Chapter 12 Human Beings

12.1 Introduction

This chapter deals with the likely significant effects of the proposed M7 Naas to Newbridge By-Pass Upgrade Scheme on human beings in the environs of the scheme. Human beings form one of the most important aspects of the environment to be addressed in an Environmental Impact Assessment (EIA) and the effects on human beings are also addressed in the following sections:

Chapter 5 Traffic Analysis
Chapter 11 Material Assets
Chapter 13 Archaeology, Architecture and Cultural Heritage
Chapter 14 Landscape and Visual Impact
Chapter 15 Noise and Vibration
Chapter 16 Air Quality and Climate

The objective of the assessment is to identify, describe and assess the impact of the proposed M7 Naas to Newbridge By-Pass Upgrade Scheme on the social and economic functioning of the adjacent communities.

Scheme Overview

The proposed scheme involves widening 13km of the M7 motorway from 2 to 3 lanes between the merge of the M7 and M9 at Great Connell and Junction 9 Maudlins (refer **Figures 4.1 to 4.10, EIS Volume 3**). Throughout the full length of the scheme all of the widening will be constructed within the existing median (refer to **Plate 12.1** below).

The scheme includes the closure of the existing motorway slip roads at Junction 10 and construction of a new interchange with the R445 Naas to Newbridge road where it crosses the M7 some 700m south of the existing interchange (refer **Figure 4.5, EIS Volume 3**).

Plate 12.1 Existing two lane M7 with wide grass median.

12.2 Methodology

Impacts for Human Beings are essentially related to the functioning of the community. The assessment has been undertaken in line with the EPA 'Guidelines on the information to be contained in Environmental Impact Statements (2002)', the EPA 'Advice Notes on Current Practice (in the preparation of EIS)' (2003) and the NRA 'Environmental Impact Assessment of National Road Schemes – A Practical Guide' (Revision 1, November 2008). Reference has also been made to the detailed guidelines provided in the UK DMRB Volume 11, Section 3, Part 8 'Pedestrians, Cyclists, Equestrians and Community Effects'.

Potential impacts on communities are those that could cause change in the 'quality of life' as a consequence of the construction and operation of the proposed road. Such impacts include significant changes to local journey times, travel patterns and accessibility to local facilities, especially for pedestrians and cyclists, resulting in changes in community severance. Such changes may be either positive or negative. For example, removal of major traffic flows from an existing road can lead to an improvement in quality of life for residents. A new road may also either increase or decrease the journey distance to local facilities.

12.3 Impact Categories

Impacts can be either negative or positive. Their significance is assigned as Imperceptible, Slight, Moderate, Major or Profound. Significance depends, among other considerations, on the nature of the environment affected, the duration of an impact and the probability of its occurrence. This assessment addresses impacts at a community level rather than for individuals or identifiable properties.

Impacts have been broadly categorised in this assessment under the following four headings:

- Journey characteristics: An assessment of the impact of the Proposed Scheme on journey time and travel patterns.
- Community severance: An assessment of the impact of the Proposed Scheme with regard to the physical, social separation of communities from community facilities, particularly schools, recreational facilities or community services with emphasis given to those used by older people or other vulnerable groups.
- Amenity: An assessment of the impact on journey amenity (i.e. relative pleasantness of a journey) and on other aspects affecting general amenity or human well-being (for example where residential quality of life is affected).
- Economic impacts: an evaluation of the Proposed Scheme in the context of economic prospects and employment needs and in relation to residential development and projections in the local area.

Journey Characteristics

New roads have an inevitable impact on local journey duration, journey time reliability and journey patterns for vehicle journeys, journeys by public transport, bicycle and for pedestrians. Impacts may be positive or negative.

Assessment of journey times and patterns is inevitably dependent on precisely where an individual journey originates and ends, when it is undertaken (e.g. within or outside peak hours) and by whom it is undertaken (e.g. vulnerable groups). Amongst a variety of destinations, journeys may be to community facilities, to places of

employment or involve commercial traffic. Impacts have been assessed in accordance with the significance criteria outlined in Table 12.1, with positive impacts resulting from a decrease, and negative impacts resulting from an increase in journey length or duration. Where reduced journey time may induce people to undertake trips more frequently, this does not necessarily imply an adverse sustainability impact as journeys could involve less fuel consumption or alternative modes of transport as well as providing personal and economic gains in terms of reduced journey time.

Table 12.1 Criteria used in the Assessment of changes in Journey Length or Duration

Impact Level	Significance Criteria
Imperceptible	No appreciable change to present journeys, *i.e.* <10% increase in typical journey length or duration.
Slight	Some inconvenience, but present journey patterns likely to be maintained, *i.e.* 10-30% increase in typical journey length or duration.
Moderate	Journeys becomes longer and some groups may be dissuaded from making trips, *i.e.* 30-60% increase in typical journey length or duration
Major	Considerable inconvenience. Many people will be deterred from making trips, *i.e.* 61-80% increase in typical journey length or duration
Profound	More than 81% increase in journey length or duration sufficient to cause marked change in behaviour of a sizeable proportion of population

Community Severance

Severance is a typical impact of road development and occurs whenever access to community facilities is impeded by the physical barrier of the road itself (e.g. traffic load or perimeter fencing) or by any lengthening of journey time. Severance can be defined as both relief from existing severance or as new or increased severance.

Issues of severance of lands or private access are addressed in the sections of the EIS dealing with agronomy and material assets (refer Chapter 11 Material Assets).

Relief from Severance

Relief from severance is a positive impact. The UK DMRB provides a quantitative guide to the reduction in traffic volumes providing relief from severance in areas with daily traffic flows of more than 8,000 vehicles.

Table 12.2 Criteria Used in the Assessment of Relief from Severance

Impact level	Significance criteria
Imperceptible	<10% reduction in daily traffic levels (AADT) or current journey patterns maintained
Slight	10-30% reduction in traffic levels (AADT) or some reduction in severance
Moderate	31-60% reduction in traffic levels (AADT) or a reduction in severance sufficient to encourage some residents to make more frequent journeys to community facilities.
Major	61-80% reduction in traffic levels (AADT) or a reduction in severance such as to allow most residents to make more frequent journeys to community facilities or to switch from car to pedestrian or cycle journeys
Profound	More than 81% reduction in traffic levels (AADT) or reductions in severance such as to provide new access to community facilities or to cause a very significant increase in pedestrian or cycle journeys

The definition of severance above provides for the baseline assessment. As well as reductions in the levels of traffic encountered, it depends on the level of use of facilities, the duration of the day over which traffic conditions are experienced, the sensitivity of the population affected and the mode of travel (i.e. pedestrian, cyclist or vehicle). Hence, a "slight" reduction in traffic levels may amount to moderate relief from severance if there is at least moderate use of community facilities. Similarly, the introduction of crossing facilities could reduce severance even in circumstances where traffic volumes increase.

These factors have been taken into account in providing the definitions of impact significance in Table 12.2. Sensitive groups are identified specifically where they comprise a higher proportion of pedestrian journeys or where particular amenities are associated with these groups. Such facilities could include schools, surgeries, hospitals, churches, post offices and shops.

New Severance

New or increased severance is a negative impact that occurs where either a new road, or increased traffic on an existing road, forms a barrier between people and community facilities. The UK DMRB provides definitions which have been adapted to reflect the five significance categories used in this assessment.

Table 12.3 Criteria used in the Assessment of New / Increased Severance

Impact Level	Significance Criteria
Imperceptible	Journey patterns maintained.
Slight	Present journey patterns likely to be maintained, albeit with some hindrance to movement.
Moderate	Some residents, particularly children and elderly people, are likely to encounter some severance or be dissuaded from making journeys, perhaps due to a need to access pedestrian crossings.
Major	Most residents are likely to encounter severance which, in some cases, will cause them to make less frequent trips to particular community facilities.
Profound	People are likely to be deterred from making more important trips to an extent sufficient to induce a re-organisation of their habits.

It is worth adding that for linear features such as roads, an element of psychological severance can occur that deters people from making casual journeys particularly in instances where physical severance is above a particular threshold or where traffic levels induce anxiety in relation to safety. Social severance can follow from the restriction of people's accessibility or because communities become identified by their containment within certain road boundaries. The consequences of these impacts are difficult to measure, but are likely to be appreciated most especially by parents or by older citizens and others who might experience social isolation.

Amenity

The amenity or pleasantness of a journey is described in the UK DMRB as being concerned with:

- changes in the degree and duration of people's exposure to traffic, i.e. fear / safety, noise, dirt and air quality; and
- the impact of the road itself – primarily any visual intrusion associated with the scheme and its structures.

Aspects such as the level of traffic on a road, its proximity of footpaths / cycle paths, or the nature of any crossings / junctions to be negotiated are of particular importance when assessing impacts on journey amenity, as are the number and types of people affected. In addition, extended journey times which involve lengthy queuing for drivers will also have an effect on journey amenity as will the need to make hazardous crossings or manoeuvres. For both pedestrians and cyclists, poor journey amenity can discourage journeys by foot or bicycle. Alternatively, improved journey amenity or the provision of new facilities can encourage more walking and cycling including in instances where these modes may currently account for a small proportion of journeys.

Furthermore, environmental impacts affecting the pleasantness of journeys, such as pollution, noise and visual impacts, also affect general amenity or the well-being of people living in the vicinity. So too can direct impacts on particular community facilities and recreational sites. Typically, these impacts are specifically addressed under separate chapters throughout this EIS, namely the chapters on noise, air quality and visual impacts. However, these impacts have a community dimension too in that well-being is affected through the effect on utility and tourism.

Economic Impacts

Economic and employment impacts will occur at both regional and local levels and can be either positive or negative. These impacts are difficult to quantify, at least in the case of road development. Much road development is proposed with the intention of enhancing the business environment, particularly in relation to reducing journey time and improving journey time reliability for commercial goods or for travel and commuting by employees. However, there can also be negative impacts in relation to loss of passing trade to businesses such as newsagents, grocery stores, service stations, guest houses, etc.

Here, 'slight' impacts are broadly defined as those to which a small effect on the business environment can be attributed to the Proposed Scheme. 'Moderate' economic impacts are defined as those to which a somewhat greater effect on the business environment can be identified. 'Major' impacts would be such as to substantially affect business performance or to influence the location decisions of new business. In that businesses require employees, there are implications for employment and for settlement patterns and residential development.

12.4 Receiving Environment

Settlement

The towns of Naas and Newbridge are the principal towns in the study area (refer **Figure 1.1, EIS Volume 3**). They are the principal settlements in this area of County Kildare. The Kildare County Development Plan 2011 - 2017 recognises Naas as a Large Growth Town I (potential population of up to 50 000) and Newbridge as a Large Growth Town II (population 15 000 to 30 000). These are considered to act as *important self sustaining economic drivers, accommodating significant new investment in transport, housing, economic and commercial activity, while capitalising on international connectivity and high quality connections to Dublin City Centre.* In addition Naas and Newbridge are clustered together as a Primary Economic Growth Town in the Greater Dublin Area Regional Planning Guidelines.

There are also a number of villages, such as Carragh, Sallins and Johnstown, smaller residential clusters, such as that at Newhall and linear development along the majority of the local roads.

Land-use and Local Development

From Great Connell to the Newhall Interchange (Ch 0+000 to Ch 6+500) the lands either side of the motorway are rural in character and agricultural is the dominant land-use.

From Newhall Interchange to Maudlins (Ch 6+500 to Ch 14+500) the lands to immediate north and south of the motorway alignment are a mix of residential, retail, commercial and agriculture. However, due to the connectivity provided by the presence of the motorway and the location of Naas immediately to the south, there is a strong and increasing emphasis on retail, office and commercial development supported by land-use zoning.

This increasing emphasis on development is strongest to the south of the motorway where the lands are predominantly zoned Enterprise and Employment and to a lesser degree Retail / Commercial and Industry & Warehousing. The most significant of these ongoing developments is the Millennium Park facility (refer **Plate 12.2**). Much of the zoned lands to the south of the motorway from Osberstown to Maudlins (Ch 11+100 – Ch 13+900), along Monread Road, have already been successfully developed and facilities here include Monread Shopping Centre, Monread Industrial Park and the Globe Retail Park. In addition, Osberstown Industrial Park is located to the west of Naas Wastewater Treatment works, off the R409 to the north of chainage 8+500.

Plate 12.2: Millennium Park

Plate 12.3: Monread Shopping Centre

The local area around the existing Newhall Interchange (Junction 10; Ch 7+400) is also primarily zoned for development with a number of substantial complexes and businesses already present and functioning in the area (refer **Figure 12.1, EIS Volume 3**).

To the north of the motorway, with immediate access onto and off the M7, is the M7 Business Park. This complex contains a large number of primarily service and distribution businesses including Golder Associates Geo Testing, Clonmel Enterprises, Accu Science, Ambit Financial Services, RW Pierce and Profile Systems. All of these businesses benefit from their location alongside the M7, however none are considered to be reliant on passing trade.

To the south west of the M7 Business Park the lands have been developed by the auto industry with Merlin Car Auctions (**Plate 12.4**) and Finlay Ford (Naas) occupying substantial areas.

Plate 12.4: Merlin Car Auctions

To the south of the motorway the local area is also under significant development. The Millennium Park zonation connects into the Newbridge Road Roundabout (aka B&Q Roundabout) (refer **Figure 12.1, EIS Volume 3**). To the east of this new link road is the Southern Link Business Park, Sheehy Motors and a substantial Aldi Distribution Centre. South of the Newbridge Road Roundabout there is an Aldi supermarket and the Newhall Retail Park. The Retail Park is comprised of substantial retail units including B&Q, Halfords, Currys, Carpet Right and Right Price Tiles.

South west of the Bundle of Sticks roundabout, the M7 westbound on-slip (Due Way) is two way providing access onto the motorway and also a local connection to Rathasker Road. The Ray O'Brien Group operates a significant car and van rental operation from lands off Due Way and First Choice Commercials / Dennison Trailers occupies lands at the junction of Due Way and Rathasker Road.

In addition to all of this commercial development there a number of residences present adjacent to the existing Junction 10 roundabouts. A single residential property is present to the west of the northern roundabout sandwiched between the M7, Merlin Car Auctions and the M7 Business Park. A further six residential properties occur to the west of the Bundle of Sticks roundabout, isolated between Due Way and the M7. A number of small business enterprises are advertised and operated from these properties. These include Naas Paving and Patio Centre, Woodstyle – Doors and Stairs showroom, Classic Hardwood Floors and Its a Dogs Life.

Plate 12.5: First Choice Commercials, Rathasker Road

12.5 Predicted Impacts

The Predicted Impacts are presented as they relate to journey characteristics, amenity, severance and economics. Under each of these headings the potential impacts are examined for both the operational and construction phases and for both the broader motorway widening and the re-configuration of the Newhall Interchange.

Journey Characteristics

Operational Phase

The Traffic Analysis detailed in Chapter 6 confirms that at operation the proposed scheme will reduce delay and congestion on the M7 motorway during AM and PM peak hours. It also identifies that traffic which currently diverts from the M7 into and around Naas in order to avoid the congestion on the motorway will actually reroute back to the M7 with the opening of the third lane, thus reducing congestion within Naas and on the local roads. It is therefore concluded that there will be only positive impacts on journey characteristics for users of the M7 with a slight decrease in journey times on the local road network and with an enhanced efficiency of the M7 motorway encouraging some user groups to make more regular trips.

At Junction 10 (Newhall Interchange) the closure of the existing motorway on and off slips and the configuration of the new Interchange will have some effect on the journey characteristics for those users of the existing Interchange layout.

The most significant of these changes will be on the east bound journeys (to Dublin) from the Rathangan Road (affects M7 Business Park, etc; Refer **Figure 12.1, EIS Volume 3**). The loss of this on slip will result in journeys from here to Dublin being required to cross the motorway, travel west (approx 700m) and cross the motorway a second time before utilising the new interchange to access the motorway. However the total diversion is less than 1km and it is considered that the impact on journey time will be imperceptible to slight (depending on the operation of the Bundle of Sticks roundabout) and journey patterns will be maintained.

The realignment of Due Way, such that it becomes a local access only with direct access onto to the westbound motorway being removed, will result in a slight increase in journey distance and hence time to access the motorway for properties and businesses located on Due Way and Rathasker Road. However the change in journey time will be imperceptible and, when combined with the improved operation of the M7 and the enhancement of safety on the realigned section, the outcome is a positive improvement.

It is considered that at operation access from the west, on the R445 to Naas and to the existing retail parks and commercial enterprises, will be unaffected. Similarly access to the M7 from Naas West on the R445 eastbound to Dublin is considered as being unaffected with an imperceptible increase in journey times due to the relocation of the proposed Interchange 700m to the west. Access to the motorway, both east and west bound, from Newbridge on the R445 will be improved, although the change is again considered to be imperceptible.

It is considered that the residential properties currently present in the immediate vicinity of the existing interchange will experience a slight improvement in journey times for local journeys as a result of the closure of the motorway slips reducing the level of traffic and congestion in the immediate area (Annual Average Daily Traffic reduces from 14,250 to 7,850 – refer Chapter 6). There will be an imperceptible increase in journey times requiring motorway access.

Construction

During construction phase there will be a temporary impact on journey times along the M7 as the upgrade is constructed. However a detailed traffic management system will be put in place and, as with the M1 Widening project, two carriageway lanes will be maintained open (refer **Plates 12.6 and 12.7**).There will be a reduced speed limit along each length of active works and therefore some congestion and increase in journey times will occur at peak AM and PM hours. With the proposed phasing of works (refer **Chapter 4, Section 4.4.2**) and effective traffic management in place it is considered that this will cause an imperceptible to slight temporary negative impact with present journey patterns maintained.

The potential for the construction of the new roundabouts and slip roads for the proposed upgrade of the Newhall Interchange to cause congestion has been recognised and incorporated into the construction phasing (refer **Chapter 4, Section 4.4.2**) which ensures that the existing interchange is retained operational until the new interchange is completed and open. As a consequence the construction of the new interchange will impact traffic on the R445, to and from Newbridge, and traffic utilising the west bound on slip and local access along Due Way.

The west bound motorway on slip and local access along Due Way / Rathasker Road shall be maintained throughout the construction period and as such there will be no impact on journey times.

The R445 is a dual carriageway carrying 17050 cars per day over the motorway. During the construction of the roundabouts for the new interchange the traffic on the R445 will be reduced to a single lane in each direction travelling in contraflow. Reducing this level of traffic to a single lane raises the possibility that during the AM and PM peaks congestion could occur on the R445. However this form of traffic management on the R445 has been shown on previous occasions to be effective. In 2012 Kildare County Council put in place single lane contraflow during Pavement

Reconstruction Works and no significant incidents of congestion were noted during this operation.

With regard to the potential impact of construction traffic on journey times it is noted in **Chapter 4 (Section 4.4.3**) that the average number of truck movements is 292 per day, or 443 truck movements during the most intensive period of construction (during the first 12 months). This amounts to a 0.1% increase in the overall traffic levels on the motorway. This level of increased traffic will have no impact on motorway journey times.

With regard to potential impact on journey times on the regional and local road network, Chapter 4 confirms that there are a number of existing local quarries and landfill sites with access to the motorway on the existing regional road network. It is also noted that access to the works will be via the existing motorway interchanges and the proposed interchange only. It is considered that a maximum of 443 truck movements importing and exporting material to and from the construction site split over a number of different routes will have no perceptible impact on journey times on the regional or local road network.

Plate 12.6: **M1 Widening under construction – highlighting traffic management and maintenance of two running lanes in both directions.**

Plate 12.7: **M1 Widening under construction – highlighting traffic management and maintenance of two running lanes in both directions during a later stage in construction.**

Community Severance

There will be no increase in, nor the creation of any new, community severance as a result of the operation of the M7 Naas to Newbridge By-Pass Upgrade.

When operational the reduction in traffic diverting off the M7 and onto the local road network will have a positive impact on the use of local facilities by certain groups, although it is considered that the level of potential 'relief from severance' will be imperceptible to slight. From a regional and national perspective when in operation the scheme will enhance connectivity between and within the towns and villages of Kildare and beyond.

During construction the phasing of works and maintenance of two traffic lanes on the motorway and the operation of effective traffic management on the R445 ensures that there is no impact in this regard. Similarly the level of construction traffic on the motorway and regional road network will have no impact with regard community severance.

Locally, the R445 over the motorway does not have pedestrian or cyclist access along it. Neither the construction nor operation of the new Interchange will have any impact on community severance in this regard. The utilisation of the new Interchange will have a slight positive impact for those residents currently living beside the existing interchange as the reduction in traffic will ease access to and from the facilities of Naas; conversely during construction any additional traffic or congestion could have an imperceptible to slight temporary impact on these properties as access to facilities becomes more difficult. The implementation of the proposed traffic management on the R445 should ensure that this does not arise. The maintenance of Due Way as a local access also ensures there will be no impact during construction or operation on severance of the community along Due Way or Rathasker Road.

Amenity

It is considered that the operation of the M7 Naas to Newbridge By-Pass Upgrade Scheme will have a positive impact for both drivers using the M7 and the wider motorway network and local residents living within Naas and the wider study area.

Drivers using the upgraded motorway will experience a significantly more relaxed and pleasant journey due to the reduction in congestion and the generally more efficient operation of this section of motorway network.

Similarly residents of Naas and the local area will experience a reduction in traffic volumes on the local road network making local journeys by car, foot or bicycle safer and more relaxed.

There will be an improvement in amenity for residents and users of Due Way / Rathasker Road as this reverts to local access only (no longer a combined motorway on slip) resulting in increased safety and relaxation. Similarly those residents adjacent to the existing Newhall Interchange and along Rathangan Road will experience an increase in amenity as a result of the reduction in traffic volumes.

The two most south westerly properties located between the R445 and the motorway (south west of the existing interchange; refer **R25 and R26** on **Figure 15.4** and **NI-1** on **Figure 14.2**, **EIS Volume 3**) will experience a permanent reduction in the level of amenity currently experienced due to the proximity of the new interchange (roundabout and westbound off slip). This impact has been recognised in Chapter 15 Noise and Vibration and Chapter14 Landscape and Visual Impact and a noise barrier and additional planting has been recommended.

During construction users of the motorway will experience a slight impact on amenity, however this is temporary in nature and the phasing of works and maintenance of two running lanes in both directions ensures that it is not significant.

Those residents who live in direct proximity to the motorway and for whom noise is already a concern will also experience improved amenity as noise mitigation measures have been proposed – refer to Chapter 15 Noise and Vibration. In addition construction of the motorway widening has the potential to impact the local amenity through the creation of construction noise and dust. However as construction is primarily contained within the existing motorway corridor and noise and dust will be managed through the adherence to the dust management and construction noise mitigation measures outlined in the Noise and Vibration and Air Quality and Climate chapters (Chapters 15 and 16) it is considered that these potential impacts on local amenity are negligible.

As stated under *Journey Characteristics* it is considered that a maximum of 443 truck movements importing and exporting material to and from the construction site, using the motorway, existing interchanges and regional road network only and being divided over a number of different routes will have no perceptible impact on existing amenity.

During construction the implementation of the proposed traffic management on the R445 should prevent the occurrence of congestion and thereby ensure that there is no significant impact on the existing level of amenity experienced by those residents and properties in the vicinity of the existing Newhall Interchange. However the proximity to the construction site of the two properties located adjacent to the new roundabout and west bound off slip will result in a temporary but significant loss of

amenity with regard construction activity, noise and dust during the construction of the new interchange.

Economic Impact

At operation the more efficient running of the M7 will have positive benefits locally and regionally, for all the industrial, retail and business parks and associated enterprises located in the vicinity of the existing M7 Naas By-pass Interchanges and for both Naas and Newbridge town centres. In addition a more efficient motorway network will have positive regional and national economic impacts.

As the businesses present in the M7 Business Park and adjacent auto park do not rely on passing trade it is considered that the imperceptible to slight increase in journey times to and from the Rathangan Road to the motorway via the upgraded interchange will have no significant effect on the operation of these businesses, which will also benefit from the increased efficiency of the M7 motorway network.

The other business and retail parks in the vicinity of the Newhall Interchange will similarly benefit from the enhanced operation of the M7.

During construction, construction phasing and a traffic management system will be put in place and, as with the M1 Widening project, two carriageway lanes will be maintained open throughout (where required, lane closures will only be permitted at night between 10pm and 6.00am the following morning). There will be a reduced speed limit along each length of active works and therefore some congestion and increase in journey times will occur at peak AM and PM hours. However this will be temporary in nature and with effective traffic management in place it is considered that this will have no negative impact on the local economy or the operation of the adjacent retail and business parks.

It is expected that the workforce required to construct the upgrade will travel from their existing places of residence to the construction site rather than reside in the area during the construction phase. The construction phase will however generate construction employment directly on site as well as for support industries.

12.6 Mitigation Measures

Construction Phase

The construction of the motorway widening is proposed to be undertaken over 7 phases. Traffic management measures will include the maintenance of two daytime traffic lanes in each direction throughout the construction phase. Lane closures will only be permitted at night between 10pm and 06.00am the following morning.

On the R445, during the construction of the new roundabouts, single lane traffic contraflow will be maintained in both directions. This form of traffic management on the R445 has been shown to be effective.

Temporary hoarding will be provided around the extents of the site in the vicinity of the two most south westerly properties located between the R445 and the motorway. This hoarding will be maintained until the construction of the new interchange, including the erection of the noise barriers and the landscape planting, has been completed.

Other mitigation measures for human beings are addressed in Chapter 14 Landscape and Visual, Chapter 15 Noise and Vibration and Chapter 16 Air Quality and Climate.

Operational Phase Mitigation Measures

The operational phase impacts are all considered to be positive and therefore no mitigation measures are proposed.

12.7 'Do Nothing' Impact

The 'do-nothing' scenario would result in the existing situation of congestion on the M7 Naas By-pass during peak hours being exacerbated over time which has the knock on negative effect on journey times and journey amenity and on the local amenity and local economy.

12.8 Conclusion

At operation the M7 Naas to Newbridge By-Pass Upgrade Scheme will have a positive impact on the local and regional economy and enhance the amenity felt by all users of the M7 and the local communities. Effective Construction Phasing and Traffic Management will minimise any disruption which occurs during the construction period.