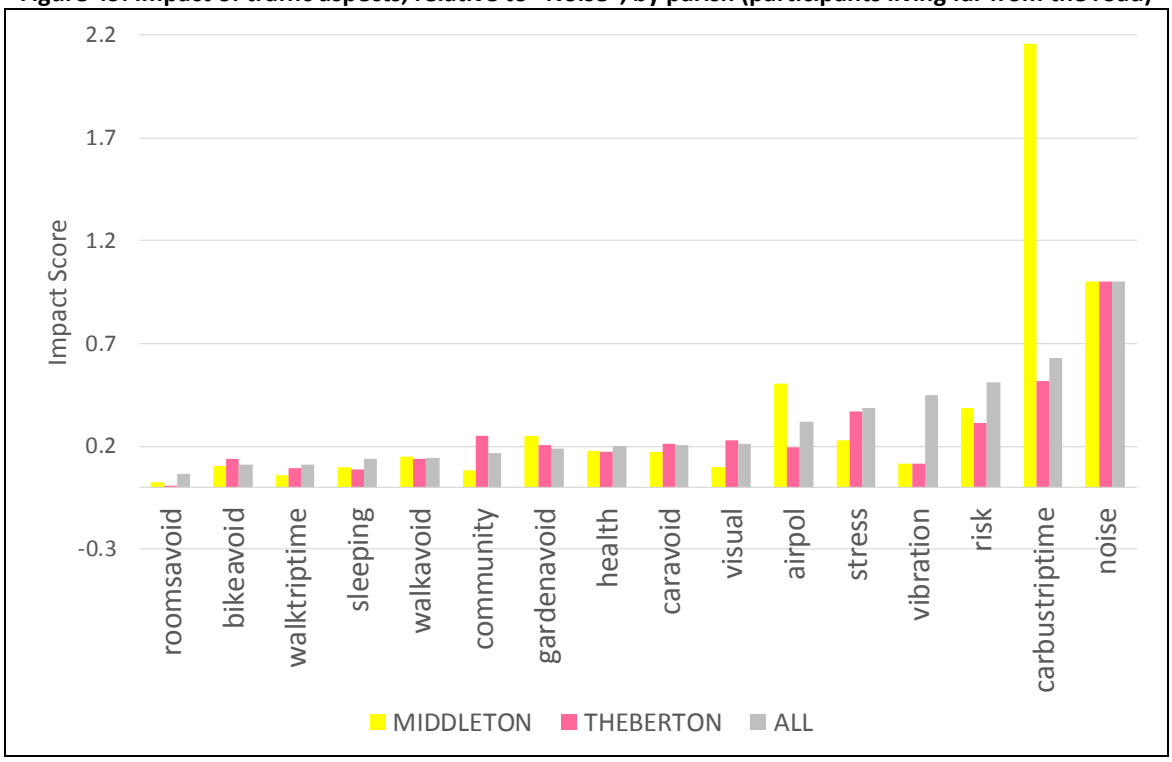
Source: Accent analysis of SP1 data; See Table 20 for definitions of traffic aspects; Base: total 105, Near to road 62, Far from road 43 respondents each answering six choice questions.

Figure 48: Impact of traffic aspects, relative to "Noise", by parish (participants living near the road)



Source: Accent analysis of SP1 data; See Table 20 for definitions of traffic aspects; Base: total 62, Yoxford 32, Theberton & Eastbridge 21 respondents each answering six choice questions.

Figure 49: Impact of traffic aspects, relative to "Noise", by parish (participants living far from the road)



Source: Accent analysis of SP1 data; See Table 20 for definitions of traffic aspects; Base: total 43, Middleton 12, Theberton & Eastbridge 22 respondents each answering six choice questions.

Results: demographics

The influence of demographic variables on the participants' stated preferences was assessed using an econometric model containing interactions between traffic aspects and demographic variables, and controlling for the influence of location (distance to the road and parish). Only statistically significant interactions were retained in the final model.

Table 21 shows the impact scores relative to "noise" for different segments. The values in the "base" column for each traffic aspect are the impact scores for a reference group consisting of participants who live far from the road in Theberton, and who are not old, have no children, are not in full time employment, and have middle income. The other columns are the impact scores for participants who are not in the reference group, that is, individuals who live near the road in Middleton or Yoxford or who are older, have children, are in full time work or have high or low income. The scores for these participants are only shown when they differ from the ones of the reference group.

In the case of *airpol*, additional segmentation results are shown for Yoxford, Middleton and Low income, and so the Base column for this aspect includes all respondents living far from the road, in Theberton, with Medium or High incomes, and who also had no children aged below 10.

The table shows that distance to the road was the main factor explaining differences in impact scores. The results confirm those shown in Figure 47. Participants living closer

to the road were less likely to be concerned with car and bus travel times, and more likely to be concerned with vibration, compared with noise, than participants living far from the road (who are included in the "base" case).

After controlling for distance to the road, the parish where the participants lived became a significant factor only in the case of the air pollution and stress impacts. Air pollution was perceived as a more important problem, compared with noise, in Middleton and Yoxford than in Theberton (which is included in the "base" case). Stress was perceived as a less important problem in Yoxford, compared with noise, than in Theberton.

Age was only significant for the "avoid garden" impact. Older participants were less likely to be concerned with this problem than younger participants. Household structure was a more relevant factor than age differentiating between the preferences within the sample. Participants in households that included children below 10 years old were significantly more concerned with risk, air pollution, vibration, and suppressed cycling trips, compared with noise, than participants in other types of household.

Individuals in full time employment were more concerned with suppressed walking trips and loss of community character, compared with noise, than other participants. Individuals with high income attached less importance to the impacts on stress and on walking trip times, and those with low income attached less importance to air pollution.

Table 21: Impacts of Traffic Aspects, Relative to "Noise", By Segment

Name	Base	Near	Yoxford	Middleton	Old	With children	FT work	High income	Low income
risk	0.44	0.47				1.69			
airpol	0.28	0.17	0.62	0.87		0.63			0.10
vibration	0.13	0.76				0.35			
visual	0.19	0.18							
walktriptime	0.13	0.14						0.07	
carbustriptime	1.25	0.50							
walkavoid	0.14	0.08					0.27		
caravoid	0.26	0.17							
bikeavoid	0.15	0.07				0.42			
community	0.15	0.10					0.31		
stress	0.30	0.43	0.14					0.74	
health	0.20	0.21							
sleeping	0.11	0.13							
gardenavoid	0.31	0.26			0.10				
roomsavoid	0.02	0.09							

Reasons for choosing traffic aspects as most impactful

The survey included a question asking the reason for the choice of the most important impact in the last question of the exercise. The answers to this question were coded and grouped into the following categories:

- **Traffic characteristics:** Aspects of motorised traffic that were perceived as the causes of the impact.

- **Road characteristics:** Aspects of the road infrastructure that were perceived as creating or contributing to the impact.

- **Destinations:** Places where individuals were going to when they felt affected by the impact. Relevant only for the impacts related to suppressed trips or travel time.

- **Modes of transport:** Transport being used when individuals felt affected by the impact. Relevant only for the *risk* and *noise* impacts.

- **Effects:** Characteristics of the impact and links to other impacts.

- **Situation:** Time of day, week, or year, or activity being conducted when the impact was felt.

- **Concern**: Individual characteristics or particular concerns about others that contributed to the impact.

- **Aggravating factors:** Context or characteristics of the traffic that contributed to the impact.

The tables below contain frequencies of each type of reason, by impact. They indicate that traffic volume was the characteristic of traffic most often cited as the reason for identifying a particular impact as the most important. This result is consistent with the results of the initial consultation survey described in Chapter 3, as traffic volume was the most common characteristic of traffic that participants were concerned about (see Figure 21). The proportion of HGVs was also identified by several participants as a reason for their choices, particularly in the cases of accident risk, noise, vibration, visual impact, and suppressed cycling trips. Aspects related to drivers' behaviour (such as traffic speed and "rat-runs" were also identified by several participants as a reason for choosing impacts such as accident risk, noise, car/bus trip time, avoid walking, driving or cycling, stress, and avoid the garden and rooms in the house.

The most common road characteristics mentioned were the problems in the circulation of vehicles near road junctions and poor sight lines for vehicles trying to access the road from garages and parking spaces. These were identified as a factor increasing accident risk (Table 22), car and bus trip time (Table 28), and suppressed car trips (Table 30). In most cases, the concerns about these aspects were associated with concerns about specific situations such as access to properties.

The reasons related to modes of transport show that the majority of participants understood accident risk in relation to car travel, rather than pedestrian or cycling trips (Table 22). On the other hand, a few participants mentioned noise as an impact felt when they walk or cycle (Table 24), and as a reason to avoid cycling (Table 31).

Some traffic aspects are mentioned as reasons for choosing other traffic aspects as the most impactful. For example, increased accident risk was mentioned as a reason for choosing suppressed walking, car and bicycle trips (Table 29, Table 30, and Table 31). Noise, vibration, sleep disturbance, health impacts, stress, and avoidance of garden and rooms were also interrelated.

The most common concerns driving choices were the proximity of the participant's house to the road and concerns about children. The context of the area was also consistently cited as a reason underlying people's choices. The anticipated impact of the increased traffic was perceived as especially problematic because individuals believed that rural areas should be quiet, clean, and a place for retirement. Other relevant factors aggravating many of the impacts included the perception that the area was already affected by the traffic aspect and that the anticipated impacts will be felt for many years due to the duration of the works.

Table 22: Reasons for Choosing *Risk* as the Most Impactful (n=22)

Traffic characteristics	
Volume	16
Speed	9
HGVs	9
Congestion	2
Parked cars	2
LGVs	1
Road characteristics	
Sight lines	6
Junctions	4
Road design	2
Narrow road	2
No pavement	1
Means of transport	
Car	12
Walk	6
Motorcycle	1
Cycle	1
Horse	1

Effects	
Air pollution	1
Leakage from gas mains under the road	1
Situation	
Access to property	9
Cross the road	6
Rush hour	2
Summer	2
Parking further & and walk	1
Concerns	
Children	3
Have mobility restrictions	2

Table 23: Reasons for Choosing *Air Pollution* as the Most Impactful (n=10)

Traffic characteristics	
Volume	5
HGVs	1
Effects	
Fumes	5
Health	2

Concerns	
House near road	2
Have health problems	1
Children	1
Aggravating factors	
Rural areas should be clean	4
Long duration of works	1
It's already a problem	1

Table 24: Reasons for Choosing *Noise* as the Most Impactful (n=19)

Traffic characteristics	
Volume	10
HGVs	5
Rat-runs	2
Speed	1
Means of transport	
Walk	2
Cycle	1
Effects	
Vibration	3
Loss of peace/tranquility	2
Stress	1
Sleep disturbance	1
Can't talk with acquaintances on street	1

Situation	
In the garden/outdoors	6
At home/indoors	4
Night-time	2
Rush hour	1
Shift changes	1
Concerns	
House near road	6
Children	1
Aggravating factors	
Long duration of works	5
It's already a problem	1
Other future traffic	1
This is a small village	1
This is a residential area	1
This is a quiet area now	1

Table 25: Reasons for Choosing *Vibration* as the Most Impactful (n=2)

Traffic characteristics	
HGVs	2
Volume	1
Effects	
Noise	1
Light bulbs	1

Situation	
Weekend	1
Concerns	
House near road	1
Lives in old house	1
House below road level	1
Aggravating factors	
It's already a problem	1

Table 26: Reasons for Choosing *Visual Impact* as the Most Impactful (n=2)

Traffic characteristics	
Volume	2
HGVs	2
Congestion	1

Situation	
View from house	1
Aggravating factors	
It's a constant problem	2

Table 27: Reasons for Choosing *Walk Trip Time* as the Most Impactful (n=1)

Situation	
Delay crossing the road	1

Table 28: Reasons for Choosing *Car/Bus Trip Time* as the Most Impactful (n=12)

Traffic characteristics	
Volume	8
Speed	3
HGVs	1
Parked cars	1
Congestion	1
Rat-runs	1
Road characteristics	
Junctions	4
Sight lines	3
Destinations	
Health facilities	2
Visit family/friends	1
Shops	1
Other services	1

Effects	
Accident risk	2
Detour	1
Situation	
Access to properties	4
Concerns	
Is old	1
Aggravating factors	
It's already a problem	4
Long duration of works	1

Table 29: Reasons for Choosing *Avoid Walking* as the Most Impactful (n=4)

Traffic characteristics	
Volume	2
Speed	1
HGVs	1

Effects	
Accident risk	1
Situation	
Crossing the road	1
Daytime	1

Table 30: Reasons for Choosing *Avoid Driving* as the Most Impactful (n=7)

Traffic characteristics	
Volume	3
HGVs	2
Rat-runs	1
Congestion	1
Speed	1
Road characteristics	
Junctions	4
Destinations	
Shops	2
Work	1
Health facilities	1

Effects	
Have to stay home	2
Delays	1
Accident risk	1
Situation	
Access to properties	2
Trips with children	1
Delays on bank holidays	1
Concerns	
Remember problems of Sizewell B	1
Aggravating factors	
It's already a problem	1

Table 31: Reasons for Choosing *Avoid Cycling* as the Most Impactful (n=6)

Traffic characteristics	
Volume	4
HGVs	3
LGVs	1
Speed	1
Road characteristics	
Narrow road	2
Narrow or no cycle path	2
Poorly maintained cycle path	1
Destinations	
Shops	1
Visit family/friends	1

Effects	
Accident risk	3
Noise	1
Lose health/ amenity benefits of cycling	1
Unpleasant	1
Traffic is intimidating	1
Situation	
Cross the road	1
Access to road	1
Concerns	
Is a keen cyclist	1
Aggravating factors	
It's already a problem	2
Long duration of works	1

Table 32: Reasons for Choosing *Community Cohesion/Character* as the Most Impactful (n=3)

Traffic characteristics	
Volume	4
HGVs	1
Effects	
Neighbours will sell their homes	3
Loss of community character	3
Loss of community cohesion	2
Workers' accommodation near village	2
Community destroyed	1
Accidents	1

Concerns	
House near road	4
Loves to live here	3
Has many friends here	3
Knows neighbours	3
Children safety	1
Aggravating factors	
This is a place for retirement	3

Table 33: Reasons for Choosing *Stress* as the Most Impactful (n=2)

Traffic characteristics	
HGVs	1
Drivers' behaviour	1
Effects	
Can't leave home	1
Sleep disturbance	1
Noise	1

Situation	
Daytime	1
Concerns	
Remembers Sizewell B	1
Aggravating factors	
Nobody to help	1
Impression problems won't be addressed	1

Table 34: Reasons for Choosing *Health* as the Most Impactful (n=1)

Traffic characteristics	
Volume	1
Destinations	
Health facilities	1

Effects	
Stress while driving	1
Situation	
Access to road	1

Table 35: Reasons for Choosing *Sleeping* as the Most Impactful (n=3)

Traffic characteristics	
Volume	2
Effects	
Noise	1
Vibration	1
Situation	
Night-time	1

Concerns	
Have disability	1
House near road	1
Need sleep when in pain	1
Have to give up working if no sleep	1
Aggravating factors	
It's a constant problem	1
Rural areas should be quiet	1

Table 36: Reasons for Choosing *Avoid Garden* as the Most Impactful (n=3)

Traffic characteristics	
Volume	2
Rat runs	1
Effects	
Noise	3
Pollution	2
Disrupts outdoor life	1
Stress	1

Concerns	
Is old	1
Aggravating factors	
Rural areas should be quiet	1

Table 37: Reasons for Choosing *Avoid Rooms* as the Most Impactful (n=2)

Traffic characteristics	
Speed	1
Road characteristics	
Straight road (increases speed and noise)	1
Effects	
Noise	2
Vibration	1

Situation	
Peak time	1
Concerns	
House near road	1
Aggravating problems	
It's already a problem	1

5.5 Preferences Over Options to Address Traffic Issues

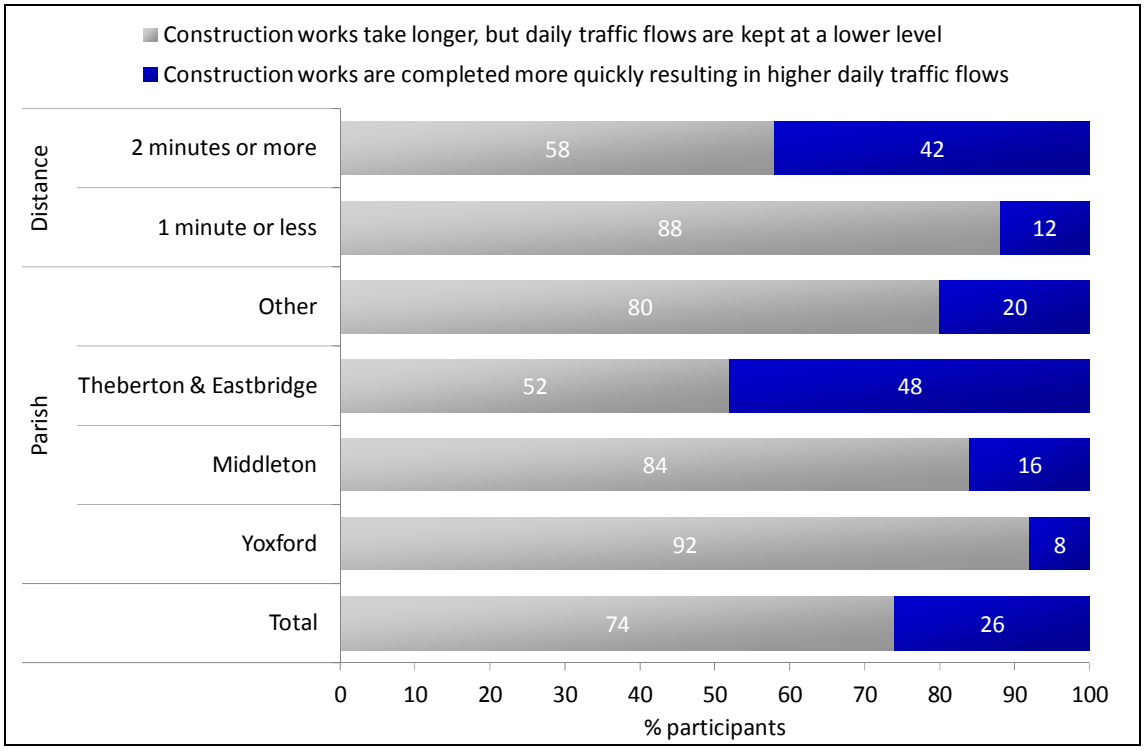
A series of questions were posed to gather views on the options to manage the expected increase in traffic and its associated impacts. Results from each of these questions are reported here.

Duration vs intensity of traffic

Participants were informed that *"Generally speaking, the scale of traffic movements to the site each day is related to the construction programme. The length of a construction programme will determine the number of vehicles per day; a condensed programme would increase the average number of vehicle movements on any given day"* and asked their preference between:

- Construction works take longer, but daily traffic flows are kept at a lower level
- Construction works are completed more quickly resulting in higher daily traffic flows

Figure 50: Preferences between longer construction works and less traffic or shorter construction works and more traffic



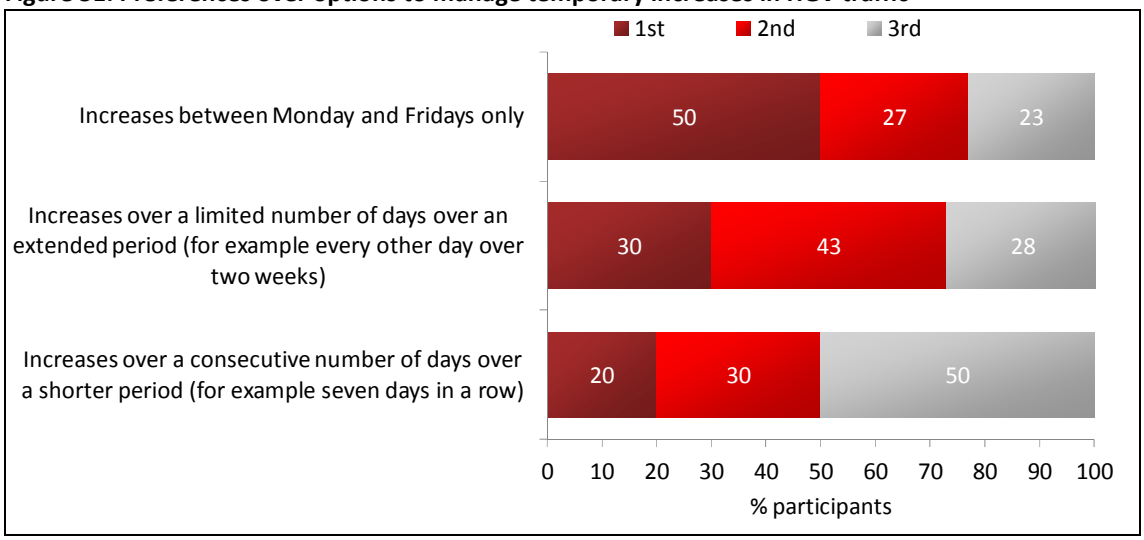
Base: Total 105; Yoxford 39, Middleton 19, Theberton & Eastbridge 42, Other 5; 1 minute or less 57, 2 minutes or more 48

Managing temporary increases in HGV traffic

Participants were informed that *"There will be times where the number of heavy goods vehicles (HGVs) will need to increase significantly in response to specific construction tasks or other unforeseen factors."* and asked to rank the following options that could be used to manage HGV levels in order of preference:

- Increases over a limited number of days over an extended period (for example every other day over two weeks)
- Increases over a consecutive number of days over a shorter period (for example seven days in a row)
- Increases between Monday and Fridays only

Figure 51: Preferences over options to manage temporary increases in HGV traffic



Base: 105

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Table 38: Mean preferences over options to manage temporary increases in HGV traffic

	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Increases between Monday and Fridays only	2.27	2.36	2.21	2.21	2.4	2.3	2.25
Increases over a limited number of days over an extended period (for example every other day over two weeks)	2.04	2.07	1.95	2	2	2.14	1.88
Increases over a consecutive number of days over a shorter period (for example seven days in a row)	1.7	1.58	1.86	1.79	1.6	1.58	1.89
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

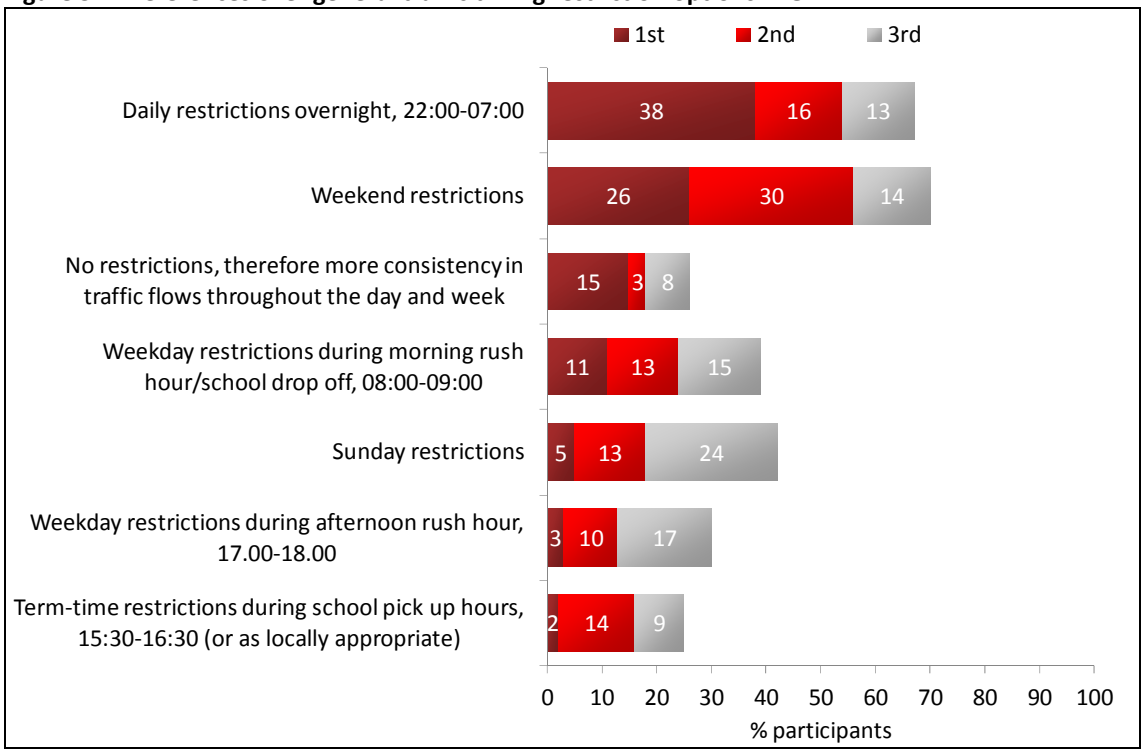
General traffic timing restrictions - LGV

Participants were informed that *"Restrictions could be placed on light goods vehicle (LGV) movements at particular times of the day or night, but this may mean that numbers of these vehicles are higher at other times of the day."* and asked to rank their preference as to how they would wish to see the issue addressed:

- No restrictions, therefore more consistency in traffic flows throughout the day and week
- Term-time restrictions during school pick up hours, 15:30-16:30 (or as locally appropriate)
- Weekday restrictions during morning rush hour/school drop off, 08:00-09:00
- Weekday restrictions during afternoon rush hour, 17.00-18.00
- Daily restrictions overnight, 22:00-07:00

- Weekend restrictions
- Sunday restrictions

Figure 52: Preferences over general traffic timing restriction options - LGV



Base: 105

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Table 39: Mean preferences over general traffic timing restriction options - LGV

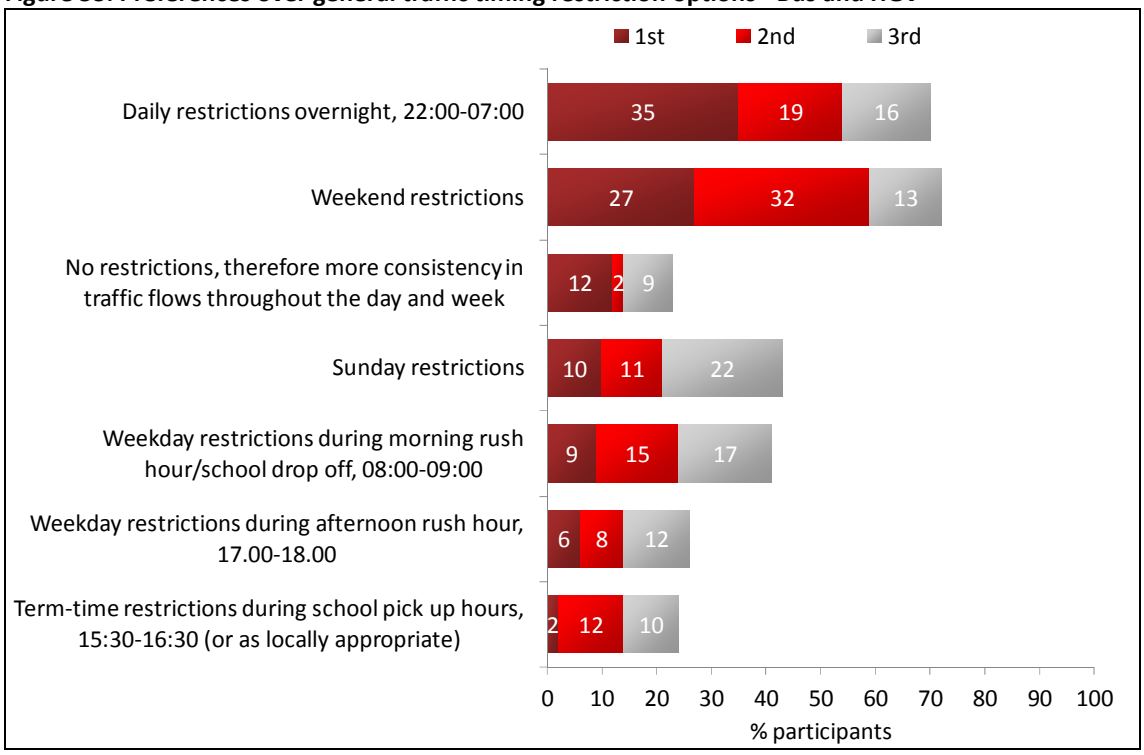
	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Daily restrictions overnight, 22:00-07:00	1.59	1.78	1.74	1.46	1	1.8	1.37
Weekend restrictions	1.52	1.59	1.64	1.38	1.8	1.69	1.36
Weekday restrictions during morning rush hour/school drop off, 08:00-09:00	0.74	0.65	0.81	0.84	0.8	0.65	0.92
Sunday restrictions	0.65	0.67	0.68	0.62	0.6	0.7	0.61
No restrictions, therefore more consistency in traffic flows throughout the day and week	0.59	0.65	0.44	0.6	0.6	0.65	0.53
Weekday restrictions during afternoon rush hour, 17.00-18.00	0.46	0.34	0.52	0.54	0.4	0.36	0.55
Term-time restrictions during school pick up hours, 15:30-16:30 (or as locally appropriate)	0.43	0.33	0.21	0.56	0.8	0.22	0.69
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

General traffic timing restrictions – Bus and HGV

Participants were informed that *"Restrictions could be placed on buses and HGV movements at particular times of the day or night, but this may mean that numbers of these vehicles are higher at other times of the day."* and asked to rank their preference as to how they would wish to see this issue addressed:

- No restrictions, therefore more consistency in traffic flows throughout the day and week
- Term-time restrictions during school pick up hours, 15:30-16:30 (or as locally appropriate)
- Weekday restrictions during morning rush hour/school drop off, 08:00-09:00
- Weekday restrictions during afternoon rush hour, 17.00-18.00
- Daily restrictions overnight, 22:00-07:00
- Weekend restrictions
- Sunday restrictions

Figure 53: Preferences over general traffic timing restriction options - Bus and HGV



Base: 105

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Table 40: Mean preferences over general traffic timing restriction options - Bus and HGV

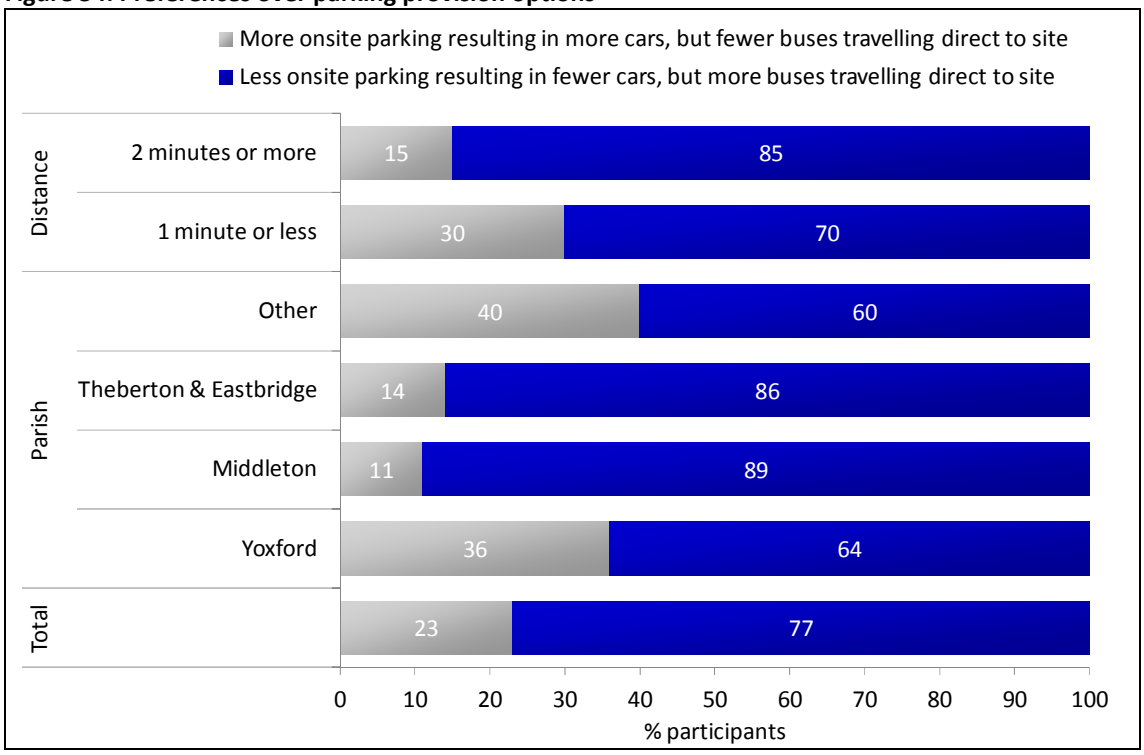
	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Daily restrictions overnight, 22:00-07:00	1.59	1.65	1.9	1.5	0.8	1.74	1.44
Weekend restrictions	1.58	1.64	1.63	1.51	1.6	1.75	1.4
Weekday restrictions during morning rush hour/school drop off, 08:00-09:00	0.74	0.68	0.86	0.72	0.8	0.59	0.94
Sunday restrictions	0.74	0.67	0.78	0.72	1.2	0.77	0.71
No restrictions, therefore more consistency in traffic flows throughout the day and week	0.49	0.55	0.2	0.56	0.6	0.49	0.51
Weekday restrictions during afternoon rush hour, 17.00-18.00	0.46	0.48	0.32	0.53	0.2	0.47	0.4
Term-time restrictions during school pick up hours, 15:30-16:30 (or as locally appropriate)	0.4	0.33	0.33	0.47	0.8	0.23	0.63
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

Parking provision, and links to bus vs car volumes

Participants were informed that *"The location of parking provision will affect the numbers of cars and buses that travel directly to site. Less onsite parking and larger offsite park and ride facilities would reduce car trips directly to site but increase bus trips (as the buses would transport people from the park and ride sites to the main construction site)."* and asked their preference between the following two options:

- More onsite parking resulting in more cars, but fewer buses travelling direct to site
- Less onsite parking resulting in fewer cars, but more buses travelling direct to site

Figure 54: Preferences over parking provision options



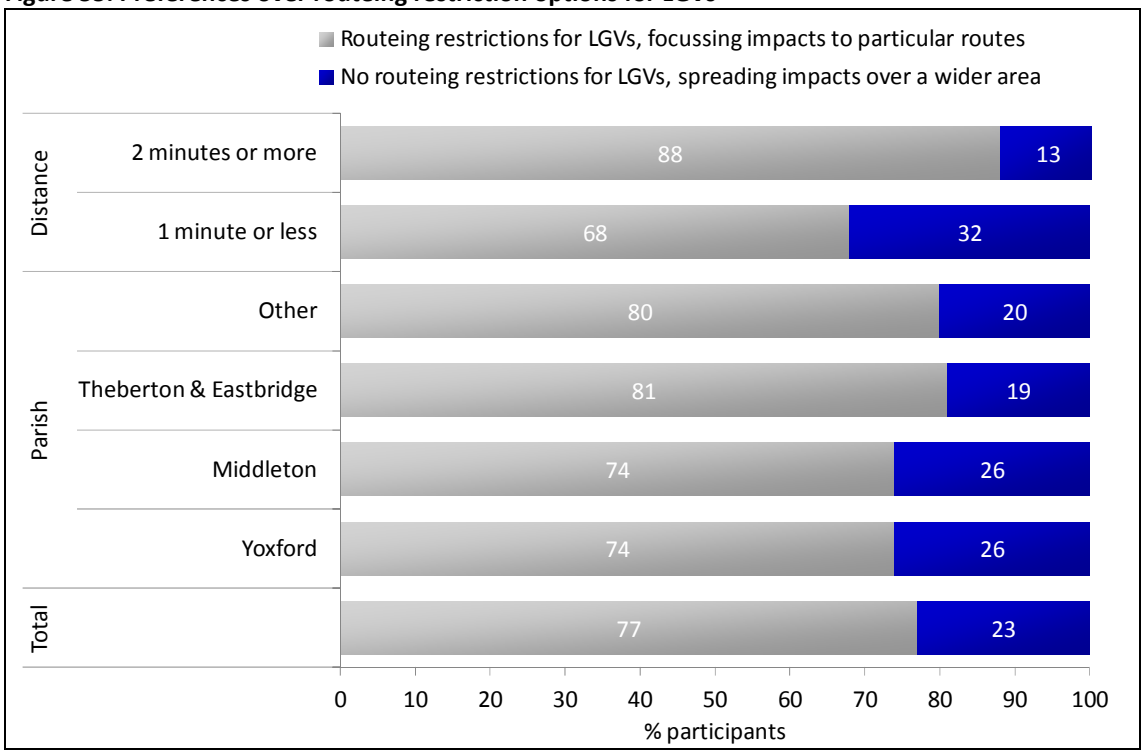
Base: Total 105; Yoxford 39, Middleton 19, Theberton & Eastbridge 42, Other 5; 1 minute or less 57, 2 minutes or more 48

Routeing restrictions for LGVs

Participants were informed that "*Routeing restrictions can be applied to reduce incidences of "rat running" by requiring vehicles to use particular roads to access the main site. EDF has not yet proposed routeing restrictions for LGVs. A routeing restriction would have the benefit of reducing trips on minor roads, but increase traffic on designated routes."* and asked their preference between the following two options:

- Routeing restrictions for LGVs, focussing impacts to particular routes
- No routeing restrictions for LGVs, spreading impacts over a wider area

Figure 55: Preferences over routeing restriction options for LGVs



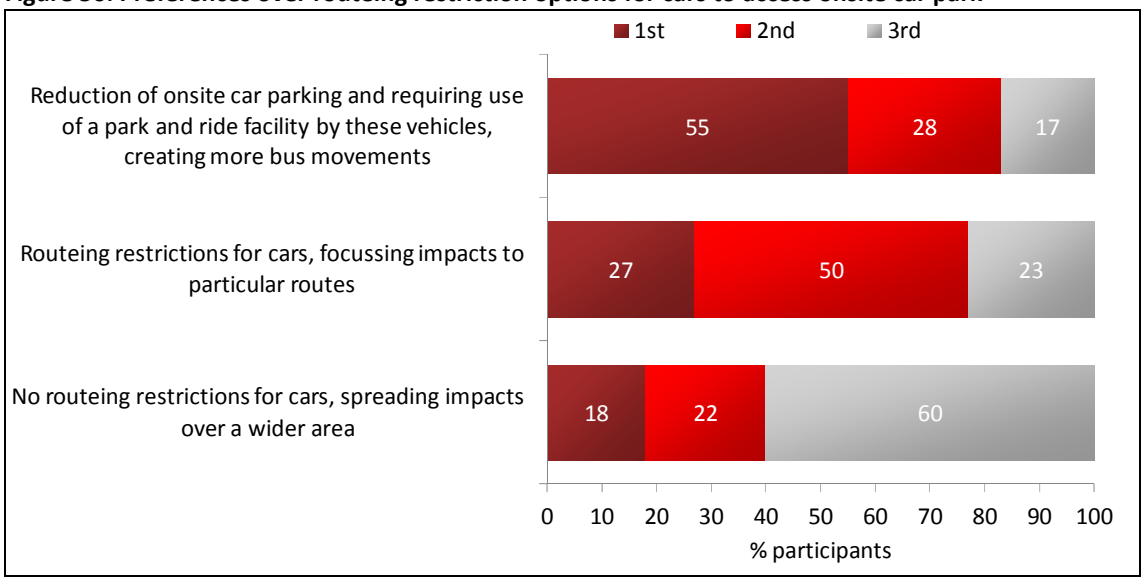
Base: Total 105; Yoxford 39, Middleton 19, Theberton & Eastbridge 42, Other 5; 1 minute or less 57, 2 minutes or more 48

Routeing restrictions for cars to access onsite car park

Participants were informed that *"EDF has proposed an onsite car park of 1,000 spaces which could be used by drivers whose journeys begin east of the A12. EDF has not yet proposed to restrict the routes that such cars can use to access the onsite car park."* and asked to rank their preference between:

- Routeing restrictions for cars, focussing impacts to particular routes
- No routeing restrictions for cars, spreading impacts over a wider area
- Reduction of onsite car parking and requiring use of a park and ride facility by these vehicles, creating more bus movements

Figure 56: Preferences over routeing restriction options for cars to access onsite car park



Base: 105

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Table 41: Mean preferences over routeing restriction options for cars to access onsite car park

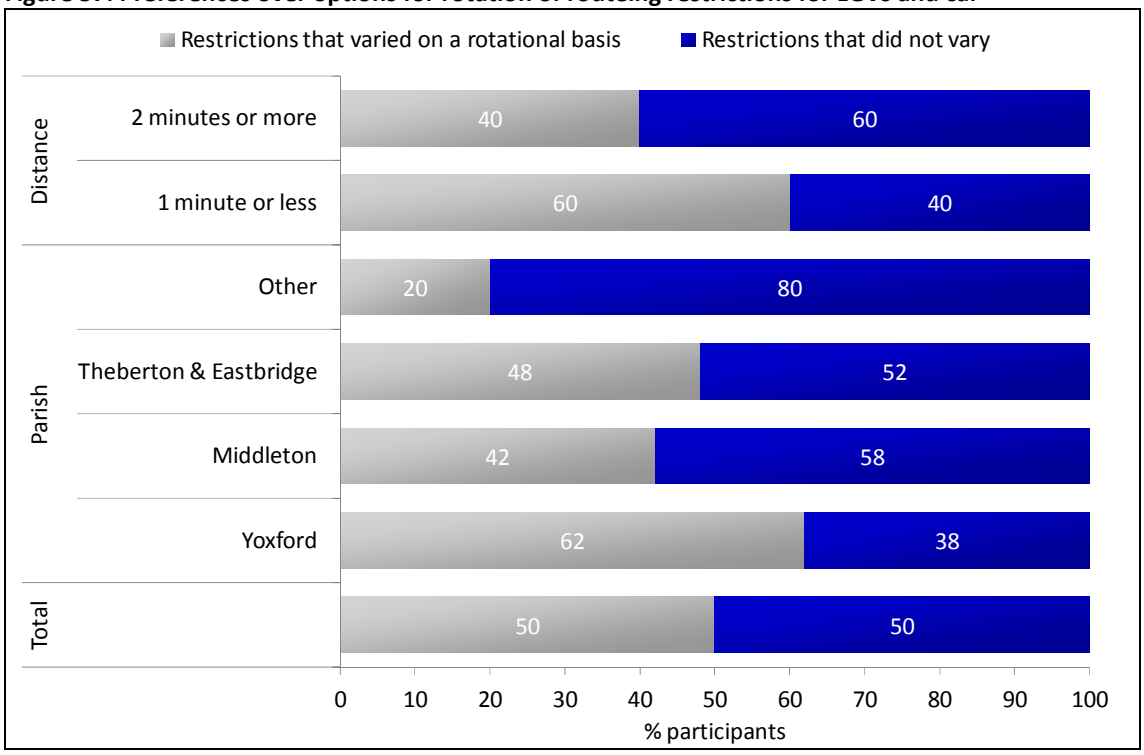
	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Reduction of onsite car parking and requiring use of a park and ride facility by these vehicles, creating more bus movements	2.38	2.12	2.58	2.55	2.2	2.23	2.59
Routeing restrictions for cars, focussing impacts to particular routes	2.04	2.1	2	1.98	2.2	2	2.12
No routeing restrictions for cars, spreading impacts over a wider area	1.58	1.79	1.44	1.48	1.6	1.83	1.29
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

Rotation of routeing restrictions for LGVs and cars

Participants were informed *"If routeing restrictions for LGVs or cars are imposed, these might be varied such that on an agreed day or days of the month these vehicles were required to use different routes. This would provide relief to those who live near roads which ordinarily carry the traffic."* And asked which of the following they would prefer:

- Restrictions that varied on a rotational basis
- Restrictions that did not vary

Figure 57: Preferences over options for rotation of routeing restrictions for LGVs and car



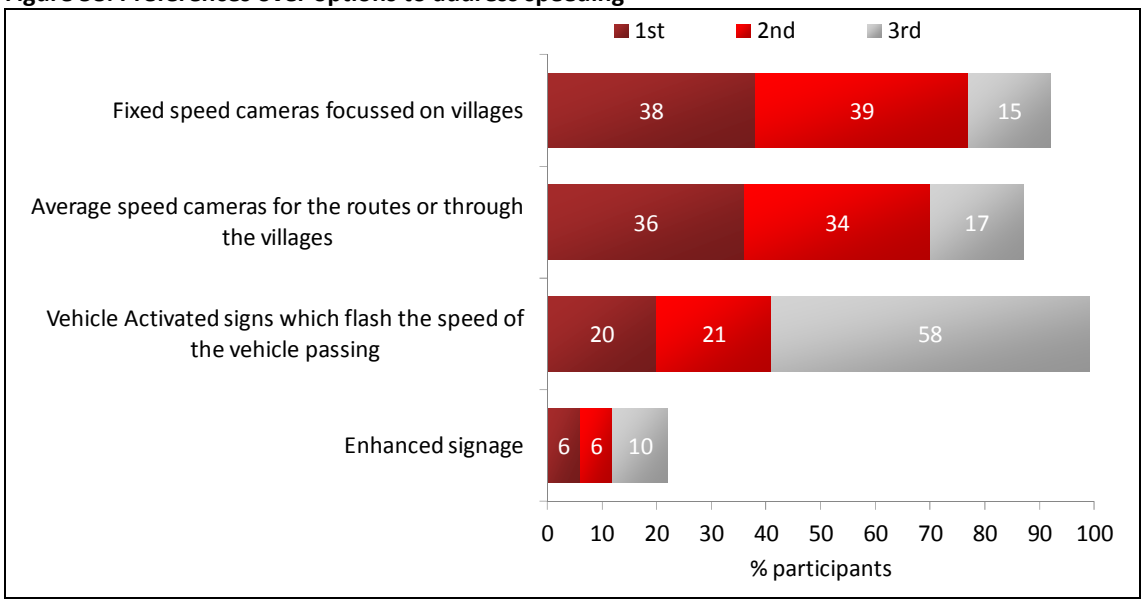
Base: Total 105; Yoxford 39, Middleton 19, Theberton & Eastbridge 42, Other 5; 1 minute or less 57, 2 minutes or more 48

Addressing speeding

Participants were informed *"Speeding traffic has been raised as a particular concern by communities."* and asked to rank their preference as to how they would wish to see this issue addressed from the following options:

- Enhanced signage
- Vehicle Activated signs which flash the speed of the vehicle passing
- Average speed cameras for the routes or through the villages
- Fixed speed cameras focussed on villages

Figure 58: Preferences over options to address speeding



Base: 105

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Table 42: Mean preferences over options to address speeding

	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Fixed speed cameras focussed on villages	2.07	2.05	2	2.2	1.6	2.16	1.98
Average speed cameras for the routes or through the villages	1.93	1.82	1.89	2.01	2.6	1.99	1.89
Vehicle Activated signs which flash the speed of the vehicle passing	1.6	1.65	1.81	1.52	1.2	1.47	1.75
Enhanced signage	0.4	0.51	0.33	0.24	0.6	0.36	0.38
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

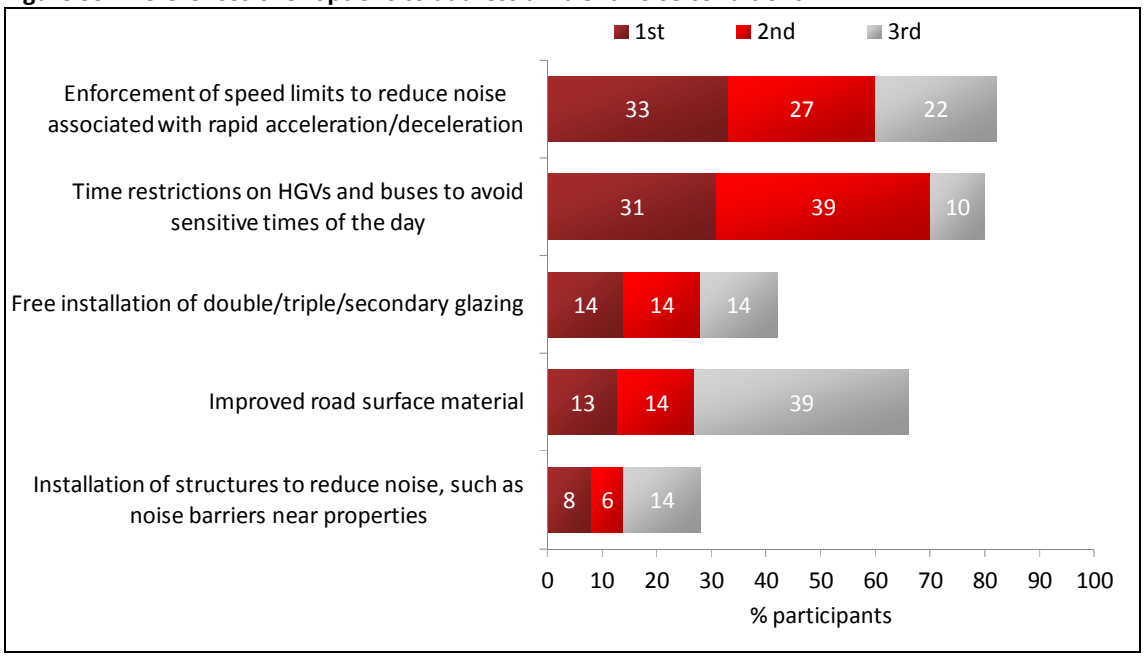
Addressing ambient noise conditions

Participants were informed *"Construction traffic is likely to lead to changes to ambient noise conditions."* and asked to rank their preference as to how they would wish to see this issue addressed from the following options:

- Free installation of double/triple/secondary glazing
- Enforcement of speed limits to reduce noise associated with rapid acceleration/deceleration
- Installation of structures to reduce noise, such as noise barriers near properties
- Time restrictions on HGVs and buses to avoid sensitive times of the day
- Improved road surface material

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Figure 59: Preferences over options to address ambient noise conditions



Base: 105

Table 43: Mean preferences over options to address ambient noise conditions

	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Time restrictions on HGVs and buses to avoid sensitive times of the day	1.81	1.79	1.96	1.84	1.4	1.67	2.03
Enforcement of speed limits to reduce noise associated with rapid acceleration/deceleration	1.75	1.83	1.84	1.61	1.8	1.92	1.56
Improved road surface material	1.06	0.84	1.32	1.25	0.8	0.81	1.4
Free installation of double/triple/secondary glazing	0.84	1.17	0.58	0.68	0.8	1.11	0.57
Installation of structures to reduce noise, such as noise barriers near properties	0.5	0.38	0.31	0.61	1.2	0.49	0.47
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

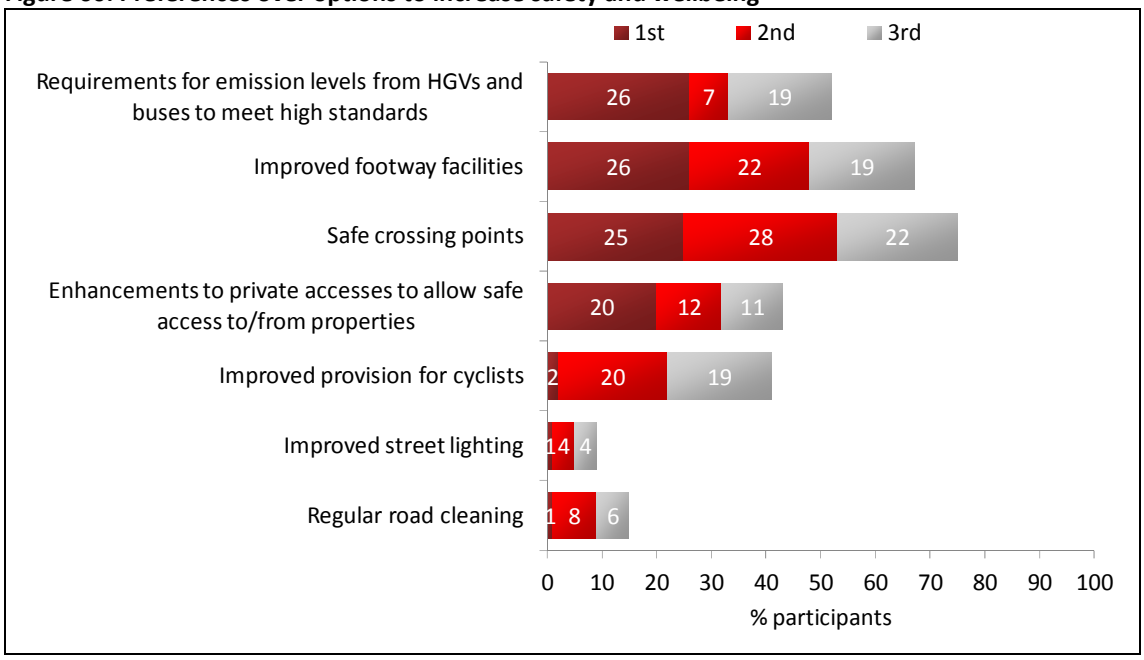
Increasing safety and wellbeing

Participants were informed that *"Options exist to increase the safety and wellbeing of residents."* and asked to rank their preference as to how they would wish to see this issue addressed from the following options:

- Improved footway facilities
- Improved provision for cyclists

- Safe crossing points
- Enhancements to private accesses to allow safe access to/from properties
- Regular road cleaning
- Requirements for emission levels from HGVs and buses to meet high standards
- Improved street lighting

Figure 60: Preferences over options to increase safety and wellbeing



Base: 105

By allocating 3 to a first choice, 2 to a second choice and 1 to a third choice, a mean rating can be calculated. The table below shows the means by parish and distance.

Table 44: Mean preferences over options to increase safety and wellbeing

	Total	Parish				Distance	
		Yoxford	Middleton	Theberton & Eastbridge	Other	1 minute or less	2 minutes or more
Safe crossing points	1.53	1.74	1.31	1.36	1.8	1.44	1.6
Improved footway facilities	1.41	1.13	1.01	1.87	1	1.36	1.46
Requirements for emission levels from HGVs and buses to meet high standards	1.11	1.13	1.42	1.04	0.2	1.09	1.09
Enhancements to private accesses to allow safe access to/from properties	0.95	1.16	0.84	0.81	1.2	1.32	0.52
Improved provision for cyclists	0.65	0.44	1.05	0.57	1.4	0.44	0.89
Regular road cleaning	0.25	0.25	0.38	0.21	0	0.28	0.2
Improved street lighting	0.15	0.2	0	0.15	0.4	0.12	0.18
Base	**105**	**39**	**19**	**42**	**5**	**57**	**48**

5.6 Traffic Mitigation Priorities (Stated Preference Exercise 2)

The second stated preference exercise focused on the relative priority participants attached to different interventions to mitigate the impact of increased traffic. The exercise consisted of a series of questions where participants were asked which measure they would like to see given the highest priority and the measure they would like to see given the lowest priority. Each question showed four measures, drawn from a list of sixteen (Table 45).

Table 45: Measures to mitigate the impacts of greater traffic

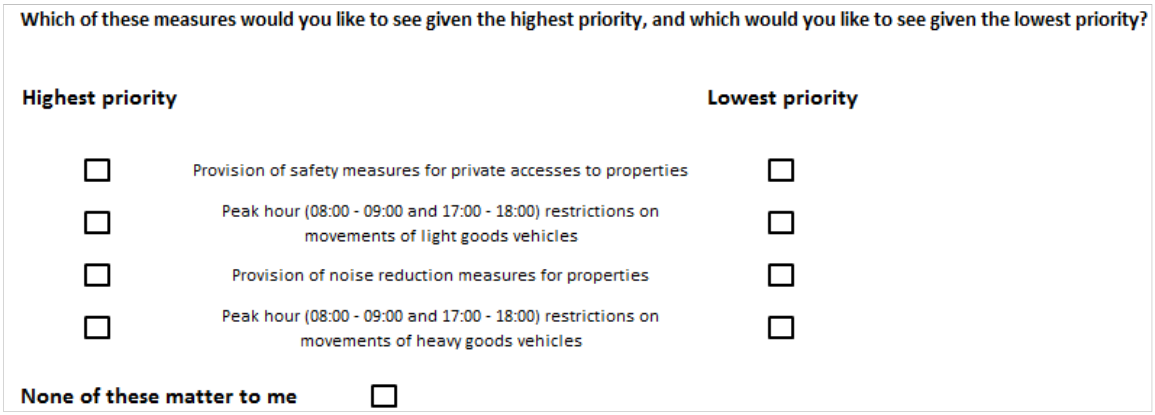
Name	Description
quick	Construction works are completed as quickly as possible, but with higher daily traffic flows
peak_lgv	Peak hour (08:00 - 09:00 and 17:00 - 18:00) restrictions on movements of light goods vehicles (LGVs)
weekend_lgv	Weekend restrictions on movements of LGVs
night_lgv	Night-time (22:00 - 07:00) restrictions on movements of LGVs
peak_hgv	Peak hour (08:00 - 09:00 and 17:00 - 18:00) restrictions on movements of heavy goods vehicles (HGVs)
weekend_hgv	Weekend restrictions on movements of HGVs
night_hgv	Night-time (22:00 - 07:00) restrictions on movements of HGVs
parking	Provision of less onsite parking resulting in fewer cars, but more buses, travelling direct to site
route_lgv	Requiring light goods vehicles to take particular routes to site, rather than being able to choose any road they wish
route_car	Requiring car drivers who live east of the A12 to take particular routes to site, rather than being able to choose any road they wish
speed	Strict enforcement of speed limits
noise	Provision of noise reduction measures for properties
safe_walk	Provision of safety measures for pedestrians and cyclists
safe_acc	Provision of safety measures for private accesses to properties
air	Maintenance of current air quality standards
light	Provision of street lighting

As with the SP1 exercise, the MaxDiff, or Best-Worst Scaling, methodology was employed to explore relative priorities. Figure 61 shows an example of the type of question asked in the SP2 exercise.

Six questions of this kind were asked to each participant. The set of measures shown was different in all six questions. Participants could also choose an option stating that none of the four measures was important to them.

The analysis of the SP2 data used the same methods as the analysis of the SP1 data, although in this case the outputs are named “priority scores” rather than impact scores due to the different wording of the question asked.

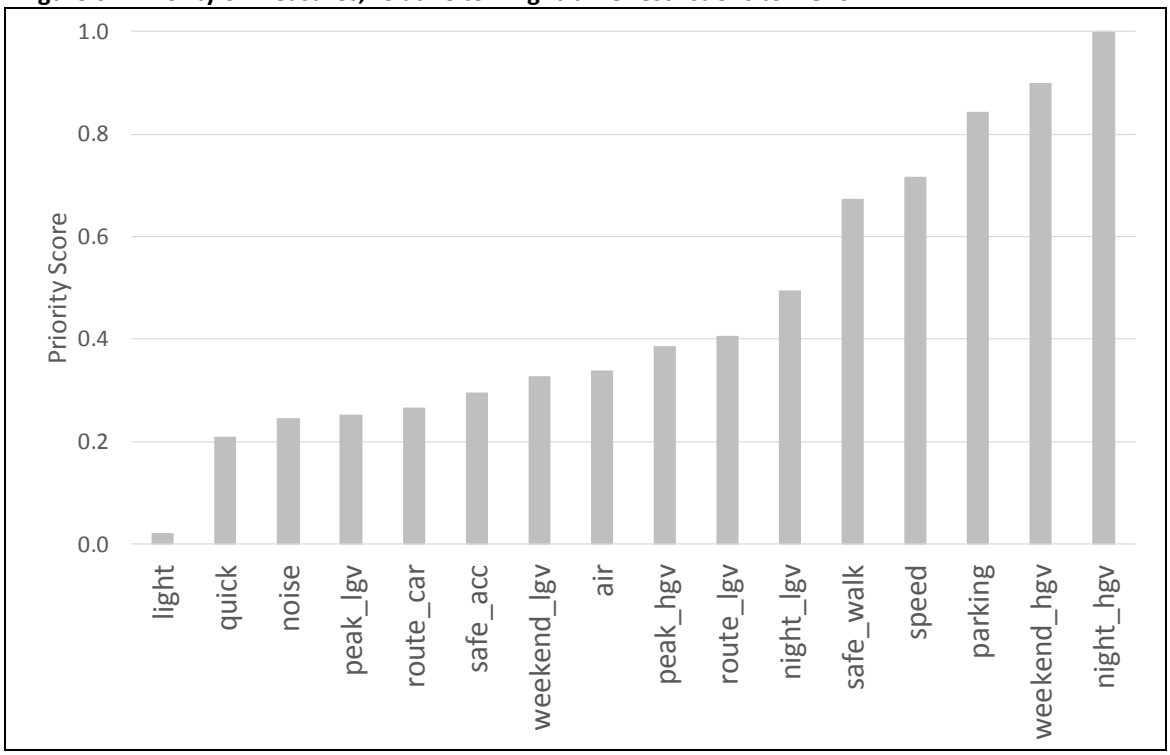
Figure 61: SP2 question format



Results: full sample

Figure 62 shows the priority scores for each of the measures included in the SP2 design, in relation to "night-time restrictions to HGVs" (which was the highest priority measure overall).

Figure 62: Priority of measures, relative to "Night-time restrictions to HGVs"



Source: Accent analysis of SP2 data; See Table 45 for definitions of mitigation measures; Base: total 105 respondents each answering six choice questions.

- The highest priority scores, after night-time restrictions to HGVs, were given to weekend restrictions to HGVs (with a score of 0.90), provision of less onsite parking (0.84), strict enforcement of speed limits (0.72), and provision of safety measures for pedestrians and cyclists (0.67).

- The least important measure was by far the provision of street lighting (priority score of only 0.02), followed by construction works completed as quickly as possible (0.21), peak-time restrictions to LGVs (0.25) and provision of noise reduction measures for properties (0.25).

Results: segments

The following three figures show disaggregated priority scores, obtained for models estimated separately for each segment.

Figure 63 shows the priority scores, relative to night-time restrictions to HGVs, by parish. In Middleton, several measures had scores above 1, which means that they were regarded as a higher priority than night time restrictions to HGVs. Those measures included the provision of less onsite parking, speed limit enforcements, provision of safety measures for pedestrians and cyclists, and weekend restrictions to HGVs. Night time restrictions to LGVs and route restrictions to cars and to LGVs were also relatively more important in Middleton than in the other two parishes.

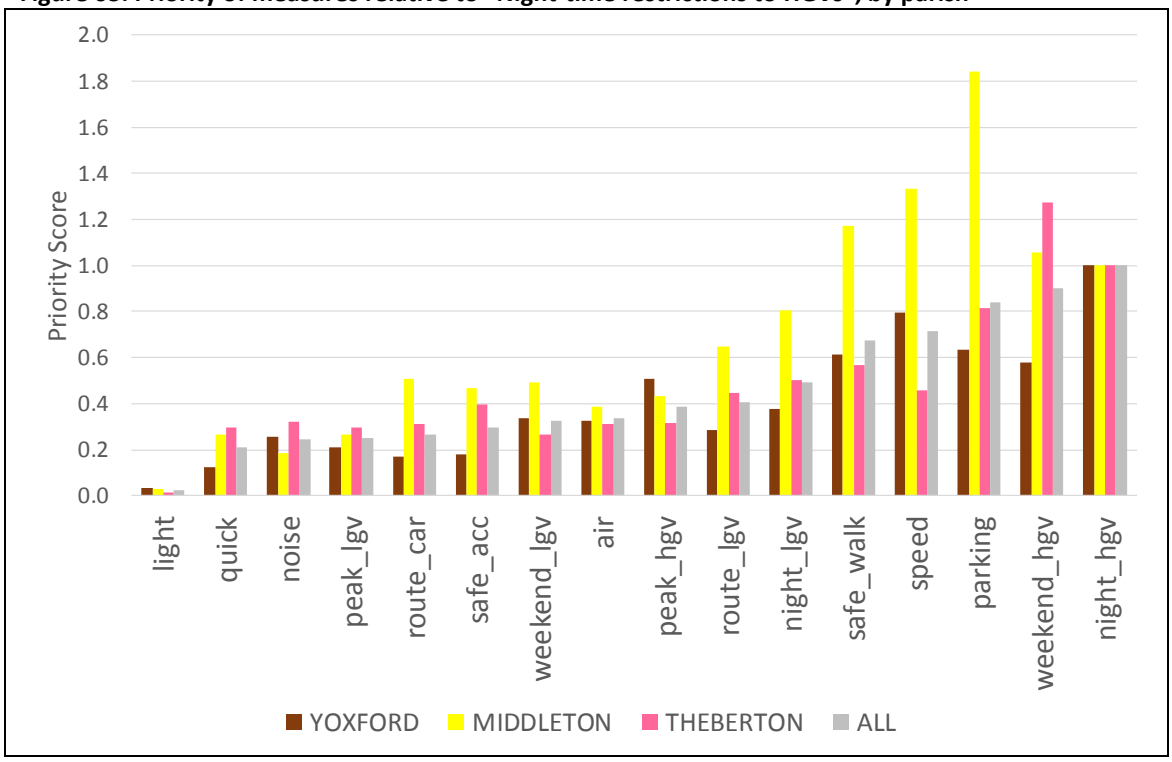
In Theberton, the priority given to the introduction of weekend restrictions to HGVs was higher than the other parishes. The priority scores of all the measures in Yoxford were similar to those obtained for the whole sample.

Figure 64 shows the priority scores associated with each measure, compared to night-time restrictions to HGVs, by distance to the road. Participants living closer to the road attached a higher priority to enforcement of speed limits and weekend restrictions on HGVs. Participants living farther from the road attached a higher priority to the provision of safety measures for pedestrians and cyclists, route restrictions to LGVs, and construction works being completed as quickly as possible.

The analysis by distance to the road can be further disaggregated by parish. Figure 65 shows the priority scores for each measure, relative to night-time restrictions to HGVs, by parish, for participants living near the road. The results for Middleton are not shown because the sample contained only 8 participants living near the road in that parish. The figure shows that the priority given to weekend restrictions for HGVs and safety measures for private accesses to properties are much higher for individuals living near the road in Theberton than for the whole group of individuals living near the road.

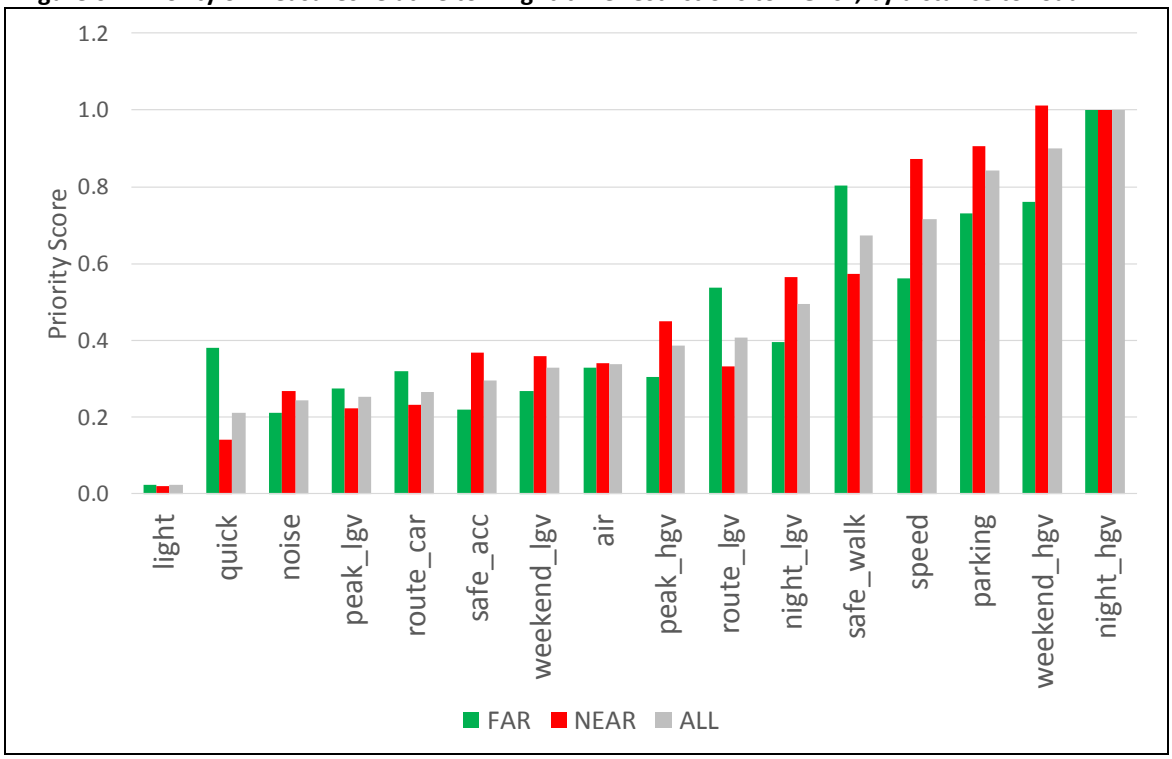
Figure 66 show the priority scores of each measure, relative to night time restrictions to HGVs, by parish, for participants living far from the road. The results for Yoxford are not shown because the sample contained only 7 participants living far from the road in that parish. The priority scores of several measures (speed limits, safety measures for pedestrians and cyclists, routeing restrictions to cars and LGVs, and weekend restrictions on LGVs) are found to be much higher for participants living far from the road in Middleton than for the whole group of participants living far from the road.

Figure 63: Priority of measures relative to "Night-time restrictions to HGVs", by parish



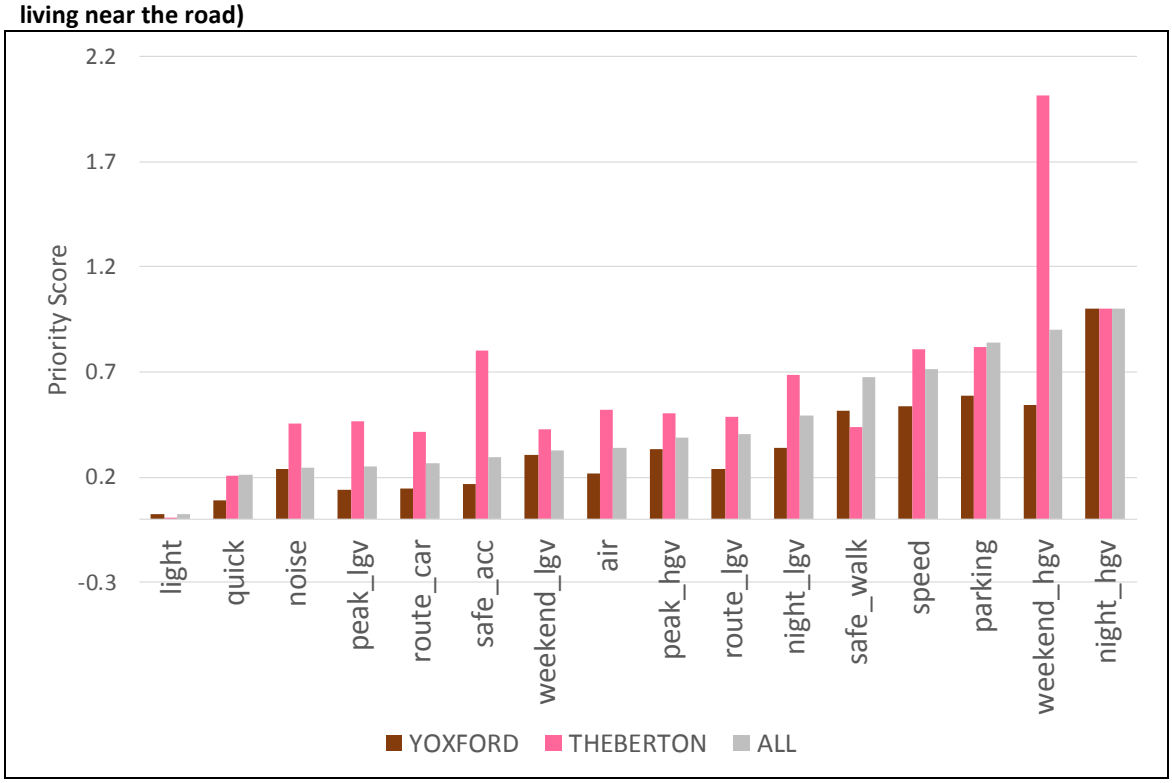
Source: Accent analysis of SP2 data; See Table 45 for definitions of mitigation measures; Base: total 105, Yoxford 39, Middleton 19, Theberton & Eastbridge 42 respondents each answering six choice questions.

Figure 64: Priority of measures relative to "Night-time restrictions to HGVs", by distance to road



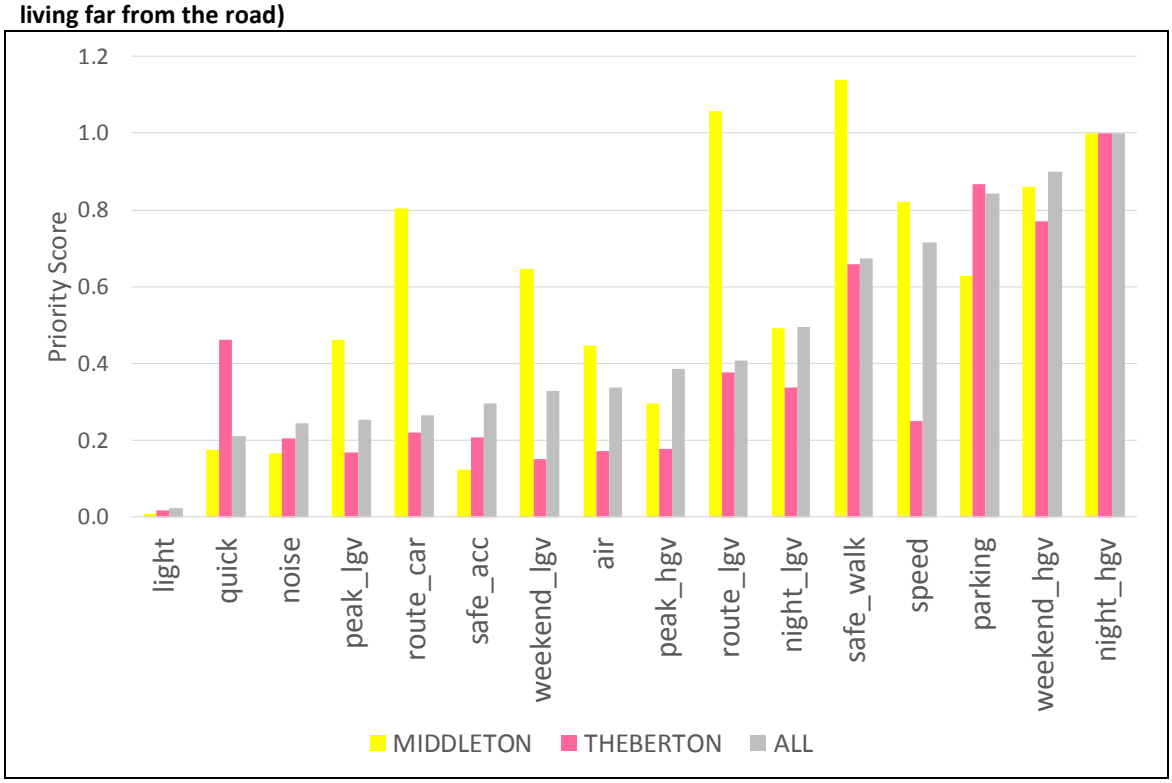
Source: Accent analysis of SP2 data; See Table 45 for definitions of mitigation measures; Base: total 105, Near to road 62, Far from road 43 respondents each answering six choice questions.

Figure 65: Priority of measures relative to "Night-time restrictions to HGVs", by parish (participants living near the road)



Source: Accent analysis of SP2 data; See Table 45 for definitions of mitigation measures; Base: total 62, Yoxford 32, Theberton & Eastbridge 22 respondents each answering six choice questions.

Figure 66: Priority of measures relative to "Night-time restrictions to HGVs", by parish (participants living far from the road)



Source: Accent analysis of SP2 data; See Table 45 for definitions of mitigation measures; Base: total 43, Middleton 12, Theberton & Eastbridge 22 respondents each answering six choice questions.

It is worth noticing that the results in Figure 66 are broadly consistent with those reported in the previous section. For example, participants living in Theberton and far from the road gave a higher priority to quick construction works than those in other parishes and living near the road, as previously shown in Figure 50. Additionally, participants living in Middleton and Yoxford and near the road gave a higher priority to weekend restrictions to LGVs, as shown in Table 39.

Results: Demographics

Table 46 shows the priority scores for each measure relative to "night-time restrictions to HGVs" for different segments, calculated from an econometric model that includes demographic variables and location variables interacted with the different measures. As in the case of the first stated preference exercise, only statistically significant interactions were retained in the final model.

The values in the "base" column for each measure are the priority scores for a reference group consisting of participants who live far from the road in Theberton, and who are male, not old, have no children, are not in full time employment, and have low or middle income. . The other columns are the impact scores for participants who are not in the reference group, that is, individuals who live near the road in Middleton or Yoxford or who are female, older, have children, are in full time work or have high. The scores for these participants are only shown when they differ from the ones of the reference group.

Unlike the case of the first stated preference exercise, in the present case, location near/far from the road was not a dominant factor explaining differences in priority scores. However, participants living near the road attached a lower priority to quick construction works and a higher priority to safety measures for accesses to properties than participants living far from the road. In addition, Middleton residents also attached a higher than average priority to safety measures to pedestrians and cyclists, and Yoxford residents attached lower than average priority to safety measures for accesses to properties.

Gender was a significant factor differentiating priority scores in the sample. Women were more likely than men to prioritise measures such as peak restrictions to LGVs and HGVs, weekend restrictions to HGVs, noise reduction measures for properties, safety measures for private accesses to properties, and air quality standards, all relative to night-time restrictions to HGVs.

Older participants attached a higher priority to quick construction works, parking restrictions, and routeing restrictions to cars. Individuals in households with children attached a higher priority to all measures, relative to night-time restrictions to HGVs, than other participants.

As expected, individuals in full-time employment attach greater priority to weekend restrictions, both to LGVs and HGVs, as these individuals are more likely to spend more time at home, or in the village, during the weekends than on weekdays.

Participants with higher income attached higher priority to the maintenance of air quality standards, compared with other participants. The role of income in explaining this preference was consistent with the results of the first stated preference exercise: lower income participants attached less importance to the impacts of traffic on air quality.

Table 46: Priorities over mitigation measures, relative to Night-Time Restrictions to HGVs, by segment

Name	Base	Yoxford	Middleton	Near	Female	Old	With children	FT work	High income
quick	0.24			0.07		0.60	0.90		
peak_lgv	0.12				0.31		0.46		
weekend_lgv	0.22						0.32	0.45	
night_lgv	0.42						1.57		
peak_hgv	0.23				0.47		0.87		
weekend_hgv	0.35				0.99		0.45	1.07	
parking	0.53					1.07	1.96		
route_lgv	0.33						1.24		
route_car	0.21						0.79		
speed	0.53					1.29	0.25		
noise	0.13				0.29		0.48		
safe_walk	0.63		1.42				0.41		
safe_acc	0.12	0.03		0.33	0.56		0.43		
air	0.17				0.40		0.19		0.39
light	0.02						0.07		

Source: Accent analysis of SP2 data; See Table 45 for definitions of mitigation measures;

Reasons for Choosing Measures as the Highest Priority

The tables below show the reasons given by the participants for their choice of the highest priority measure in the last question of the exercise. The reasons are grouped into the same categories used in the analysis of the reasons for the choices of the most important impact. However, in the present case, the reasons should be understood in relation to anticipated improvements following the implementation of the measures. As an example, the reasons in the "aggravating factors" category are aspects that participants believed would reduce the factors that aggravate a particular impact.

There is no table for the "provision of street lighting" measure because no participant chose this measure as the most important one in the last question of the exercise.

As in the case of the first stated preference exercise, the effect of traffic characteristics such as volume, speed and composition, and drivers' behaviour, were mentioned as reasons for the choices of most of the measures. In particular, the reduction of traffic volume was mentioned by all 13 participants who chose parking restrictions as the most important measure and by 5 of the 6 participants who chose route restrictions for LGVs. Aspects related to the road infrastructure were only mentioned as reasons for choices for safety measures for private access to properties, and air quality standards.

Variations in individual activities and village life by season and day of the week were mentioned as reasons for several choices. For example, the choice for weekend restrictions on LGVs or HGVs was explained by several participants as being driven by the needs of residents to rest and enjoy the village life and of tourists to visit the areas on their free time during the weekends, especially in the summer.

The proximity of the participant's house to the road, concern about children and the perceptions that rural areas should be quiet, that the area was already affected by road traffic, and that future impacts will be felt for many years were also mentioned by several participants as reasons for their choices.

Table 47: Reasons for choosing *Quicker Construction Works* as the highest priority (n=5)

Effects	
Able to recover later	1
Minimize impact on tourism	1
Concerns	
Many elderly people here	1

Aggravating factors	
will also speed up construction of power station	2

Table 48: Reasons for choosing *Peak-Hour Restrictions on LGVs* as the highest priority (n=3)

Traffic characteristics	
Volume (higher at those times)	2
Congestion	1

Destinations	
Work	1
Health facilities	1
School runs	1
Aggravating factors	
it's already a problem (during those times)	1

Table 49: Reasons for choosing *Weekend Restrictions on LGVs* as the highest priority (n=7)

Traffic characteristics	
Volume (high at those times)	1
Volume (low at those times)	1
Congestion	1
Rat-runs	1
LGV drivers' recklessness	1

Effects	
Accident risk	1
Situation	
Families using road	1
Tourism	1

Table 50: Reasons for choosing *Night-Time Restrictions on LGVs* as the highest priority (n=3)

Traffic characteristics	
Volume	1
Effects	
Noise	1
Sleep disturbance	1

Concerns	
House near road	1
Aggravating factors	
This is a rural area	1

Table 51: Reasons for Choosing *Peak-Hour Restrictions on HGVs* as the highest priority (n=2)

Effects	
Accident risk	1

Concerns	
Children	1

Table 52: Reasons for choosing *Weekend Restrictions on HGVs* as the highest priority (n=18)

Traffic characteristics	
HGVs	7
Volume	1
Speed	1
Effects	
Couple of days rest/recover	10
Noise	9
Air pollution	4
Accident risk	4
Disruption to daily life (lower those times)	3
Vibration	2
Enjoy garden	1
Disruption to quality of life (lower those times)	1
Disruption to mobility (lower those times)	1

Situation	
Tourists	4
Enjoy area on weekends	4
More people at home (commute during week)	3
Summer	1
Concerns	
House near road	2
Children	2
Aggravating factors	
It's already a problem	2
Problem will last for years	2
This is a quiet village	2

Table 53: Reasons for choosing *Night-Time Restrictions on HGVs* as the highest priority (n=11)

Traffic characteristics	
HGVs	2
Effects	
Noise	6
Sleep disturbance	6
Disrupts quality of life	2
Smell	1
Vibration	1
Disrupts wildlife	1

Situation	
In the garden	1
Summer	1
Concerns	
House near road	2
Rooms in front	1
Is disabled	1
Works from home	1
Aggravating factors	
This is a rural area	1

Table 54: Reasons for choosing *Parking Restrictions* as the highest priority (n=13)

Traffic characteristics	
Volume	13
Bus drivers drive more carefully	2
Speed	1
Use of existing facilities	1

Effects	
Accident risk	1

Table 55: Reasons for choosing *Route Restrictions for LGVs* as the highest priority (n=6)

Traffic characteristics	
Volume	5
Rat-runs	3
Avoid village centre	1
Speed	1
Local traffic	1
Road characteristics	
Narrow roads	2

Effects	
Accident risk	2
Noise	1
Pollution	1
Erosion of banks on side of road	1
Situation	
Access to properties	1

Table 56: Reasons for choosing *Route Restrictions for Cars* as the highest priority (n=6)

Traffic characteristics	
Rat-runs	2
Congestion	1
Local traffic	1
Speed	1
Avoid village centre	1
Road characteristics	
Small/narrow roads	3
Visibility	1

Effects	
Accident risk	2
Disruption	1
Situation	
Shift changes	1

Table 57: Reasons for choosing *Speed Limit Enforcement* as the highest priority (n=8)

Traffic characteristics	
Volume	2
Road characteristics	
Junctions	1
Access to properties	1

Effects	
Accident risk (cars)	5
Accident risk (cyclists and pedestrians)	2
Noise	1
Situation	
Drivers rushing to Sizewell site	2
Cross the road	1
Aggravating factors	
It's a problem now	4

Table 58: Reasons for choosing *Noise Reduction Measures* as the highest priority (n=1)

Effects	
Noise increase is major impact of traffic	1

Table 59: Reasons for choosing *Safety Measures for Pedestrians* as the highest priority (n=1)

Traffic characteristics	
Speed	1
Effects	
Accident risk	1

Situation	
Cross the road	1
Concerns	
Is old	1

Table 60: Reasons for choosing *Safety Measures for Private Access to Properties* as the highest priority (n=11)

Traffic characteristics	
Speed	4
Volume	3
HGVs	1
Road characteristics	
Narrow road	1
No pathways	1
Visibility	1

Effects	
Accident risk	6
Can't leave home	2
Disruption of daily life	1
Situation	
Cross the road	1
Concerns	
House near road	2
Many houses near road	1
Aggravating factors	
It's already a problem	1

Table 61: Reasons for choosing *Maintenance of Air Quality Standards* as the highest priority (n=6)

Traffic characteristics	
Volume	3
HGVs	1
Congestion	1
Road characteristics	
Junctions	2

Effects	
Air pollution is major impact of traffic	2
Health	2
Diesel particulates	1
Screening (with plants) in insufficient	1
Situation	
Summer	1
Concerns	
Children	1

5.7 Conclusion

The most impactful aspects of road traffic increases for the local population were found to be greater traffic noise, the effect on car or bus travel times, the risk of being involved in an accident and vibration. However, there were differences according to village, distance from the road, and individual characteristics (especially whether the individual lived in a household with children).

The mitigation measures given highest priority amongst participants were night-time and weekend restrictions to HGVs, provision of less onsite parking, strict enforcement of speed limits, and provision of safety measures for pedestrians and cyclists. The role of location (parish and distance from the road) was less relevant to mitigation priorities scores in comparison with views on the relative impacts of the various traffic aspects. The role of individual characteristics such as gender, age, and household type, was more relevant.

The choices for the most important impacts and measures were explained by factors such as traffic volume and composition, driver's behaviour, road characteristics, the proximity of the participant's house to the road, concern about children, perceptions that rural areas should be quiet, that the area was already affected by road traffic, and that future impacts would be felt for many years.

6. RELATIONSHIP WITH CURRENT APRROACH TO TRANSPORT ASSESSMENT

The results of the study can also be viewed in relation to the assessment frameworks discussed in Section 2.4 of the literature review.

The results of the two first stages (initial consultation survey and depth interviews) provide information that complements the EIA and WebTAG frameworks. The study found for example that the anticipated traffic problems are perceived by many local residents in relation with other effects of the project (both negative and positive, such as the effect on local employment) and with the effects of previous projects (Sizewell B). This information is useful to understand how the context of the traffic increase influences the perceptions of the local residents. This information is harder to obtain using the EIA and WebTAG frameworks, which are focused on objective measures of traffic increase, and tend not to include contextual information as part of their quantitative assessments.

The stated preference study also gives important information about the priorities of local residents regarding a wide range of individual aspects, which tend to be assessed in an aggregated, and sometimes overlapping fashion in existing assessment frameworks.

The table below shows how the impacts included in the stated preference exercise correspond to the impacts covered in WebTAG. The description of the WebTAG impacts is presented in detail in Appendix I.

Only 5 of the 16 impacts considered in the present study are fully covered in WebTAG. Accident risk and air quality are treated in WebTAG as separate impacts. Noise, vibration, and sleep disturbance are covered in the WebTAG noise impact. The other 11 impacts are not covered in WebTAG but are related to a range of different impacts such as townscape, journey quality, severance, travel time, accessibility, physical activity, air quality, and noise.

Table 62: Impacts in the first stated preference exercise vs. WebTag impacts

SP1 Traffic Aspect	SP1 Impact Score	WebTAG Traffic Aspect		
Aspects in WebTAG				
Increased risk of a being in an accident	0.51	Accidents		
Worsening of the local air quality	0.32	Air quality		
Greater traffic noise	1	Noise		
Greater vibration from traffic	0.45	Noise		
Make sleeping more difficult	0.14	Noise		
Aspects not in WebTAG but related to one or more WebTAG aspects				
The sight of all the extra traffic	0.21	Townscape	Journey quality	
Increased journey time when walking	0.11	Severance	Travel time	Accessibility
Increased time to car/bus journeys	0.63	Severance	Travel time	Accessibility
Not making walking trips	0.15	Severance	Physical activity	
Not making driving trips	0.21	Severance		
Not making cycling trips	0.11	Severance	Physical activity	
Loss of community cohesion or character	0.16	Severance	Townscape	
Increased stress	0.38	Noise	Journey quality	
Affect my health	0.20	Noise	Air quality	Physical activity
Less time spent outside in garden	0.19	Noise	Air quality	
Make some rooms in the house unusable	0.06	Noise		

In general, the traffic aspects that had the higher impact scores, as derived from the analysis of the first stated preference exercise, are the ones that are included in WebTAG, such as noise, air quality, and accident risk. However, it is also clear that the WebTAG noise impact aggregates impacts that have different degrees of importance for the affected individuals. For example, vibration is not considered as a separate effect in WebTAG but was found to be much less important than noise in the present research overall (but still of particular importance to those living near the road (Figure 47)), with an impact score of 0.45 relative to noise.

There are also other traffic aspects that were found to have a high degree of impact, but that are not considered separately in WebTAG, and only partly overlap some of the existing aspects. This is the case of extra time added to car/bus journeys, and increased stress.

The table also reveals differences in the perceived impact of traffic in terms of the reduction of the utility derived from some activities (such as travelling) and the suppression of those activities. For example, increased risk of accidents (impact score=0.51) and increased time to cross/bus journeys (impact score=0.63) were judged to be more impactful than the suppression of driving trips (impact score=0.21). This is probably due to the fact that participants will only stop driving when the utility from driving falls below a certain threshold due to the accident risk and time losses. In contrast, the increased time for walking trips is perceived as being less important than the suppression of walking trips, which suggests that individuals will stop walking for relatively low increases in walking trip time and in other negative impacts of traffic on walking. In both cases (driving and walking), the analysis of the differences between

the two types of impacts provides detail that is more difficult to obtain using the WebTAG approach, which, as mentioned in Section 2.4 does not attempt to measure averting behaviour, and measures the impact of traffic on driving and walking in a series of different and overlapping assessments, related to travel time, accessibility, severance, and journey quality.

In some cases, the consideration of impacts on different modes of transport allows for a better understanding of WebTAG impacts such as severance. As shown in Appendix H, the WebTAG approach is to treat severance as a problem affecting non-motorised modes. However, the table suggests that the severance is also a problem for car/bus users.

The stated preference survey also complements the assessment using the IEA guidelines, as it gives important quantitative information on the perceptions of local residents about impacts which in the IEA framework are only assessed using expert advice (such as vibration, road accidents, and air pollution) or are not quantified (such as visual impacts).

7. OVERALL CONCLUSIONS

This report has presented the results of a study to assess the community impacts of increased traffic associated with the construction of the Sizewell C power station. The programme consisted of four stages: a literature review, an initial consultation survey, depth interviews, and a stated preference survey. This final chapter outlines the major overall conclusions from the study regarding perceived impacts of increased traffic, mitigation measures, and assessment methods.

Perceived impacts of increased traffic

The study found that construction traffic was the major concern about the Sizewell C project among local residents. 70% of the respondents of the consultation survey anticipated that they would become dissatisfied with the area where they lived because of construction traffic and only a small minority believed that there would be no personal impact on them. The expected construction traffic was perceived to have several negative impacts, the most relevant of which being noise, the effect on car or bus travel times, the risk of being involved in an accident, and vibration.

The vast majority (90%) of the participants that experienced Sizewell B works expected Sizewell C to have a worse impact on traffic than the construction of Sizewell B, the construction of Sizewell B Dry Fuel Store, and the Sizewell B outages.

The impact of traffic on local residents is partly explained by the geographic context, as several participants in the surveys believed that rural areas should be quiet and clean and that minor roads such as the B122 cannot accommodate high traffic levels, especially of HGVs. This is consistent with results from the previous literature, which found that the impact of traffic on quality of life can be higher in villages that straddled old, two-lane roads than in urban areas near dual-carriageways (p.9).

The nature and size of the impacts also depended on a wide range of factors affecting the perceptions of local residents. For example, it was found that the relative importance of the different impacts depended to a large degree on the distance from residences to the road. Individuals living close to the road were more concerned with vibration than individuals living further away, who were themselves more concerned with the extra time added to car/bus travel journeys.

The effect of traffic on wellbeing was also mediated by demographic and socio-economic factors, the most important of which being household type. The stated preference study found that households with children were more concerned about impacts such as risk, air pollution, vibration, and suppression of cycling trips, comparing with other households. This confirms the results of previous studies, which found that children are particularly vulnerable to vehicle-pedestrian collisions and to air pollution and that the presence of motorised traffic is responsible for the loss of children's independent mobility (p.10). On the other hand, the differences between the impacts perceived by younger and older adults were not as marked as those found in previous literature.

The study also found evidence supporting the view that traffic levels should be considered alongside other traffic characteristics when assessing the potential impacts of road traffic (p.8). Local residents were concerned not only with absolute traffic levels but also with the proportion of HGVs and the possibility of being disturbed during their usual resting times. Several participants also emphasized in interviews and surveys that the impact was due to the changes to existing traffic levels (which were relatively low). This result is also consistent with previous literature (p.9).

In summary, the anticipated impacts of Sizewell C construction traffic appear to be variable, as different individuals are likely to be affected by different effects of traffic in different ways at different stages of the project. This is supported by the results of the consultation survey regarding the impacts of Sizewell B, which found that the construction traffic was perceived by some to have caused major upheaval but by others to have caused minimal disruption to their lives. In addition, previous literature found that the evolution of local perceptions about Sizewell B traffic (as measured by surveys and the number of complaints and newspaper stories) did not follow the evolution in traffic levels across the lifespan of the project. In fact, the increase in traffic levels were higher than anticipated, but the concerns about traffic decreased with time.

Mitigation measures

The traffic mitigation measures given the highest priority were night-time and weekend restrictions to HGVs, followed by provision of less onsite parking, strict enforcement of speed limits, and provision of safety measures for pedestrians and cyclists. These preferences are broadly consistent with those that local residents expressed in surveys about Sizewell B in the 1980s (p.16). In both cases residents emphasized the need for restrictions on the circulation of HGVs, routes, parking, and speed limits.

Traffic restrictions on HGVs were perceived as more important than restrictions on LGVs and cars in general. These results confirm the previous literature finding that perceptions of local residents about the problems created by traffic and their solutions depend not only on traffic levels but on traffic composition and time of day.

Noise reduction measures for properties were not rated as a high priority measure, even by those living close to the road, despite the fact that exposure to noise was identified as the most impactful aspect of the increased traffic levels. Residents were thus more interested, generally, in having measures in place to curtail the volume, type and timing of traffic than in having noise reduction measures installed at their properties.

Several participants in the depth interviews also expressed doubts about the effectiveness of mitigation measures along the existing route, particularly in the case of noise barriers and lighting. This also confirms results from previous studies, which show that mitigation measures need to be well designed to not be part of the problem (p.12).

Methods

The study has provided information about the perceptions of the populations affected by road traffic, which is hard to obtain using the approaches in official guidance documents for the environmental assessment of major construction projects (such as the IEA Guidelines) and for the appraisal of transport projects (such as WebTAG/DMRB framework).

The results of the initial consultation survey and depth interviews have provided relevant contextual information about how the anticipated traffic problems were perceived by many local residents in relation to other effects of the project (such as the effect on local employment) and with the effects of previous projects (Sizewell B).

The stated preference study has also provided important information about the priorities of local residents regarding a wide range of individual aspects, which tend to be assessed in an aggregated and sometimes overlapping fashion in existing assessment frameworks. Results have revealed differences in the perceived impact of traffic in terms of the reduction of the utility derived from some activities and the suppression of those activities. For example, increased risk of accidents and increased time to car/bus journeys were judged to be more impactful than the suppression of driving trips. This information could not be easily obtained using the WebTAG approach, which, does not consider averting behaviour and measures the impact of traffic on driving in a series of different and overlapping assessments, related to travel time, accessibility, severance, and journey quality.

Overall, the study has produced a rich set of insights into the perceptions and opinions of local residents concerning Sizewell C construction traffic issues. These insights should be a valuable resource to inform future discussions in relation to Sizewell C.

APPENDIX A

Literature Review References

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APPENDIX B

Initial Consultation Survey Introductory letter

Your Ref:
Our Ref:
Date: 9th December 2015
Enquiries to: Michael Wilks
Tel: 01473 264064
Email: michael.wilks@suffolk.gov.uk

Suffolk County Council

[Click and type addressee/address]

Dear Sir or Madam

SIZEWELL C CONSTRUCTION TRAFFIC

In order to gain a greater understanding of community concerns relating to Sizewell C construction traffic using the A12 near Yoxford and the B1122, Suffolk County Council in its capacity as Highway Authority has commissioned a piece of research.

The aim of this work is to get a better understanding of community perceptions over the types of impact that would arise should EDF Energy route its construction traffic along the B1122. The research will provide the opportunity for all parishioners of Yoxford, Middleton and Theberton parishes to provide details of their personal views on how the routeing of traffic along this route would affect them.

The result will be used to support the County Council's future consultation responses to EDF Energy and better articulate the type and scale of mitigation measures required. We intend that it will strengthen the case we put to EDF Energy as the developer.

The research is being undertaken by Accent, an independent UK market research agency. Accent is a Market Research Society (MRS) Company Partner and abides by the standards of quality set by the MRS. Accent is registered under the Data Protection Act and to the market, opinion and social research International Standard ISO 20252. All interviewers will carry identification information, please ask to see this.

The research will be conducted in three phases:

- **Phase 1: Initial survey, December 2015 – January 2016**

This phase will involve a combination of face to face interviews and an on-line questionnaire.

The web address of the online questionnaire is www.yoxfordandB1122survey.uk. This link will however only be active from 9th January 2016 to 18th January 2016. The delayed start is to allow the interviews to take place first. If you complete a face to face interview, you will not then be asked to complete the on-line questionnaire.

- **Phase 2: In depth interviews, January 2016**

Of the people completing an interview or survey, a representative sample of 20 households will then be contacted to participate in an in-depth interview, of around forty five minutes' duration.

- **Phase 3: Follow-up survey, February 2016**

The final phase will be a further on-line survey, available to all in the parishes, which, based on the information collected to date, will ask respondents to consider which factors would heighten or lessen your concerns. This will be available from early February using the same on-line link and you will be notified directly via email when the survey is available.

In its role as the Highway Authority, the County Council has already undertaken work to look at the opportunities for highway schemes to improve access to the Sizewell C site and mitigate impacts along the B1122 - and this has been presented to EDF Energy (this information is also available here: http://www.suffolkcoastal.gov.uk/yourdistrict/sizewell/transport/route-d2-and-b1122-study/)

This is an important and complementary piece of research which will have a real bearing on the County Council's response to EDF Energy, so I strongly encourage you to participate. The information will be used to inform our response to the second stage of consultation for Sizewell C and the final report will be made publically available.

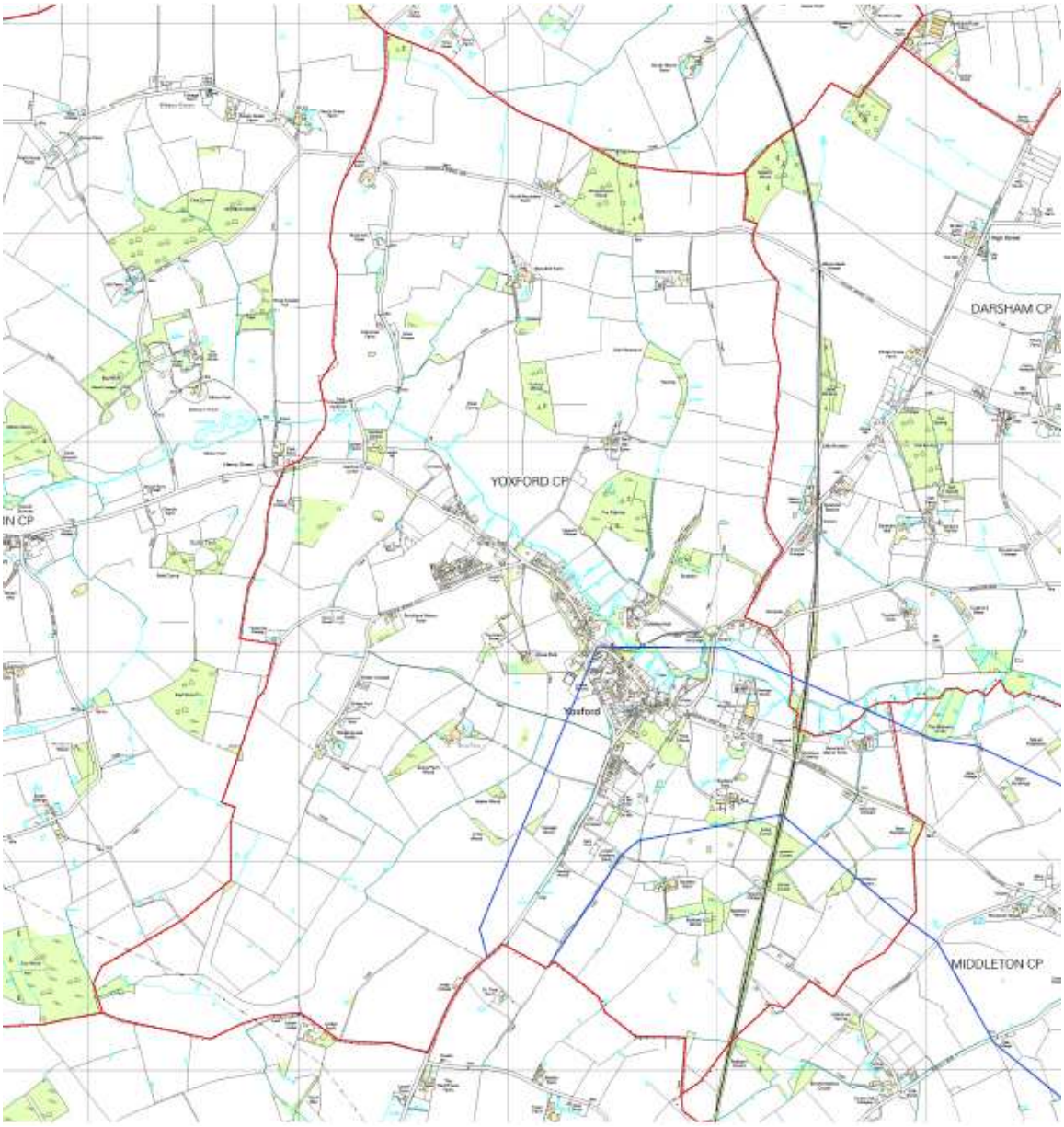
Yours faithfully

Councillor Guy McGregor
Member with Special Responsibility for Outside Bodies
Chairman, Joint Local Authority Group on Sizewell C
Suffolk County Council

APPENDIX C

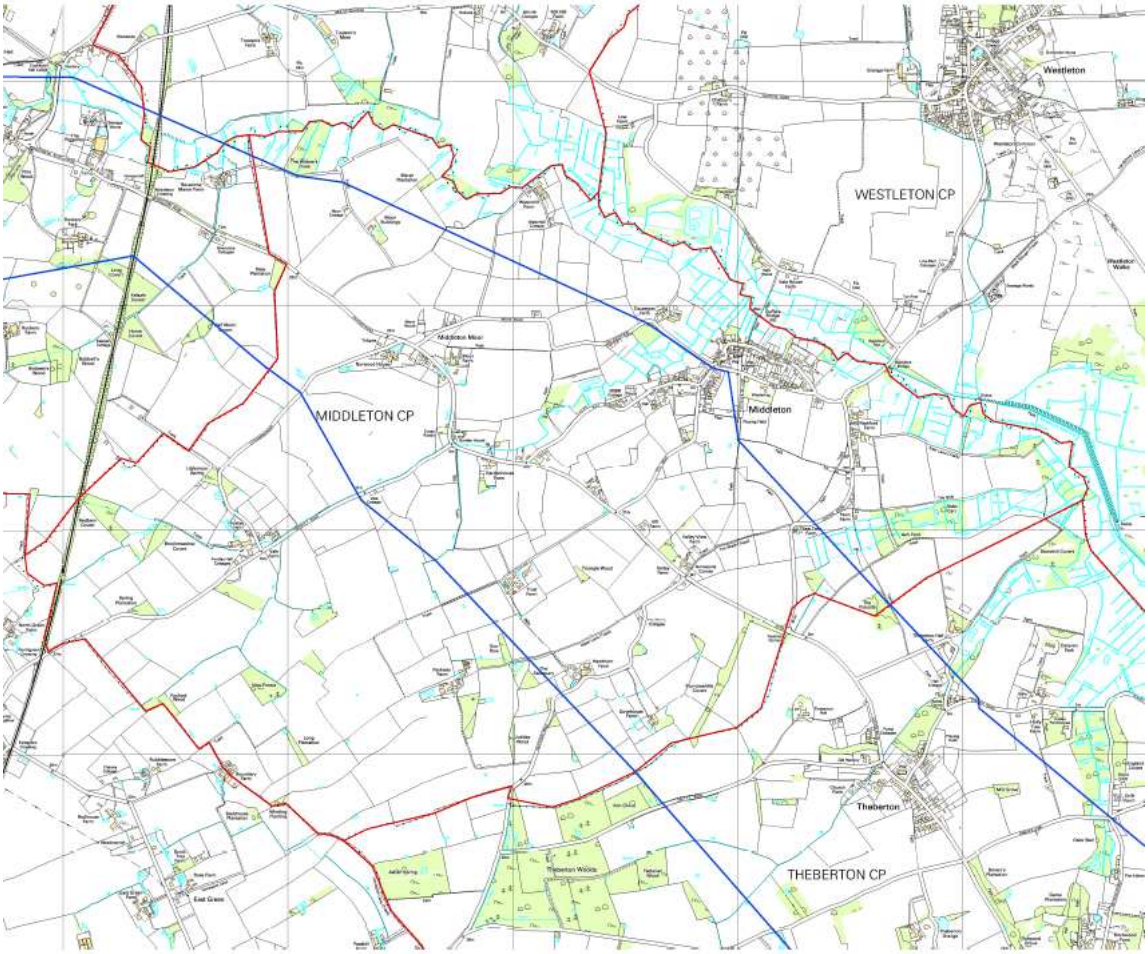
Initial Consultation Survey Catchment Area Maps

Catchment Area Yoxford



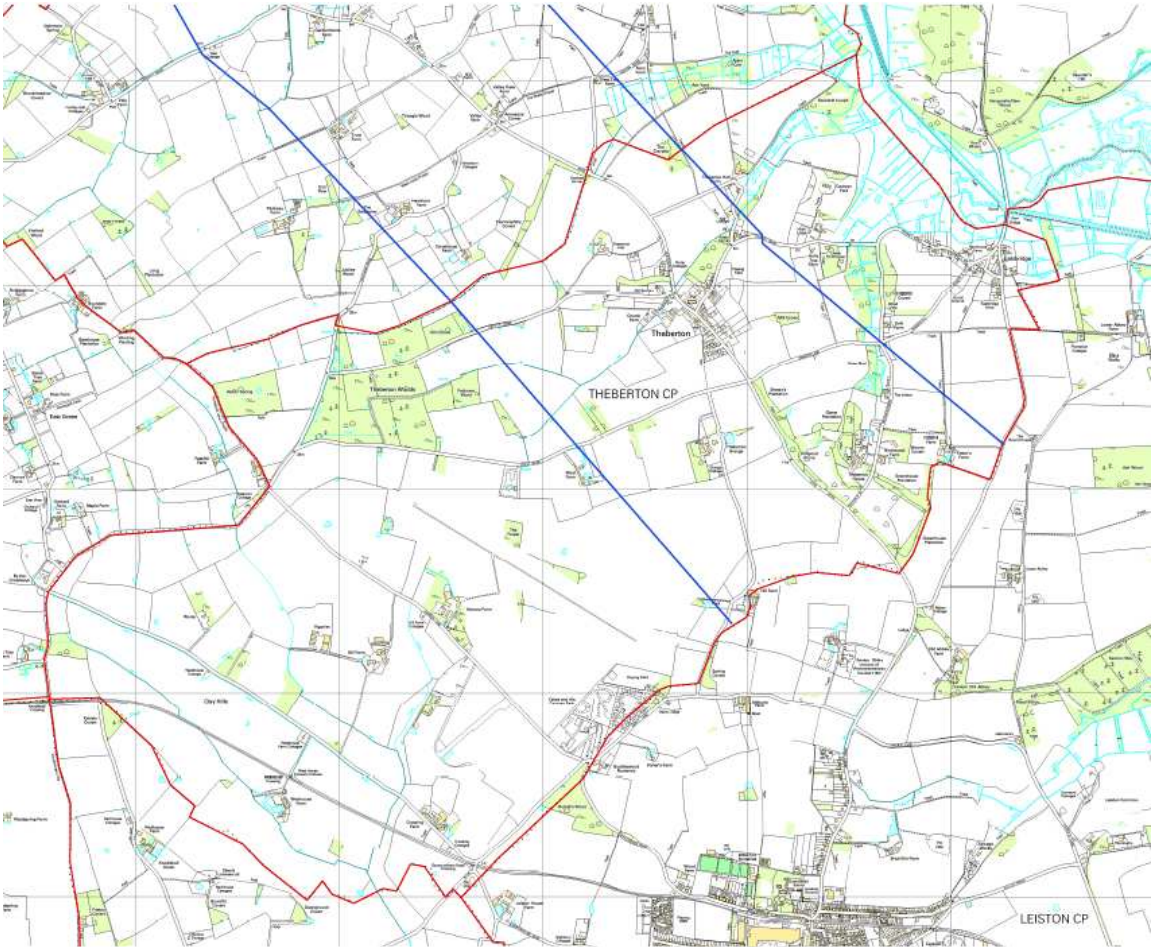
The red lines indicate the boundaries of the entire catchment area for Yoxford.
Dwellings and businesses inside the blue lines were considered as “near the construction traffic route”.

Catchment Area Middleton



The red lines indicate the boundaries of the entire catchment area for Middleton.
Dwellings and businesses inside the blue lines were considered as “near the construction traffic route”.

Catchment Area Theberton



The red lines indicate the boundaries of the entire catchment area for Theberton.
Dwellings and businesses inside the blue lines were considered as “near the construction traffic route”.

APPENDIX D

Initial Consultation Survey: questionnaires

face-to-face version
Sizewell C traffic impacts survey

SYSTEM INFORMATION:
Interviewer number
Interviewer name
Date:
Time interview started:

PARISH:
Yoxford
Middleton
Theberton

LOCATION TYPE:
Residence
Farm
Business

Introduction

Good morning/afternoon/evening. My name is ..... from Accent and I am carrying out research for Suffolk County Council into the construction of the planned Sizewell C power station.

Any answer you give will be treated in confidence in accordance with the Code of Conduct of the Market Research Society

The questionnaire will take about 10 minutes to complete. You do not have to answer questions you do not wish to and you can terminate the interview at any point.

Details of location

Q1. Are you aware of the planned construction of Sizewell C power station?
Yes
No

IF NO: Thank you. Please take this leaflet which summarises the plans. There will be an online questionnaire which you can enter from 9 January. **HAND OVER LEAFLET AND THANK & CLOSE**

Q2. **IF LOCATION TYPE = BUSINESS: RECORD BUSINESS NAME OR ASK:** What is the name of the business?

Q3. **IF LOCATION TYPE = BUSINESS ASK:** What is the nature of the business?
Retail
Service
Food & drink
Other (please type in)

Q4. **IF LOCATION TYPE = BUSINESS ASK:** How long has the business been in operation in this location?
Less than 1 year
1-5 years
6-10 years
11-20 years
Over 20 years

Q5. **IF LOCATION TYPE = FARM ASK:** Is this a working farm or a residence?
Both working farm **and** residence
Working farm only
Residence only

IF LOCATION TYPE = BUSINESS READ OUT: Please note that this questionnaire is **not** about the impact on the business as a whole, but rather about the impacts on you getting to/from work and your ability to do your job at the business.

IF Q5=1 OR 2 (WORKING FARM) READ OUT: Please note that this questionnaire is **not** about the impact on the farm as a whole, but rather about the impacts on you on you getting to/from work and your ability to do your job at the farm.

Q6. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** How many adults, including yourself, live in your household? An adult is aged 18 years or older.

LOW 1
HIGH 9

Q7. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** How many children in the following age brackets live in your household? **READ OUT OR SHOW SCREEN**
10 or under
11-17
LOW 0
HIGH 9

Q8. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** Does your property have direct access on to the… **READ OUT OR SHOW SCREEN**
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: Does this #LOCATION TYPE# have direct access on to the… **READ OUT OR SHOW SCREEN**
B1122
A12
A1120
None of these

Q9. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** How far is your property to the nearest of these roads? **ENTER ONE OF B1122/A12/A1120 AND MINUTES WALK OR METRES**
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: How far is this #LOCATION TYPE# to the nearest of these roads? **ENTER ONE OF B1122/A12/A1120 AND MINUTES WALK OR METRES**

Nearest road
B1122
A12
A1120

…….. minutes walk
……..metres

Q10. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** What would you say were the best things about living near the #Q9**NEAREST ROAD**#? **DO NOT SHOW SCREEN,**

PR0BE.
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: What would you say were the best things about being located near the #Q9**NEAREST ROAD#**? **DO NOT SHOW SCREEN, PR0BE.**
Access to work
Community spirit
Access to coast/Area of Outstanding Natural Beauty
Family nearby
Easy access to shops, schools and services
Easy access to buses
Other (please type in)

Q11. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** What would you say were the worst things about living near the #Q9**NEAREST ROAD#**? **DO NOT SHOW SCREEN, PR0BE.**
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: What would you say were the worst things about being located near the #Q9**NEAREST ROAD#**? **DO NOT SHOW SCREEN, PR0BE.**
Traffic noise
Vibration from traffic
Air pollution
Speeding traffic
Queueing traffic/delays
Difficult to walk around
Dangerous to walk around
Other (please type in)

Q12. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** Overall, how satisfied or dissatisfied are you with living here?
Very satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Very dissatisfied

Travel on local roads

Q13. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** How many cars or vans does your household have access to?
CARS:
VANS:
Low = 0
High = 9

Q14. How often do you travel on the B1122 and/or through Yoxford?
6-7 days a week
5 days a week
1-4 days a week
1-3 times a month
Less often than once a month
Never **GO TO Q17**

Q15. How do you travel on the B1122 and/or through Yoxford? **ENTER ALL MENTIONED**
Car as driver
Car as passenger
Van

Tractor
Bus
Cycle
Walk

Q16. What are the **main** purposes of your journeys? **PROBE**
Work
Visit friends
Go shopping
Other (please type in)

Sizewell C

Q17. Did you participate at all in the stage 1 consultation? **IF YES, PROBE**
Yes, attended meetings
Yes, filled in consultation questionnaire
Yes, responded to consultation in other way
No

Q18. Have you taken part in any other activities related to the planned construction of Sizewell C power station, for example Parish Council or Local Authority meetings?
Yes (please describe)
No

Q19. What positive things may come from the planned construction of Sizewell C power station? **DO NOT SHOW SCREEN, PROBE**
Good for local economy
Local employment opportunities
Cleaner energy
Other (please type in)
Nothing

Q20. What, if anything, concerns you about the planned construction of Sizewell C power station? **DO NOT SHOW SCREEN, PROBE**
Nothing
Against nuclear power
Fear of leak
Construction site noise
Construction traffic
Accommodation campus
Other (please type in)

Q21. Overall, do you support or oppose the planned construction of Sizewell C power station? Please give your answer on a scale of 0 to 10 where 0 is strongly oppose and 10 = strongly support.
0 strongly oppose
1
2
3
4
5
6
7
8
9
10 strongly support

Q22. **IF 'CONSTRUCTION TRAFFIC' NOT MENTIONED AT Q20 ASK:** Are you concerned about the potential construction traffic from the planned construction of Sizewell C power station travelling through Yoxford and along the B1122?

Yes
No **GO TO Q24**

Q23. **IF 'CONSTRUCTION TRAFFIC' MENTIONED AT Q20 or Q22=1 ASK:** Which specific aspects of the potential construction traffic are you concerned about? **DO NOT SHOW SCREEN, PROBE**

Duration of works
Vibration
Noise in early morning
Noise during the day
Noise in evening/night
Volume of traffic
Lorries and other heavy vehicles
Traffic speed
Pedestrian safety
Pollution/air quality
Dust
Odour
Transport of hazardous materials
Can't get in/out of driveway or on to B1122/A1120/A12
Other (please type in)

Q24. What impacts do you think the construction traffic could have on you? **DO NOT SHOW SCREEN, PROBE**

None
Increase stress
Give me headaches
Make sleeping more difficult
Affect my health
Affect community spirit/interaction with neighbours
Make it harder to do things around the house (eg listening to radio/watching TV/working)
Make it harder or dangerous to walk around
Make it harder to travel around by car or bus
Make it more dangerous for children to play outdoors unsupervised
Less time spent outside in garden
Other (please type in)

Q25. Research from elsewhere has shown that construction traffic can have the following impacts. Please say which, if any, of the following you believe will happen locally? **SHOW SCREEN**

DO NOT SHOW ITEMS IF MENTIONED IN Q24

Increase stress
Give me headaches
Make sleeping more difficult
Affect my health
Make it harder to do things around the house (eg listening to radio/watching TV/working)
Make it harder or dangerous to walk around
Make it harder to travel around by car or bus
Make it more dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden

Q15MODE
IF Q15_1=1 AND/OR Q15_2=1 Q15MODE = "car,"

Q26. **IF Q14=1-5 ASK:** You said you travel on the B1122 and/or through Yoxford by #**Q15**MODE, **IF Q15_3=1** "van," **IF Q15_4=1** "tractor," **IF Q15_5=1** "bus," **IF Q15_6=1** "cycle," **IF Q15_7=1** "and on foot"# for #**IF Q16_1=1** "work," **IF Q16_2=1** "visiting friends," **IF Q16_3=1** "shopping,"**IF Q16_4=1** "#Q16_4OTHER#" purpose(s).

How would the construction traffic affect your travel patterns and mode of transport? **PROBE**

Less trips
Less walking
Less cycling
Drive instead of walk/cycle
Rely on internet shopping
Visit friends less
Other (type in)

Q27. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** You said that overall you were #Q12# with living here. How satisfied would you be living here with the construction traffic?

Very satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Very dissatisfied

Sizewell B

Q28. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** How long have you lived in #LOCATION#?
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: How long have you been located in #LOCATION#?

….. years

Q29. **IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK:** How long have you lived in this area, that is, in the parishes of Yoxford, Middleton or Theberton?
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: How long have you been located in this area, that is, in the parishes of Yoxford, Middleton or Theberton?

….. years

Q30. **Q28>20 AND/OR Q29>20 ASK, OTHERWISE GO TO Q34:**
IF LOCATION TYPE = RESIDENCE OR LOCATION TYPE = FARM AND Q5=1 OR 3 ASK: Were you living here during the Sizewell B construction?
IF LOCATION TYPE = BUSINESS OR LOCATION TYPE = FARM AND Q5=2 ASK: Were you located here during the Sizewell B construction?

Yes
No **GO TO Q34**
Don't remember **GO TO Q34**

Q31. What do you remember about the construction traffic? **PROBE TIMES, LENGTH OF WORKS, VOLUME OF TRAFFIC, NOISE, ANY OTHER IMPACTS**

Q32. And what impact did it have on you? **DO NOT SHOW SCREEN, PROBE**

Increased stress

Headaches
Difficulty sleeping
Affected my health
Harder to do things around the house (eg listening to radio/watching TV/working)
Harder or dangerous to walk around
Harder to travel around by car or bus
More dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
Other (please type in)

Q33. Were the impacts you experienced worse or better than you had believed they would be before the work started?
Worse
About the same
Better
Don't remember

Sizewell B Dry Fuel Store construction

Q34. Are you aware of Sizewell B Dry Fuel Store construction?
Yes
No **GO TO Q38**

Q35. What is the nature of the construction traffic? **PROBE TIMES, LENGTH OF WORKS, NOISE, ANY OTHER IMPACTS**

Q36. And what impact does it have on you? **DO NOT SHOW SCREEN, PROBE**
Increase stress
Headaches
Difficulty sleeping
Affect my health
Harder to do things around the house (eg listening to radio/watching TV/working)
Harder or dangerous to walk around
Harder to travel around by car or bus
More dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
Other (please type in)

Q37. Were the impacts you experienced worse or better than you had believed they would be before the work started?
Worse
About the same
Better
Don't remember

Q38. Sizewell B has outages every 18 months when maintenance work is undertaken. The last outage was in October 2014. Were you aware of any changes in traffic at that time?
Yes
No **GO TO Q41**

Q39. What do you remember about the traffic? **PROBE TIMES, LENGTH OF WORKS, VOLUME OF TRAFFIC, NOISE, ANY OTHER IMPACTS**

Q40. And what impact did it have on you? **DO NOT SHOW SCREEN, PROBE**

Increase stress
Headaches
Difficulty sleeping
Affect my health
Harder to do things around the house (eg listening to radio/watching TV/working)
Harder or dangerous to walk around
Harder to travel around by car or bus
More dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
Other (please type in)

Q41. **IF Q30<>1 AND Q34<>1 AND Q38<>1 GO TO Q42:** Please rank the following in relation to your perceptions of traffic impacts: **SHOW SCREEN**

	worst	**2nd worst**	**3rd worst**
Sizewell C			
IF Q30=1: Sizewell B			
IF Q34=1: Sizewell B Dry Fuel Store			
IF Q38=1: Sizewell B Outages			

Classification Questions

We would now just like to ask a few questions which will help us to understand some of the information you have provided us with. Please be assured that all details you give will be treated with the strictest confidence. The personal information you provide during this survey will be kept confidential by Accent and will not be disclosed to third parties.

Q42. **INTERVIEWER: RECORD GENDER:**

Male
Female

Q43. Which one of the following age groups do you belong to? **SHOW SCREEN**

16-17
18-24
25-34
35-44
45-54
55-64
65-74
75-79
80+
Allow question not to be answered

Q44. What is your employment status? **IF EMPLOYED PROBE WHETHER FULL OR PART TIME. IF SELF-EMPLOYED CODE AS EMPLOYED FULL- OR PART-TIME**

Working full-time (30+ hours a week)
Working part-time (8-29 hours a week)
Not working – looking for work
Not working – not looking for work
Full-time student
Part-time student
Retired
Retired unpaid voluntary work
Looking after family/home

Other (TYPE IN)

Q45. Are you, or have you ever been employed by EDF Energy either directly or as a sub-contractor
Yes
No

Q46. The following question is being asked to understand how responses to the survey vary by income. Please note that, like all the information you've given me today, your answer is confidential and will be used for analysis purposes only.

Which of the following ranges best represents your household's total income from all sources (including earnings, pensions, benefits and tax credits) over the last 12 months? Please tell us the amount your household receives before anything is taken away for income tax, national insurance, council tax etc. **SHOW SCREEN**
Under £4,999
£5,000 to £9,999
£10,000 to £14,999
£15,000 to £19,999
£20,000 to £29,999
£30,000 to £39,999
£40,000 to £49,999
£50,000 to £74,999
£75,000 or over
Allow question not to be answered

Q47. Which of the following best describes the occupation of the **main income earner** in your household? **SHOW SCREEN**
Work in a profession; very senior manager in business or commerce; top-level civil servant; or self-employed with 25+ employees
Middle management executive in large organisation; principal officer in local government and civil service; or self-employed with 5-24 employees
Junior management; or self-employed with 1-4 employees (in addition to self)
Skilled manual worker; other manual worker with responsibility for other people; or self-employed with no employees
Semi-skilled worker; apprentice or trainee to skilled worker
Unemployed for less than 6 months
Unemployed for 6 months or more
Retired on private pension
Retired on state pension
None of above

Q48. **IF Q47=8 (RETIRED ON PRIVATE PENSION) OR 6 (UNEMPLOYED FOR LESS THAN 6 MONTHS):**

Which of the following best describes the previous occupation of the main income earner in your household? **SHOW SCREEN**
Work in a profession; very senior manager in business or commerce; top-level civil servant; or self-employed with 25+ employees
Middle management executive in large organisation; principal officer in local government and civil service; or self-employed with 5-24 employees
Junior management; or self-employed with 1-4 employees (in addition to self)
Skilled manual worker; other manual worker with responsibility for other people; or self-employed with no employees
Semi-skilled worker; apprentice or trainee to skilled worker
None of the above

Q49. We really appreciate the time that you have given us today. Would you be willing to be contacted again for clarification purposes or be invited to take part in the next stages of this research by Suffolk County Council? **PLEASE TICK ALL RELEVANT**

Yes, for both clarification and further research
Yes, for clarification only
Yes, for further research only
No

Q50. **IF Q49=1 OR 3 ASK:** Can I take your email address and phone number so we can contact you again?

Email address:
Phone number:

Thank you. This research was conducted under the terms of the MRS code of conduct and is completely confidential. If you would like to confirm my credentials or those of Accent please call the MRS free on 0500 396999.

HAND OVER THE THANK YOU SLIP

Online version
Sizewell C traffic impacts survey

SYSTEM INFORMATION:
Date:
Time interview started:

Introduction

Thank you for entering the online questionnaire. This research is being undertaken by Accent for Suffolk County Council and is about the construction of the planned Sizewell C power station.

Any answer you give will be treated in confidence in accordance with the Code of Conduct of the Market Research Society

The questionnaire will take about 15 minutes to complete.

Details of location

QA Where do you live?

Yoxford
Theberton & Eastbridge
Middleton
Other – please type in the name parish or enter your postcode

QB **IF QA = 1-3 ASK:** Are you responding as a resident, a business or a farm? *MULTI RESPONSE*

Resident
Business
Farm

FOR ROUTEING PURPOSES CODE QA=4 AS QB=1

Q1. Are you aware of the planned construction of Sizewell C power station?

Yes
No

IF NO: Thank you. The internet address below is to a website which provides some information on the proposals for the Sizewell C power station:
http://sizewell.edfenergyconsultation.info/proposals/
The page also includes links to consultation documents. **CLOSE**

Q2. **IF QB=2:** What is the name of the business?

Q3. **IF QB=2 ASK:** What is the nature of the business?

Retail
Service
Food & drink
Other (please type in)

Q4. **IF QB=2 ASK:** How long has the business been in operation in this location?

Less than 1 year
1-5 years
6-10 years
11-20 years

Over 20 years

Q5. **IF QB=3 ASK:** Is this a working farm or a residence?
Both working farm **and** residence
Working farm only
Residence only

IF QB=2: Please note that this questionnaire is **not** about the impact on the business as a whole, but rather about the impacts on you getting to/from work and your ability to do your job at the business.

IF Q5=1 OR 2 (WORKING FARM): Please note that this questionnaire is **not** about the impact on the farm as a whole, but rather about the impacts on you on you getting to/from work and your ability to do your job at the farm.

Q6. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** How many adults, including yourself, live in your household? An adult is aged 18 years or older.

LOW 1
HIGH 9

Q7. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** How many children in the following age brackets live in your household?
10 or under
11-17
LOW 0
HIGH 9

Q8. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** Does your property have direct access on to the…
IF QB=2 OR QB= 3 AND Q5=2 ASK: Does this #LOCATION TYPE# have direct access on to the…
B1122
A12
A1120
None of these

Q9. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** How far is your property to the nearest of these roads? **ENTER ONE OF B1122/A12/A1120 AND MINUTES WALK OR METRES**
IF QB=2 OR QB= 3 AND Q5=2 ASK: How far is this #LOCATION TYPE# to the nearest of these roads? **ENTER ONE OF B1122/A12/A1120 AND MINUTES WALK OR METRES**

Nearest road
B1122
A12
A1120

…….. minutes walk
……..metres

Q10. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** What would you say were the best things about living near the #Q9**NEAREST ROAD**#?
IF QB=2 OR QB= 3 AND Q5=2 ASK: What would you say were the best things about being located near the #Q9**NEAREST ROAD**#?
Access to work
Community spirit
Access to coast/Area of Outstanding Natural Beauty

Family nearby
Easy access to shops, schools and services
Other (please type in)

Q11. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** What would you say were the worst things about living near the #Q9**NEAREST ROAD**#?
IF QB=2 OR QB= 3 AND Q5=2 ASK: What would you say were the worst things about being located near the #Q9**NEAREST ROAD**#?
Traffic noise
Vibration from traffic
Air pollution
Speeding traffic
Queueing traffic/delays
Difficult to walk around
Dangerous to walk around
Other (please type in)

Q12. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** Overall, how satisfied or dissatisfied are you with living here?
Very satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Very dissatisfied

Travel on local roads

Q13. **IF QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** How many cars or vans does your household have access to?
CARS:
VANS:
Low = 0
High = 9

Q14. How often do you travel on the B1122 and/or through Yoxford?
6-7 days a week
5 days a week
1-4 days a week
1-3 times a month
Less often than once a month
Never **GO TO Q17**

Q15. How do you travel on the B1122 and/or through Yoxford?
Car as driver
Car as passenger
Van
Tractor
Bus
Cycle
Walk

Q16. What are the **main** purposes of your journeys?
Work
Visit friends
Go shopping
Leisure
Walk dogs

Visit coast
School run
Attend college/school
Other (please type in)

Sizewell C

Q17. Did you participate at all in the stage 1 consultation?

Yes, attended meetings
Yes, filled in consultation questionnaire
Yes, responded to consultation in other way
No

Q18. Have you taken part in any other activities related to the planned construction of Sizewell C power station, for example Parish Council or Local Authority meetings?

Yes (please describe)
No

Q19. What positive things may come from the planned construction of Sizewell C power station?

Good for local economy
Local employment opportunities
Cleaner energy
Higher pay jobs
Jobs for young people/apprenticeships
Improvements in local facilities/services
Increased spending in local economy
Opportunities for local businesses to grow
Increased income for accommodation providers/landlords
Other (please type in)
Nothing

Q20. What, if anything, concerns you about the planned construction of Sizewell C power station?

Nothing
Against nuclear power
Fear of leak
Construction site noise
Construction traffic
Accommodation campus
Environmental damage to habitats/species
Impact on tourism
Conduct of workers
Inflation in accommodation or other costs locally
Impact on house prices
Effect on coastal processes
Visual impact
Other (please type in)

Q21. Overall, do you support or oppose the planned construction of Sizewell C power station? Please give your answer on a scale of 0 to 10 where 0 is strongly oppose and 10 = strongly support.

0 strongly oppose
1
2
3
4
5
6
7
8

9
10 strongly support

Q22. **IF 'CONSTRUCTION TRAFFIC' NOT MENTIONED AT Q20 ASK:** Are you concerned about the potential construction traffic from the planned construction of Sizewell C power station travelling through Yoxford and along the B1122?
Yes
No **GO TO Q24**

Q23. **IF 'CONSTRUCTION TRAFFIC' MENTIONED AT Q20 or Q22=1 ASK:** Which specific aspects of the potential construction traffic are you concerned about?
Duration of works
Vibration
Noise in early morning
Noise during the day
Noise in evening/night
Volume of traffic
Lorries and other heavy vehicles
Traffic speed
Pedestrian safety
Pollution/air quality
Dust
Odour
Transport of hazardous materials
Can't get in/out of driveway or on to B1122/A1120/A12
Other (please type in)

Q24. What impacts do you think the construction traffic could have on you?
None
Increase stress
Give me headaches
Make sleeping more difficult
Affect my health
Affect community spirit/interaction with neighbours
Make it harder to do things around the house (eg listening to radio/watching TV/working)
Make it harder or dangerous to walk around
Make it harder to travel around by car or bus
Make it more dangerous for children to play outdoors unsupervised
Less time spent outside in garden
Other (please type in)

Q25. Research from elsewhere has shown that construction traffic can have the following impacts. Please say which, if any, of the following you believe will happen locally?
DO NOT SHOW ITEMS IF MENTIONED IN Q24
Increase stress
Give me headaches
Make sleeping more difficult
Affect my health
Make it harder to do things around the house (eg listening to radio/watching TV/working)
Make it harder or dangerous to walk around
Make it harder to travel around by car or bus
Make it more dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
No impact

Q15MODE

IF Q15_1=1 AND/OR Q15_2=1 Q15MODE = "car,"

Q26. **IF Q14=1-5 ASK:** You said you travel on the B1122 and/or through Yoxford by #**Q15**MODE, **IF Q15_3=1** "van," **IF Q15_4=1** "tractor," **IF Q15_5=1** "bus," **IF Q15_6=1** "cycle," **IF Q15_7=1** "and on foot"# for #**IF Q16_1=1** "work," **IF Q16_2=1** "visiting friends," **IF Q16_3=1** "shopping,"**IF Q16_4=1** "#Q16_4OTHER#" purpose(s).

How would the construction traffic affect your travel patterns and mode of transport?
Less trips
Less walking
Less cycling
Drive instead of walk/cycle
Rely on internet shopping
Visit friends less
Other (type in)

Q27. **QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** You said that overall you were #Q12# with living here. How satisfied would you be living here with the construction traffic?
Very satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Very dissatisfied

Sizewell B

Q28. **QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** How long have you lived in #LOCATION#?
QB=2 OR QB= 3 AND Q5=2 ASK: How long have you been located in #LOCATION#?
….. years

Q29. **QB=1 OR QB= 3 AND Q5=1 OR 3 ASK:** How long have you lived in this area, that is, in the parishes of Yoxford, Middleton or Theberton?
QB=2 OR QB= 3 AND Q5=2 ASK: How long have you been located in this area, that is, in the parishes of Yoxford, Middleton or Theberton?

….. years

Q30. **Q28>20 AND/OR Q29>20 ASK, OTHERWISE GO TO Q34:**
QB=1 OR QB= 3 AND Q5=1 OR 3 ASK: Were you living here during the Sizewell B construction?
QB=2 OR QB= 3 AND Q5=2 ASK: Were you located here during the Sizewell B construction?
Yes
No **GO TO Q34**
Don't remember **GO TO Q34**

Q31. What do you remember about the construction traffic?
Duration of works
Vibration
Noise in early morning
Noise during the day
Noise in evening/night
Volume of traffic
Lorries and other heavy vehicles
Traffic speed
Pedestrian safety
Pollution/air quality
Dust

Odour
Transport of hazardous materials
Couldn't get in/out of driveway or on to B1122/A1120/A12
Other (please type in)

Q32. And what impact did it have on you?
Increased stress
Headaches
Difficulty sleeping
Affected my health
Harder to do things around the house (eg listening to radio/watching TV/working)
Harder or dangerous to walk around
Harder to travel around by car or bus
More dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
Other (please type in)

Q33. Were the impacts you experienced worse or better than you had believed they would be before the work started?
Worse
About the same
Better
Don't remember

Q33b Did you make any complaints about the construction traffic?
Yes, once
Yes, more than once
No

Q33c **IF YES TO Q33b ASK:** Did you receive any response to your complaints?
Yes
No

Q33d **IF YES TO Q33b ASK:** Did you make any further complaints?
Yes
No

Q33e **IF NO TO Q33d ASK:** Why not?

Sizewell B Dry Fuel Store construction

Q34. Are you aware of Sizewell B Dry Fuel Store construction?
Yes
No **GO TO Q38**

Q35. What aspects of the construction traffic concern you?
Nothing **GO TO Q38**
Duration of works
Vibration
Noise in early morning
Noise during the day
Noise in evening/night
Volume of traffic
Lorries and other heavy vehicles
Traffic speed
Pedestrian safety

Pollution/air quality
Dust
Odour
Transport of hazardous materials
Can't get in/out of driveway or on to B1122/A1120/A12
Other (please type in)

Q36. And what impact does it have on you?

Increase stress
Headaches
Difficulty sleeping
Affect my health
Harder to do things around the house (eg listening to radio/watching TV/working)
Harder or dangerous to walk around
Harder to travel around by car or bus
More dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
Other (please type in)

Q37. Were the impacts you experienced worse or better than you had believed they would be before the work started?

Worse
About the same
Better
Don't remember

Q37b Did you make any complaints about the construction traffic?

Yes, once
Yes, more than once
No

Q37c **IF YES TO Q37b ASK:** Did you receive any response to your complaints?

Yes
No

Q37d **IF YES TO Q37b ASK:** Did you make any further complaints?

Yes
No

Q37e **IF NO TO Q37d ASK:** Why not?

Q38. Sizewell B has outages every 18 months when maintenance work is undertaken. The last outage was in October 2014. Were you aware of any changes in traffic at that time?

Yes
No **GO TO Q41**

Q39. What do you remember about the traffic?

Duration of works
Vibration
Noise in early morning
Noise during the day
Noise in evening/night
Volume of traffic
Lorries and other heavy vehicles
Traffic speed

Pedestrian safety
Pollution/air quality
Dust
Odour
Transport of hazardous materials
Can't get in/out of driveway or on to B1122/A1120/A12
Other (please type in)

Q40. And what impact did it have on you?

Increase stress
Headaches
Difficulty sleeping
Affect my health
Harder to do things around the house (eg listening to radio/watching TV/working)
Harder or dangerous to walk around
Harder to travel around by car or bus
More dangerous for children to play outdoors unsupervised
Affect community spirit/interaction with neighbours
Less time spent outside in garden
Other (please type in)

Q41. **IF Q30<>1 AND Q34<>1 AND Q38<>1 GO TO Q42:** Please rank the following in relation to your perceptions of traffic impacts:

	worst	**2nd worst**	**3rd worst**
Sizewell C			
IF Q30=1: Sizewell B			
IF Q34=1: Sizewell B Dry Fuel Store			
IF Q38=1: Sizewell B Outages			

Classification Questions

We would now just like to ask a few questions which will help us to understand some of the information you have provided us with. Please be assured that all details you give will be treated with the strictest confidence. The personal information you provide during this survey will be kept confidential by Accent and will not be disclosed to third parties.

Q42. What is your gender?

Male
Female

Q43. Which one of the following age groups do you belong to?

16-17
18-24
25-34
35-44
45-54
55-64
65-74
75-79
80+
Allow question not to be answered

Q44. What is your employment status?

Working full-time (30+ hours a week)
Working part-time (8-29 hours a week)

Not working – looking for work
Not working – not looking for work
Full-time student
Part-time student
Retired
Retired unpaid voluntary work
Looking after family/home
Other (TYPE IN)

Q45. Are you, or have you ever been employed by EDF Energy either directly or as a sub-contractor
Yes
No

Q46. The following question is being asked to understand how responses to the survey vary by income. Please note that, like all the information you've given me today, your answer is confidential and will be used for analysis purposes only.

Which of the following ranges best represents your household's total income from all sources (including earnings, pensions, benefits and tax credits) over the last 12 months? Please tell us the amount your household receives before anything is taken away for income tax, national insurance, council tax etc.
Under £4,999
£5,000 to £9,999
£10,000 to £14,999
£15,000 to £19,999
£20,000 to £29,999
£30,000 to £39,999
£40,000 to £49,999
£50,000 to £74,999
£75,000 or over
Allow question not to be answered

Q47. Which of the following best describes the occupation of the **main income earner** in your household?
Work in a profession; very senior manager in business or commerce; top-level civil servant; or self-employed with 25+ employees
Middle management executive in large organisation; principal officer in local government and civil service; or self-employed with 5-24 employees
Junior management; or self-employed with 1-4 employees (in addition to self)
Skilled manual worker; other manual worker with responsibility for other people; or self-employed with no employees
Semi-skilled worker; apprentice or trainee to skilled worker
Unemployed for less than 6 months
Unemployed for 6 months or more
Retired on private pension
Retired on state pension
None of above

Q48. **IF Q47=8 (RETIRED ON PRIVATE PENSION) OR 6 (UNEMPLOYED FOR LESS THAN 6 MONTHS):**

Which of the following best describes the previous occupation of the main income earner in your household?
Work in a profession; very senior manager in business or commerce; top-level civil servant; or self-employed with 25+ employees
Middle management executive in large organisation; principal officer in local government and civil service; or self-employed with 5-24 employees

Junior management; or self-employed with 1-4 employees (in addition to self)
Skilled manual worker; other manual worker with responsibility for other people; or self-employed with no employees
Semi-skilled worker; apprentice or trainee to skilled worker
None of the above

Q49. We really appreciate the time that you have given us today. Would you be willing to be contacted again for clarification purposes or be invited to take part in the next stages of this research by Suffolk County Council? **PLEASE TICK ALL RELEVANT**

Yes, for both clarification and further research
Yes, for clarification only
Yes, for further research only
No

Q50. **IF Q49=1 OR 3 ASK:** Can I take your email address and phone number so we can contact you again?

Email address:
Phone number:

Thank you. This research was conducted under the terms of the MRS code of conduct and is completely confidential.

APPENDIX E

Phase II depth cases studies Topic Guide

Interviewee URN: ……

Interviewee name: ……

Date: ……

Time: ……

Venue: ……

Participant Responses to Survey – PLEASE COMPLETE BEFORE DEPTH INTERVIEW

Parish: Yoxford/ Middleton/ Theberton
Q42 Gender:
Q43 Age:
Q44 Employment status:
Q45 Employment history with EDF Energy:
Q4/ Q28-Q29 Duration of residence/business in current location/ area:
Q13 Number of cars/vans in household:
Q6-Q7 Household composition:
Q3 If business, nature of business:

Q8 Direct access to B1122, A12, A1120: ……
Q9 Nearest road and distance to nearest road: ……
Q10-Q11 Advantages and disadvantages of living near nearest road: ……
……
Q12 Overall satisfaction of living in current location:……
Q14-Q15 Frequency, mode and purpose of travel through B1122 and/or Yoxford: ……

Q17-Q18 Previous participation in consultations about Sizewell C:……
Q19-Q20 Advantages and disadvantages of Sizewell C:……
……
Q21 Support or opposition to Sizewell C in general:……
Q22-Q27 Perceived impact of traffic due to Sizewell C construction:……
……
Q31-Q33 If applicable, perceived impact of Sizewell B construction:……
……
Q35-Q37 If applicable, perceived impact of Sizewell B Dry Fuel Store:……
……
Q39-Q40 If applicable, perceived impact of Sizewell B Outages:……
……
Q41 If applicable, perceived relative impact of Sizewell C compared to previous experience:……
……

Good morning/afternoon/evening... My name is ..... and I work for an independent market research company called Accent. We surveyed you earlier this month or in December. As explained when we arranged this interview with you, we are keen to ask some more in-depth questions. Thank you very much for agreeing to help us with this research.

Just to refresh your memory, we are conducting research for Suffolk County Council looking into the social impact of traffic as a result of the planned Sizewell C power station construction.

The research is being conducted in accordance with the Code of Conduct of the Market Research Society (MRS) and also with the Data Protection Act, with whom Accent is registered. This means that everything you say is confidential and will not be attributed to you personally unless you give your permission for us to pass your comments on in named format.

Our discussion is being tape-recorded. This is standard market research procedure and is to ensure accuracy – so I do not have to try to remember what you have said – and for analysis purposes only. The recordings will not be passed to any third party not associated with the research project, and in our reporting of the findings from this research everything that you say will be confidential and will be reported in grouped format only, again, unless you give your permission for us to pass your comments on in named format.

The discussion will last around 30-40 minutes.

Can I stress that we are looking for your views. There are no right or wrong answers.

Overall attitude towards Sizewell C — 10 mins (10)

When we last surveyed you, you said that you **[SCORE Q21: oppose /support]** to the proposed Sizewell C development. What are the main reasons you are [SCORE Q21]?

PROBE FOR TRAFFIC-RELATED FACTORS, e.g. duration of construction works, traffic volume, time of day/week, type of vehicles, noise, vibration, traffic congestion, pedestrian/cyclist/driver accessibility, safety, security, air pollution, visual disturbances caused by traffic, attitudes towards mitigation measures

VS. NON-TRAFFIC-RELATED FACTORS, e.g. attitudes towards nuclear power, economic factors, construction site, construction workers, concerns about hazardous and dangerous loads, dust and dirt

Concerns and perceived impact of traffic — 15 mins (25)

I understand that you are **[opposed to /supportive of]** the proposed Sizewell C development. I would now like to focus on just one aspect of that: the traffic that would result from its construction.

- When we last surveyed you, you said that you were **[response Q20 & Q22]** (not) concerned about potential construction traffic from the proposed development of Sizewell C. You said that you were concerned about/would be affected [response Q23/Q24/Q25/Q26/Q27]. Could you explain why/ tell me more?

[NB Q26 is not so much a concern, but a response to concerns, so need to ensure that response is also probed (ditto for Q27)]. It would be good to get a particular insight into how people's everyday lives change, e.g. walking to school, cycling, going to the local shops so an appreciation of social exclusion/community severance can be gained.

- How do you think the traffic resulting from the Sizewell C construction will impact on you?
- What measures might reduce the impact of the traffic for residents/businesses like yourself?

[Need to probe to move beyond responses such as 'a bypass' – need to also understand what other measures might address concerns, eg ped crossings, bike lanes, noise screening, traffic management, speed restrictions i.e. possible counteracts to any 'traffic-related factors' identified]

PROBE FOR UNDERLYING REASONS FOR CONCERNS EXPRESSED IN Q23, Q24, Q25, Q26, Q27
ALSO PROBE FOR:

- **TRAFFIC-RELATED FACTORS, e.g. duration of construction works, traffic volume, time of day/week, type of vehicles, noise, vibration, traffic congestion, pedestrian/cyclist/driver accessibility, safety, security, air pollution, visual disturbances caused by traffic, attitudes towards mitigation measures**
- **LOCAL BUILT ENVIRONMENT FACTORS, e.g. alternative facilities, residential distance to road**
- **PERSONAL AND HOUSEHOLD-RELATED FACTORS, e.g. role of socio-demographic profile esp. children and elderly, health conditions, travel modes, travel needs for work, leisure etc., general experience with traffic, mental health**

APPLICABLE: Perceived impact of Sizewell B — 5 mins (30)

IF APPLICABLE: Thank you. I would now like to focus more on your experience with the [Sizewell B construction/ Sizewell B Fuel Store construction/ Sizewell B outages].

- When we last surveyed you, you said that:

[Sizewell B construction: response Q31/Q32/Q33]
[Sizewell B Fuel Store construction: response Q35/Q36/Q37]
[Sizewell B outages: response Q39/Q40]
[Relative perceptions of traffic impacts Sizewell C vs. previous experiences: response Q41]
Is this right?

- Could you say more about what impact these works had on you?

PROBE FOR TRAFFIC-RELATED FACTORS, e.g. duration of construction works, traffic volume, time of day/week, type of vehicles, noise, vibration, traffic congestion, pedestrian/cyclist/driver accessibility, safety, security, air pollution, visual disturbances caused by traffic, attitudes towards mitigation measures
VS. NON-TRAFFIC-RELATED FACTORS, e.g. economic gains/losses, construction site, construction workers, hazardous and dangerous loads, dust and dirt
PERSONAL AND HOUSEHOLD-RELATED FACTORS – it's probably worth noting that people's individual circumstances would have been different 20 years ago, so their views on SZB will have been framed against a different context/levels of tolerance (may have had children then/they were younger, there was less traffic at that time) so that might be worth exploring.

- In what ways do you think the traffic impact of the Sizewell C construction will be different or similar to those other experiences?

PROBE FOR REASONS WHY SIZEWELL C COULD BE BETTER OR WORSE THAN PREVIOUS EXPERIENCES

Appendix F

SP Survey Introductory Letter

Your Ref:
Our Ref:
Date: 1st February 2016
Enquiries to: Michael Wilks
Tel: 01473 264064
Email: michael.wilks@suffolk.gov.uk

Suffolk County Council

[Click and type addressee/address]

Dear Sir or Madam

SIZEWELL C CONSTRUCTION TRAFFIC

I wrote to you in December 2015 to introduce a piece of work that Suffolk County Council, in its capacity as Highway Authority, has commissioned to gain a greater understanding of community concerns relating to Sizewell C construction traffic using the A12 near Yoxford and the B1122.

I am now writing to update you on the progress of that work and to invite you to participate in the final stage of the research.

As I outlined previously this is a three stage approach. The first stage was a series of face to face interviews complemented by an online survey. I am pleased to say that we received feedback from around 260 households in the parishes of Yoxford, Middleton and Theberton. Thank you very much to those who took the time to respond.

As you would expect there was a range of views expressed about the Sizewell C project, including different levels of concern over the potential impacts of the construction traffic. To explore in more detail the range in perspectives of people within the three parishes, twenty in-depth interviews were undertaken. The interviewees were selected by our consultants, Accent[8], ensuring a good mix of age, location, length of residence, proximity to the road as well as their views on the severity and types of impacts.

The final stage of the research is an online survey. Taking into account the range of impacts that respondents identified in the earlier stages of the work, this phase is aimed at understanding the preferences and priorities of individuals for addressing these issues, and how. As previously indicated, this work complements that already undertaken by the County Council in relation to the B1122 on major highway improvements, such as bypasses[9], so the focus for this research remains on the existing road network.

Those who took part in the earlier research and agreed to take part again will be sent an email with a link to the survey. If you do not receive an email and wish to take part the web address

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[8] The research is being undertaken by Accent, an independent UK market research agency. Accent is a Market Research Society (MRS) Company Partner and abides by the standards of quality set by the MRS. Accent is registered under the Data Protection Act and to the market, opinion and social research International Standard ISO 20252.

[9] http://www.suffolkcoastal.gov.uk/yourdistrict/sizewell/transport/route-d2-and-b1122-study/ or use http://tinyurl.com/zorj5nh

of the online questionnaire is www.yoxfordandB1122survey.uk. This link will be active from 6th February 2016 to 15th February 2016.

Again, the purpose of this exercise is to support and strengthen the County Council's future consultation responses to EDF Energy and better articulate the type and scale of mitigation measures required.

I very much encourage you to continue your engagement with this work.

The final report will be published in the spring and provided directly to those for whom we have an email address.

Yours faithfully

Councillor Guy McGregor
Member with Special Responsibility for Outside Bodies
Chairman, Joint Local Authority Group on Sizewell C
Suffolk County Council

Appendix G

SP Survey Email Invitation

Title: Sizewell C Construction Traffic survey

Dear #NAME#

First of all thank you for completing the online questionnaire earlier this year on the construction of the planned Sizewell C power station.

The link below is to a follow-up questionnaire on the aspects of the increase in traffic which will most affect your household, and on various options that have been put forward for managing the traffic impacts.

This questionnaire is the same as the one referred to in the letter from Suffolk County Council (dated 1st February 2016) distributed to households, except that this version does not include questions you have already answered on where you live and personal characteristics, because the previous questionnaire you completed will be linked to this one.

Your unique LINK

As some people did not complete the earlier questionnaire, but may wish to complete this one, they will need to access the questionnaire via the link in the letter from Suffolk County Council and complete the additional questions on location and personal characteristics in this new questionnaire.

Please don't complete the survey twice using both the link in this email and the one in the letter from Suffolk County Council, or forward your unique link to others to use.

Any answers you give will be treated in confidence in accordance with the Code of Conduct of the Market Research Society.

The questionnaire will take about 15 minutes to complete.

Yours sincerely

Chris Heywood

Notes: Please click on the link. Do not reply to this email.

If you do not want to receive further communication on this survey, please click here

APPENDIX H

SP Survey Questionnaire

2953
Sizewell C traffic impacts SP

SYSTEM INFORMATION:
Date:
Time interview started:

Data from previous surveys
METHOD
Tablet
Online
Open
DATE
2015
2016
LOCATIONTYPE
residence
business
farm

Introduction

IF METHOD=ONLINE ASK: First of all thank you for completing the online questionnaire earlier this year.
IF METHOD=TABLET AND DATE = 20I5 ASK: First of all thank you for completing the face-to-face questionnaire last December.
IF METHOD=TABLET AND DATE = 20I6 ASK: First of all thank you for completing the face-to-face questionnaire earlier this year.

ALL: Thank you for entering this questionnaire. This research is being undertaken by Accent for Suffolk County Council and is about the construction of the planned Sizewell C power station.

The purpose of this survey is to gather your views on what aspects of the increase in traffic will most affect your household, and on various options that have been put forward for managing the traffic impacts.

IF METHOD=ONLINE OR TABLET: The answers from the previous questionnaire you completed will be linked to this one

Any answer you give will be treated in confidence in accordance with the Code of Conduct of the Market Research Society.

The questionnaire will take about 15 minutes to complete.

IF METHOD=ONLINE OR TABLET GO TO PART 1: Details of location

Q1 Where do you live?
Yoxford
Theberton & Eastbridge

Middleton
Other – please type in the name parish or enter your postcode

---

Q2 **IF Q1= 1-3 ASK:** Are you responding as a resident, a business or a farm?
Resident
Business
Farm

Q3 Does your property have direct access on to the:
B1122
A12
A1120
None of these

Q4 How far is your property to the nearest of these roads? **ENTER ONE OF B1122/A12/A1120 AND MINUTES WALK OR METRES**

Nearest road
B1122
A12
A1120

…….. minutes walk
……..metres

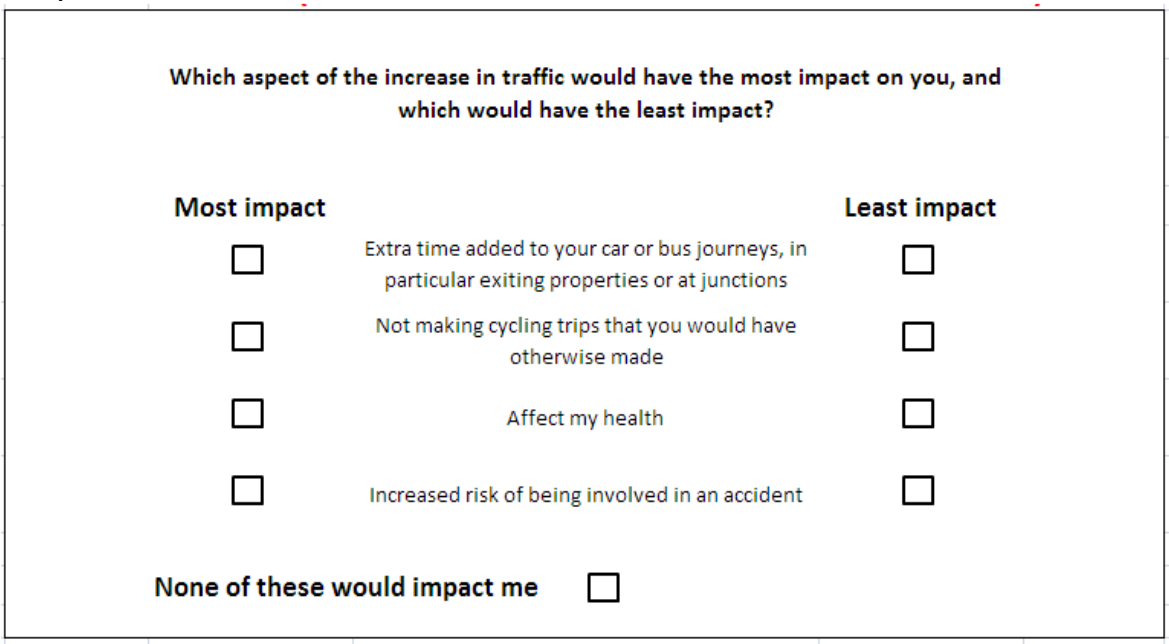
LOCATIONTYPE2
IF METHOD=TABLET OR ONLINE LOCATIONTYPE2 = LOCATIONTYPE
IF METHOD<>TABLET OR ONLINE LOCATIONTYPE2 = Q2

Part 1) Traffic Impacts

The first set of questions will each show you a short list of potential impacts due to the expected increase in traffic caused by the construction of the planned Sizewell C power station. For each question, please indicate which of the impacts shown would affect your #LOCATIONTYPE2# the most, and which would affect it the least. If none of the impacts shown would affect your household/business/farm, then please indicate this in your choice.

SP1Q1a (Most) {A,B,C,D,None}
SP1Q1b (Least) {A,B,C,D,None}
SP1Q2-6 [Same as SP1Q1]

Example SP1 Question



Q5 **IF SP1Q6a<>"None" ASK:** In the last question you said that #SP1Q6a# would impact you the most. Why did you say that?

Part 2) Traffic issues and mitigation

The next set of questions is to gather your views on the options that have been put forward to manage the expected increase in traffic and its associated impacts.

2a) Traffic related issues

Firstly, we would like to understand your preferred approach to managing traffic-related issues. Then, you will be asked to rank the various options for mitigation according to their importance to you.

Q6 Generally speaking, the scale of traffic movements to the site each day is related to the construction programme. The length of a construction programme will determine the number of vehicles per day; a condensed programme would increase the average number of vehicle movements on any given day. Generally, do you prefer that: **PLEASE TICK ONE**

Construction works take longer, but daily traffic flows are kept at a lower level
Construction works are completed more quickly resulting in higher daily traffic flows

Q7 There will be times where the number of heavy goods vehicles (HGVs) will need to increase significantly in response to specific construction tasks or other unforeseen factors. Please rank the following options that could be used to manage HGV levels in order of preference:

ENTER '1' BY YOUR FIRST PREFERENCE, '2' BY YOUR SECOND PREFERENCE AND '3' BY YOUR THIRD PREFERENCE

Increases over a limited number of days over an extended period (for example every other day over two weeks)	
Increases over a consecutive number of days over a shorter period (for example seven days in a row)	

Increases between Monday and Fridays only	

Q8 Restrictions could be placed on light goods vehicle (LGV) movements at particular times of the day or night, but this may mean that numbers of these vehicles are higher at other times of the day. Please rank your preference as to how you would wish to see this issue addressed:

ENTER '1' BY YOUR FIRST PREFERENCE, '2' BY YOUR SECOND PREFERENCE AND '3' BY YOUR THIRD PREFERENCE

No restrictions, therefore more consistency in traffic flows throughout the day and week	
Term-time restrictions during school pick up hours, 15:30-16:30 (or as locally appropriate)	
Weekday restrictions during morning rush hour/school drop off, 08:00 – 09:00	
Weekday restrictions during afternoon rush hour, 17.00 – 18.00	
Daily restrictions overnight, 22:00 – 07:00	
Weekend restrictions	
Sunday restrictions	

Q9 Restrictions could be placed on buses and HGV movements at particular times of the day or night, but this may mean that numbers of these vehicles are higher at other times of the day. Please rank your preference as to how you would wish to see this issue addressed:

ENTER '1' BY YOUR FIRST PREFERENCE, '2' BY YOUR SECOND PREFERENCE AND '3' BY YOUR THIRD PREFERENCE

No restrictions, therefore more consistency in traffic flows throughout the day and week	
Term-time restrictions during school pick up hours, 15:30-16:30 (or as locally appropriate)	
Weekday restrictions during morning rush hour/school drop off, 08:00 – 09:00	
Weekday restrictions during afternoon rush hour, 17.00 – 18.00	
Daily restrictions overnight, 22:00 – 07:00	
Weekend restrictions	
Sunday restrictions	

Q10 The location of parking provision will affect the numbers of cars and buses that travel directly to site. Less onsite parking and larger offsite park and ride facilities would reduce car trips directly to site but increase bus trips (as the buses would transport people from the park and ride sites to the main construction site). Would you prefer:

PLEASE TICK ONE

More onsite parking resulting in more cars, but fewer buses travelling direct to site
Less onsite parking resulting in fewer cars, but more buses travelling direct to site

Q11 Routeing restrictions can be applied to reduce incidences of "rat running" by requiring vehicles to use particular roads to access the main site. EDF has not yet proposed routeing restrictions for LGVs. A routeing restriction would have the benefit of reducing trips on minor roads, but increase traffic on designated routes.Would you prefer:

PLEASE TICK ONE

Routeing restrictions for LGVs, focussing impacts to particular routes
No routeing restrictions for LGVs, spreading impacts over a wider area

Q12 EDF has proposed an onsite car park of 1,000 spaces which could be used by drivers whose journeys begin east of the A12. EDF has not yet proposed to restrict the routes that such cars can use to access the onsite car park. Please rank your preference:

ENTER '1' BY YOUR FIRST PREFERENCE, '2' BY YOUR SECOND PREFERENCE AND '3' BY YOUR THIRD PREFERENCE

Routeing restrictions for cars, focussing impacts to particular routes	
No routeing restrictions for cars, spreading impacts over a wider area	
Reduction of onsite car parking and requiring use of a park and ride facility by these vehicles, creating more bus movements	

Q13 If routeing restrictions for LGVs or cars are imposed, these might be varied such that on an agreed day or days of the month these vehicles were required to use different routes. This would provide relief to those who live near roads which ordinarily carry the traffic. Would you prefer: **PLEASE TICK ONE**

Restrictions that varied on a rotational basis

Restrictions that did not vary

Q14 Speeding traffic has been raised as a particular concern by communities. Rank your preference as to how you would wish to see this issue addressed:

ENTER '1' BY YOUR FIRST PREFERENCE, '2' BY YOUR SECOND PREFERENCE AND '3' BY YOUR THIRD PREFERENCE

Enhanced signage	
Vehicle Activated signs which flash the speed of the vehicle passing	
Average speed cameras for the routes or through the villages	
Fixed speed cameras focussed on villages	

Q15 Construction traffic is likely to lead to changes to ambient noise conditions. Rank your preference as to how you would wish to see this issue addressed:

ENTER '1' BY YOUR FIRST PREFERENCE, '2' BY YOUR SECOND PREFERENCE AND '3' BY YOUR THIRD PREFERENCE

Free installation of double/triple/secondary glazing	
Enforcement of speed limits to reduce noise associated with rapid acceleration/deceleration	
Installation of structures to reduce noise, such as noise barriers near properties	
Time restrictions on HGVs and buses to avoid sensitive times of the day	
Improved road surface material	

Q16 Options exist to increase the safety and wellbeing of residents. Rank the following options according to their importance to you:

ENTER '1' BY MOST IMPORTANT, '2' BY SECOND MOST IMPORTANT AND '3' BY THIRD MOST IMPORTANT

Improved footway facilities	
Improved provision for cyclists	
Safe crossing points	
Enhancements to private accesses to allow safe access to/from properties	
Regular road cleaning	
Requirements for emission levels from HGVs and buses to meet high standards	
Improved street lighting	

Please note any specific locations where you see a need for any of these improvements

---

Q17 The standard and condition of the roads providing access to site have been raised as a concern. Please identify and explain where in your view there are particular issues you would like to see addressed, for example road width or visibility.

2b) Traffic mitigation priorities

The following set of questions are the last ones in this survey. Each question will each show you a short list of potential options for addressing traffic issues associated with the development. For each question, please indicate which of the options shown you would like to see given the highest priority, and which you would prefer to see given the lowest priority. If none of the options shown matters to your #LOCATIONTYPE2#, then please indicate this in your choice.

SP2Q1a (Highest) {A,B,C,D,None}
SP2Q1b (Lowest) {A,B,C,D,None}
SP2Q2-6 [Same as SP2Q1]

Example SP2 Question

Which of these measures would you like to see given the highest priority, and which would you like to see given the lowest priority

Highest priority		**Lowest priority**
☐	Limit the hours per day for HGV delivieries	☐
☐	Limit speed of traffic	☐
☐	Introduce traffic calming measures	☐
☐	Create pedestrian crossings	☐

Q18 **IF SP2Q6a<>"None" ASK:** In the last question you said that #SP2Q6a# was the highest priority. Why did you say that?

Q19 If you have any other comments to make on the matters raised in this survey, which have not adequately been captured in your responses to earlier questions, please note them here.

IF METHOD=ONLINE OR TABLET GO TO Q28: Classification Questions

We would now just like to ask a few questions which will help us to understand some of the information you have provided us with. Please be assured that all details you give will be treated with the strictest confidence. The personal information you provide during this survey will be kept confidential by Accent and will not be disclosed to third parties.

Q20 How many adults, including yourself, live in your household? An adult is aged 18 years or older.

LOW 1
HIGH 9

Q21 How many children in the following age brackets live in your household?
10 or under
11-17
LOW 0
HIGH 9

Q22 What is your gender?
Male
Female

Q23 Which one of the following age groups do you belong to?

16-17
18-24
25-34
35-44
45-54
55-64
65-74
75-79
80+
Allow question not to be answered

Q24 What is your employment status?

Working full-time (30+ hours a week)
Working part-time (8-29 hours a week)
Not working – looking for work
Not working – not looking for work
Full-time student
Part-time student
Retired
Retired unpaid voluntary work
Looking after family/home
Other (TYPE IN)

Q25 The following question is being asked to understand how responses to the survey vary by income. Please note that, like all the information you've given me today, your answer is confidential and will be used for analysis purposes only.

Which of the following ranges best represents your household's total income from all sources (including earnings, pensions, benefits and tax credits) over the last 12 months? Please tell us the amount your household receives before anything is taken away for income tax, national insurance, council tax etc.

Under £4,999
£5,000 to £9,999
£10,000 to £14,999
£15,000 to £19,999
£20,000 to £29,999
£30,000 to £39,999
£40,000 to £49,999
£50,000 to £74,999
£75,000 or over
Allow question not to be answered

Q26 Which of the following best describes the occupation of the **main income earner** in your household?

Work in a profession; very senior manager in business or commerce; top-level civil servant; or self-employed with 25+ employees
Middle management executive in large organisation; principal officer in local government and civil service; or self-employed with 5-24 employees
Junior management; or self-employed with 1-4 employees (in addition to self)
Skilled manual worker; other manual worker with responsibility for other people; or self-employed with no employees
Semi-skilled worker; apprentice or trainee to skilled worker
Unemployed for less than 6 months
Unemployed for 6 months or more

Retired on private pension
Retired on state pension
None of above

Q27 **IF Q26=8 (RETIRED ON PRIVATE PENSION) OR 6 (UNEMPLOYED FOR LESS THAN 6 MONTHS):**

Which of the following best describes the previous occupation of the main income earner in your household?

Work in a profession; very senior manager in business or commerce; top-level civil servant; or self-employed with 25+ employees
Middle management executive in large organisation; principal officer in local government and civil service; or self-employed with 5-24 employees
Junior management; or self-employed with 1-4 employees (in addition to self)
Skilled manual worker; other manual worker with responsibility for other people; or self-employed with no employees
Semi-skilled worker; apprentice or trainee to skilled worker
None of the above

Thank you. That was the last question in this survey. This research was conducted under the terms of the MRS code of conduct and is completely confidential.

Q28 We really appreciate the time that you have given us today. Would you be willing to be contacted again for clarification purposes? **PLEASE TICK ALL RELEVANT**

Yes
No

Q29 Please provide an email address if you wish to receive a copy of the final report.

SYSTEM INFORMATION
Time interview completed:

APPENDIX I

Relevant WebTAG impacts

Unit	Impacts	Description	Measurement
A1-3 Part 4	Travel time	Changes in travel time resulting from an intervention	**Monetised:** *Number of users affected, per travel mode* * *Changes in travel time, per travel mode * Value of time, per travel mode* WebTAG's recommended values of time are split between working time and non-working time (commuting or other). The value on nonworking time is uniform for all modes. For example, the value for non-commuting time is £6.04/hour. *Source of values: TAG Data Book, table A 1.3.1*
A3 Part 2	Noise	Impacts of transport-related noise emissions on annoyance, sleep disturbance, and health. *Note: Vibration is not considered as a separate effect in WebTag but the Design Manual for Roads and Bridge (which is cited by WebTag) contains information about the effects of vibration and their measurement.*	**Monetised:** *Changes in noise levels (16h and night) * Population affected by each type of change* Unit costs* WebTAG's recommended unit costs depend on noise levels and are split into five different types of impacts: amenity, sleep disturbance, acute myocardial infarction, stroke, and dementia. For example, the cost of a noise level above 74db(A) in terms of sleep disturbance is £67.76. *Source of values: TAG Data Book, table A 3.1.*
A3 Part 3.2	Local air quality	Impacts of transport-related concentrations of PM_{10} and NO_x on health and environment.	**Monetised:** *Changes in NO_x emissions and PM_{10} concentrations * Population affected (up to 200m from the road) * Unit damage costs* PM_{10} damage costs=£92.7/household/1µg/m³; NO_x damage costs=£955/tonne. *Source: TAG Data Book, table A 3.2.*
A3 Part 7	Townscape	Townscape is the physical and social characteristics of the built and non-built urban environment and the way in which we perceive those characteristics. It is this mix of characteristics and perceptions that make up and contribute to townscape character and give a 'sense of place' or identity. The physical characteristics of a townscape are expressed by the development form of buildings, structures and spaces. The development form influences the pattern of uses, activity and movement in a place and the experience of those who visit, work and live there. The social characteristics of a townscape are determined by how the physical characteristics (i.e. buildings, structures and open spaces) are used and managed. For example, the character and value of a pedestrianised square in a town or city centre is very different to a square that has not been pedestrianised.	**Not monetised:** Overall assessment of various factors on a 7-point scale
A 4.1 Part 2	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. Transport accidents impose a range of impacts on people and organisations, related to the number of casualties (pain, grief and suffering; lost economic output; and medical and healthcare costs) and to the number of accidents (material damage; police costs; insurance administration; and legal and court costs)	**Monetised:** *Change in number of casualties * average value of prevention per casualty* WebTAG's recommended average values per casualty are split by types of road user. For example, the value for pedestrians is £78,108. *Source: TAG Data Book, table A 4.1.2*

A 4.1 Part 3	Physical activity	Transport can affect levels of physical activity. Physical inactivity is a primary contributor to a broad range of chronic diseases such as coronary heart disease, stroke, diabetes and some cancers. Physical activity also has an important role to play in preventing weight gain and obesity and improving mental health.	**Not monetised:** *Number of pedestrians and cyclists affected by the project * change in journey time*
A 4.1 Part 5	Severance	Community severance is 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. Severance primarily concerns those using non-motorised modes, particularly pedestrians. To ensure a consistent approach, classification should be based on pedestrians only. The impact of severance on cyclists will differ for two reasons: they travel more quickly; and crossing facilities may not be available to them.	**Not monetised:** Population affected by different severance levels (measured on a 7-point scale)
A 4.1 Part 6	Journey quality	Journey quality is a measure of the real and perceived physical and social environment experienced while travelling. This includes factors such as public information provision, perceptions of safety (e.g. street lighting, CCTV cameras, segregated cycle paths away from traffic), provisions for accessibility, physical crowding on public transport services. The journey quality impacts considered here are those aspects of quality not considered elsewhere in the appraisal (e.g. journey times, reliability). Journey quality impacts can be sub-divided into three groups, according to their nature: traveller care (aspects such as cleanliness, level of facilities, information and the general transport environment); travellers' views (the view and pleasantness of the external surroundings in the duration of the journeys) and traveller stress (frustration, fear of accidents and route uncertainty).	**Not monetised:** Overall assessment of various factors on a 3-point scale
A 4.1 Part 8	Accessibility	Accessibility reflects the range of opportunities and choices people have in connecting with jobs, services and friends and families. Barriers on accessibility include: unavailability or physical inaccessibility of transport; cost of transport; services and activities located in inaccessible places; lack of safety and security; and narrow travel horizons	**Not monetised** Scores assigned to different elements of journey to a set of key destinations.

Appendix J

Recruitment for Depth Interviews

Sizewell C Traffic Impacts: Recruitment for depth interviews

The proposed strategy for depth interview recruitment will:

- Confirm the potential interviewees awareness of the planned Sizewell C construction (Q1)
- Ensure interviewees have varying attitudes towards Sizewell C (Q21) that are representative of the surveyed sample.
- Ensure a mix of interviewees who have experience with/awareness of construction works related to Sizewell B (either the construction of Sizewell B, the Sizewell B Dry Fuel Store construction or the Sizewell B outages) and those who do not have such experience/awareness.

Taking these recruitment aims into account, the target quotas for the depth is as follows:

	Opposed to Sizewell C (Q21 Score 0-3)	**Ambivalent to Sizewell C** (Q21 Score 4-6)	**Supportive of Sizewell C** (Q21 Score 7-10)
Experience with Sizewell B – YES (Q30=1 OR Q34=1 OR Q38=1)	6	4	4
Experience with Sizewell B - NO (Q30≠1 AND Q34≠1 AND Q38≠1)	2	2	2

The target quotas are informed by the survey results of 80 survey respondents who have so far agreed to be re-contacted for further research (Q49). A detailed breakdown of this pool of potential candidates for depth interviews is provided in the table below:

	Opposed to Sizewell C	**Ambivalent to Sizewell C**	**Supportive of Sizewell C**
Experience Sizewell B - YES	25	16	16
Experience Sizewell B - NO	7	9	7
TOTAL	32	25	23
GRAND TOTAL			80

A few observations and comments:

- The proportion of respondents who were opposed to Sizewell C (Q21 score 0-3) was slightly larger than the proportion who were ambivalent (Q21 score 4-6) or supportive (Q21 score 7-10).
- More respondents were aware of at least some construction works related to Sizewell B than not.

NB. Please note that we might need to change the quotas slightly as fieldwork progresses or if the numbers in specific cells that are willing/able to take part in a depth interview is too low. Although 80 respondents have agreed to be re-contacted for further research, some may not be able to take part within the timeframe specified for this component of the research project.