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INTRODUCTION

6.1 This chapter of the ES has been written as part of a wider evaluation process that has been undertaken to identify the likely magnitude and significance of potential environmental impacts arising as a result of changes in traffic movements from a proposed development at Overton Road, Micheldever Station.

6.2 The proposed development, which is described in Chapter 3 above, comprises a waste management facility that employs Advanced Conversion Technology (ACT) that would generate energy from 100,000 tonnes per annum of residual municipal and commercial/industrial waste. A further 54,000 tonnes of green and food wastes would be processed each year within an Anaerobic Digestion (AD) plant. Hence, the proposed facility is capable of treating up to 154,000 tonnes of waste across the combined processes.

6.3 All waste would be locally sourced and would be diverted away from landfill, in line with current waste management policy, and it is likely that the majority of waste would be transported by road to the site. To ensure a robust assessment, it has been assumed that all imports and exports would be via the road network.

6.4 However, it is noteworthy that the diversion of waste away from landfill would limit the potential transport-related environmental impacts of the scheme to the immediate locality around the application site, since waste is already transported by road across the wider area. Hence, the environmental impacts of the proposed development would be broadly neutral in the wider context, from a transportation perspective.

6.5 This chapter of the ES therefore considers the area surrounding the application site where potentially discernible and significant environmental impacts may result from changes in traffic movements on the highway network.

Site Location

6.6 As noted from Chapter 2 of this Volume, the application site comprises an area of approximately 3 ha of land that is located to the north of the Micheldever Station and to the south of the A303 Trunk Road. The historic use of the application site was as an oil terminal associated with a rail freight yard and rail head, although it has lain derelict for a number of years.

6.7 The application site has its western boundary defined by the South-Western Main Railway Line, with Overton Road at its eastern limits. The slip road onto the westbound carriageway of the A303 Trunk Road defines the northern limits of the application site whereas the southern boundary adjoins an area of land currently used by Network Rail.

6.8 The location of the application site is shown in the Figure below.

Figure 6-1
Site Location

6.9 The application site does not benefit from an existing means of vehicular access and consequently a new junction would be needed to facilitate suitable access to service the proposed development.

6.10 A detailed evaluation of the baseline highway infrastructure is provided later in this section, under the heading 'Baseline Situation'.

ASSESSMENT METHODOLOGY

6.11 This sub-section has been prepared with reference to the requirements and best practice methods advocated by the following documents:

- Circular 02/99 Environmental Impact Assessment;
- Guidance on Transport Assessment (Department for Transport, March 2007); and
- Guidelines for the Environmental Assessment of Road Traffic (IEA, 1993).

6.12 On this basis, the scope and the methods used in the Environmental Impact Assessment (EIA) process are defined below.

Consultation Process

6.13 In accordance with the requirements of EIA the assessment of impacts has been undertaken with due consultation with the local planning and highways authorities, as well as local residents and politicians.

6.14 Firstly, a *Regulation 13 Request for a Scoping Opinion* was submitted to the local planning authority under cover of an SLR Report dated March 2012, which set out a description of the development and the environmental issues that the development team considered may be sensitive to change. Having provided the background to the development and its likely effects, the local authorities and relevant consultees were asked to identify any other pertinent issues that should be considered by the EIA.

6.15 Hampshire County Council, as the Minerals and Waste Planning Authority, provided their *Scoping Opinion* under cover of a letter dated 30th April 2012. The response contained the following transport related comments:-

1) The Highway Authority confirmed that the proposed scope of the transport assessment was generally acceptable.

2) Comments from a County Councillor raised concern that:-

   a) the proposed vehicular access arrangement should be sited closer to the A303 Trunk Road in order to minimise the environmental impact associated with the movement of waste; and

   b) Overton Road is asserted to be "*quite narrow*", with traffic regularly exceeding the speed limits such that the road is considered to be "*neither safe nor environmentally acceptable*".

   c) The geographical proximity of the application site to the existing railway should be exploited to transport as much material as possible.

3) The Parish Council request detailed traffic statistics setting out the likely number of traffic movements that will be generated by the proposal, and the impact that these will have on nearby communities.

6.16 Given the proximity of the proposed development to the A303 Trunk Road and its potential impact thereon, SLR also undertook a parallel consultation exercise with the Highways Agency (HA) in line with their '*Protocol for Dealing with Planning Applications'* (November 2011).

6.17 For the sake of clarity, the HA are an Executive Agency of the Department for Transport with responsibility to ensure that all-purpose trunk roads (including the A303) "*continue to operate safely and effectively, while helping*

development to take place to contribute to economic growth" (Highways Agency Website[1]).

6.18 Following initial contact with the HA, a meeting was arranged for 18th April 2012 between SLR, the HA and their representatives. The purpose of the meeting was to provide the HA with an overview of the proposed development and its likely impacts, and to confirm with them the scope of evidence they would require to make an informed consultation response to the forthcoming planning application.

6.19 In this respect, the HA confirmed that the existing merges onto the A303 at the Micheldever Station junction were substandard in the context of the Design Manual for Roads & Bridges (DMRB). The HA then set out their requirements for independent evaluation of the significance of any change in safety risk brought about by the increased use of the junction by vehicles associated with the proposed development.

6.20 The process of evaluating the sensitivity to the addition of development traffic will run in parallel to the planning application process. However, the local planning authority will need to be led by the HA in respect of the impacts on the Strategic Road Network and their consultation response will be informed by the findings of the independent analysis.

6.21 Hence, the planning authority's appraisal of the environmental impacts of the proposed development is not unduly obstructed by the undertaking of the assessments required by the HA. For the sake of clarity, the findings of the independent audit and the HA's response shall be made available for public record when they are available.

6.22 Notwithstanding the above, the EIA has undertaken its own appraisals of the likely significance of the traffic increase at the A303 slip roads based on the existing accident record of the junction and the magnitude of change in flows.

Assessment of the Application Site's Travel Credentials

6.23 Review of the provision and quality of existing transport infrastructure for all modes of travel has been undertaken to assess the accessibility of the application site against what might be considered to be a realistic standard of provision for the scale and type of development proposed.

6.24 The accessibility of the application site by non-car modes of travel has been assessed against the following three criteria:-

- The proximity of the nearest serviced interchanges to the application site and the opportunities for interconnecting links between the site and these interchanges;
- The frequency of services available from the transport interchanges; and
- The destinations served by the services.

[1] http://www.highways.gov.uk/business/237.aspx *[accessed 24th June 2012]*

6.25 The accessibility of the application site by car has been considered by reference to its geographical location in the context of infrastructure serving the immediate locality, as well as the wider area.

Assessment of the Likely Traffic Effects

Study Area

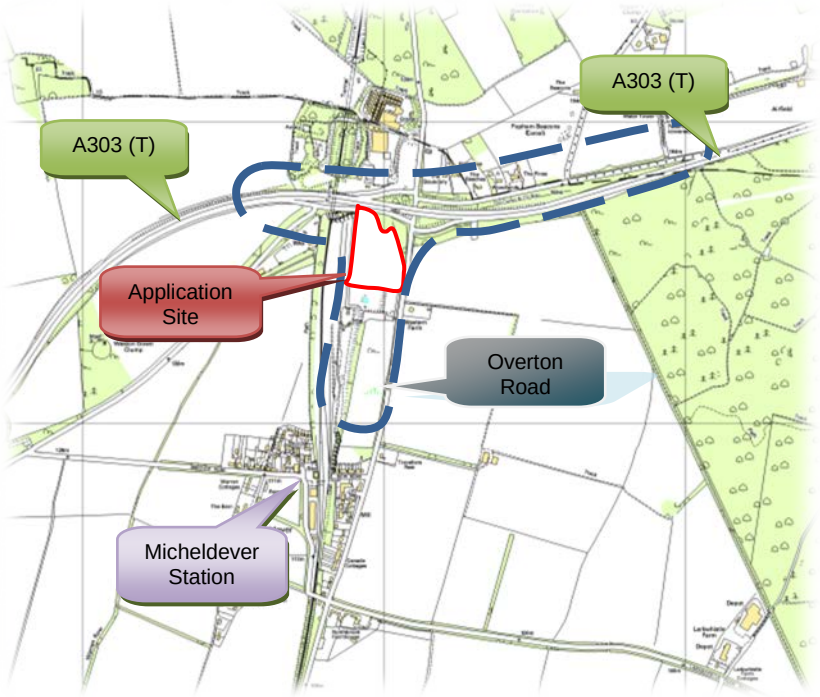
6.26 The potential effects of development traffic have been considered in terms of the potential change in the current operation of the highway network and, in agreement with the local highway authority, the following study area has thus been determined for the purposes of the assessment.

- Overton Road / Proposed Site Access;
- Overton Road / A303 Westbound Carriageway Slip Road; and
- Overton Road / A303 Eastbound Carriageway Slip Roads.

6.27 The above study area reflects the fact that heavy goods vehicles associated with the proposed development would be routed **entirely** via the A303, such that there would be **no** effect of heavy goods vehicle traffic through Micheldever Station. Further information regarding the distribution and assignment of traffic is set out later in this section, under the heading 'Effects of Development'.

6.28 The Figure below shows the above study area in the geographical context.

Figure 6-2
Study Area Highway Network



Ascertaining Traffic Conditions

6.29 The EIA has sought to quantify existing levels of traffic on the specified study area road network and, having established existing demand, an adjustment factor has been derived using TEMPRO local growth factors of National Traffic Model (NTM) forecasts to simulate anticipated traffic growth.

6.30 Development traffic flows have been calculated on a first-principles basis and applied to the baseline traffic scenario such that an assessment may then be made of the traffic conditions with the development in situ.

Ascertaining Changes in Highway Capacity

6.31 The assessment has considered the capacity operation of the site access and A303 junctions onto Overton Road by use of the industry-standard tool, PICADY. The EIA has considered that a junction is nearing its operational capacity when the Ratio of Flow to Capacity (RFC), described later in this section, exceeds the commonly applied threshold of 0.85.

6.32 Beyond the Micheldever Station junction of the A303 the impacts of the scheme is considered to be diluted by larger background traffic flows to such a degree that their significance is, at worst, reduced to level that can be considered to be immaterial.

Consideration of Likely Highway Safety Effects

6.33 The potential highway safety effects of the calculated development traffic flows has been undertaken with regard to the existing pattern of accidents within the agreed study area.

6.34 Based on the existing pattern of accidents, an evaluation has been undertaken to establish if the calculated development traffic flows, when considered cumulatively, would lead to an abnormal or unacceptable safety risk. Where any adverse safety impacts are considered likely, appropriate mitigation measures have been identified.

Consideration of Likely Environmental Effects

6.35 The need to consider environmental impacts beyond the highway capacity and safety effects has been determined by reference to the guidelines for the Environmental Assessment of Road Traffic (IEA, 1993). This suggests two broad rules to define the need to undertake full environmental impact analysis. These are:

(1) Highway links where traffic flows will increase by more than 30% (or where the number of HGVs will increase by more than 30%); or

(2) Sensitive areas where traffic flows will increase by 10% or more.

6.36 In the event that the EIA concludes the resultant traffic increases exceed either of the above criteria, the significance of and exposure to the environmental impacts of traffic is considered. This would be undertaken in compliance with IEA guidance, as outlined below.

Table 6-1
Sensitive Receptors (IEA Guidance)

Impacts from changes in traffic levels	Affected parties
Night -time noise	People at home
Vibration	People in work places
Driver severance & delay	Sensitive groups including children, elderly and disabled
Pedestrian severance &delay	Sensitive locations, e.g. hospitals, churches, schools, historic buildings
Accidents & safety	People walking
Hazardous & dangerous loads	People cycling
Dust & dirt	Open spaces, recreational sites, shopping areas Sites of ecological / nature conservation value Sites of tourist / visitor attraction

DEVELOPMENT PROPOSALS

Application Details

6.37 The proposed development comprises a waste management facility incorporating Advanced Conversion Technology and Anaerobic Digestion technologies on former rail sidings adjacent to Overton Road, north of the village of Michdeldever Station.

6.38 The main features of the proposed development that are pertinent to transport and highways are summarised below:

- The proposed development would generate energy from 100,000 tonnes of residual municipal and commercial/industrial waste each year. The development would also generate energy from 54,000 tonnes of food and green waste, each year. The facility would therefore process a combined total of 154,000 tonnes of waste per annum.

- The facility would be operational 24 hours 7 days a week. However, deliveries would be restricted to 7am to 6pm Monday to Fridays, and 7am to 1pm on Saturdays. No deliveries would occur on Sundays or Bank Holidays.

- By virtue of the site's proximity to existing infrastructure, the proposed development would be afforded an opportunity to receive or export material via the rail network. These opportunities are discussed further under the sub-section entitled 'Baseline Conditions'.

- A new site access would be constructed onto Overton Road in order to facilitate safe and efficient ingress and egress from the application site. These improvements are discussed in greater detail under the heading 'Incorporated Highway Improvements'.

- Where material would be transported by road, heavy goods vehicles of varying sizes and capacities would travel via Overton Road and onto the designated '*Minerals and Waste Lorry Routes*', which includes the A303 Trunk Road.

- No heavy goods vehicle traffic associated with the development would travel from the south via Micheldever Station and the applicant would accept a Routing Agreement to ensure that this was the case. These arrangements would also apply during the construction phase of development.

- The development would employ three administration staff to work during typical office hours (9am to 5pm) and a further 28 staff would be split into four groups of seven. Each group would be made up of four sorting staff and three plant operatives, with each group working 12-hour shifts on a rotational programme of four days on/four days

off. Hence, there would be 10 staff on-site during the day and seven during the night shift.

6.39 For the sake of clarity, the '*Minerals and Waste Lorry Routes*' are identified within Appendix 5 of the *Hampshire Minerals and Waste Development Framework* and a copy of the *Key Plan* showing the designated routes is included later in this section, under the heading 'Baseline Conditions'.

Incorporated Highway Improvements

6.40 The application site does not benefit from an existing means of vehicular access and consequently a new junction would be needed in order to facilitate suitable access to service the proposed development.

6.41 In response to comments arising from the consultation process, the EIA considered the feasibility of an access from the northern boundary of the site that would connect onto the slip road that provides access onto the westbound carriageway of the A303 Trunk Road. This arrangement would afford a particularly proximate arrangement to the '*Minerals and Waste Lorry Routes'* network.

6.42 An access in this location would require vehicles travelling from the east to negotiate the staggered arrangement that is created by the exit and entry slip roads from the A303 onto Overton Road. However, the stagger distance between the two slip roads is significantly less than the minimum separation distance of 50 metres required by TD42/95 of the DMRB. Indeed, the existing separation is just 25 metres and hence it was reasonably concluded that any intensification of the movement across the junction should be avoided.

6.43 On this basis, and with a view to minimising disruption to established vegetation abutting Overton Road, it was concluded that the optimal location for the creation of a new access would be at the south-eastern corner of the application site.

6.44 With this in mind, incorporated as part of the development is a proposal to construct a new priority T-junction onto Overton Road some 230 metres south of the A303 over bridge. The arrangement includes a 15 metre radius with 1:10 taper over a 25 metre section, which is designed to accommodate the swept-paths of goods vehicles turning left onto Overton Road. A smaller 6 metres radius restricts inbound movements from the south to light vehicles only.

6.45 In view of the fact that the Average Annual Daily Traffic (AADT) flow on minor road would be less than 350 vehicles and that the flow on Overton Road would be less than 13,500AADT, a ghost right-turn lane is not required. However, Overton Road would be locally widened to 7.3 metres around the access.

6.46 Visibility at the junction was informed from observations of vehicle speeds recorded by way of an Automatic Traffic Counter (ATC) located across Overton Road, in vicinity of the proposed site access. The survey data is

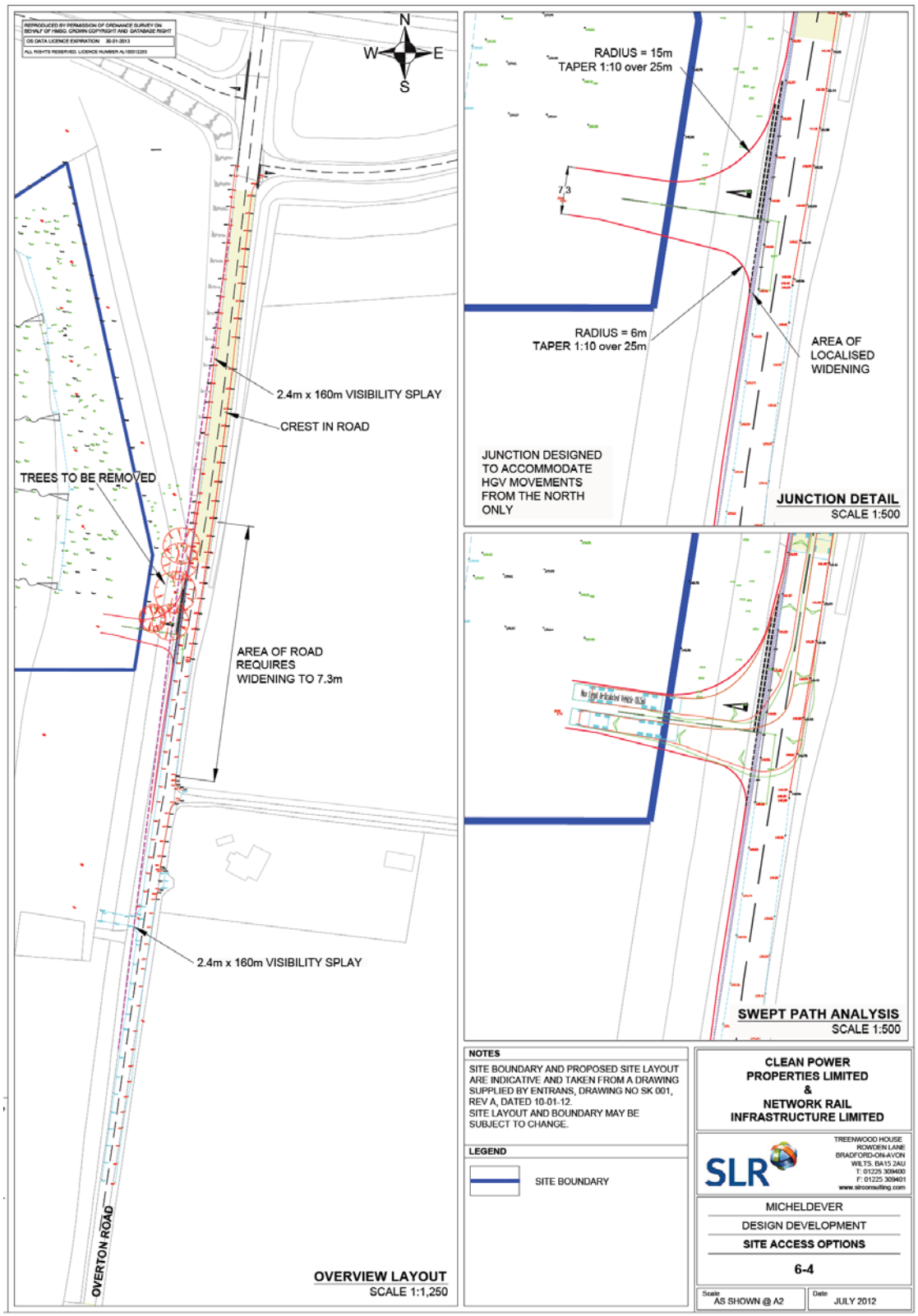
included for reference at Appendix 6/1 but, by way of summary, it shows the 85th percentile speeds to be:-

- Northbound traffic = 44.5mph
- Southbound traffic = 48.6mph

6.47 In view of the above results, the junction has been designed for a 50mph design speed and thus the visibility envelope created at the junction is 160 metres from a 2.4 metre set-back position. In order to facilitate visibility in the vertical dimension, it is proposed to reconstruct the part of Overton Road where a crest and hidden dip currently limit forward visibility along the road. In so doing, the proposals would help to alleviate an existing deficiency in the road network and thus afford a wider benefit to the community.

6.48 The proposed improvements are shown to scale on Drawing MD 6/1 and indicatively in the Figure below. Also shown are the results of a swept-path analysis that was undertaken using AutoTRACK to demonstrates that articulated vehicles could enter and leave the application site without conflicting with other traffic movements.

Figure 6-3
Proposed Site Access onto Overton Road



BASELINE CONDITIONS

Introduction

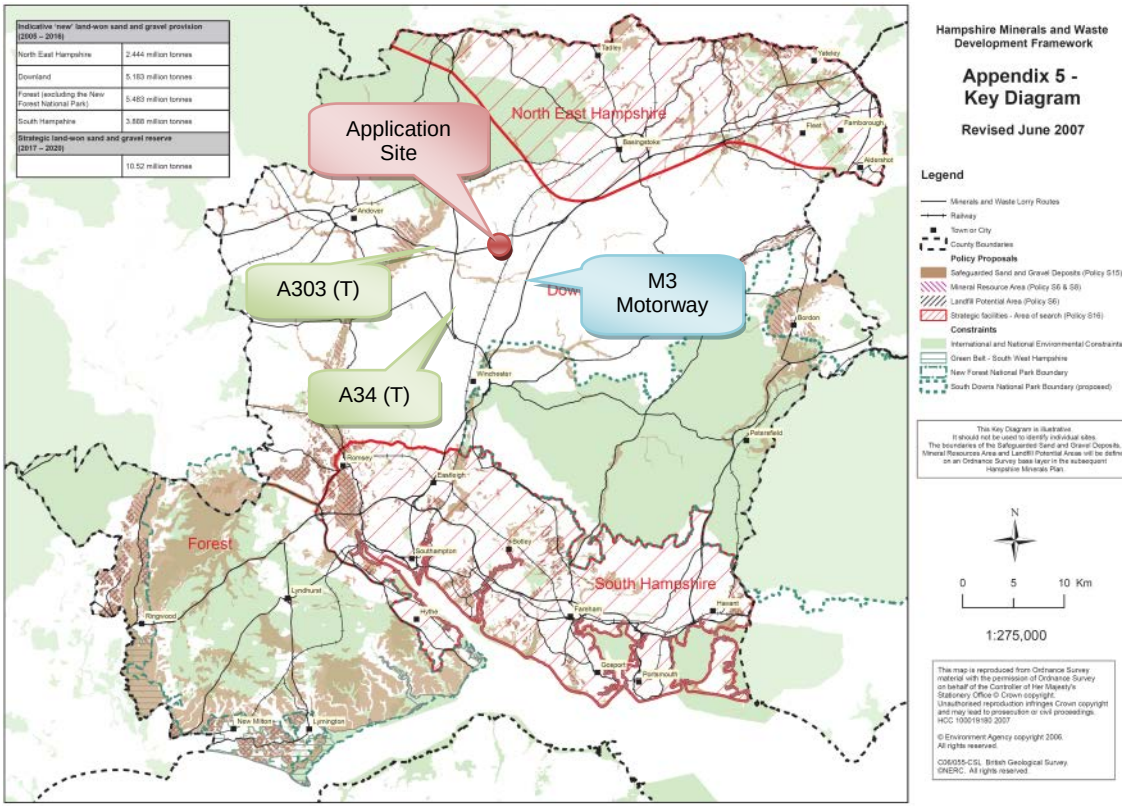
6.49 Within this sub-section is set out the baseline transport infrastructure and a critique of its suitability to accommodate traffic arising from the proposed development.

Highway Infrastructure (Geometric Appraisal)

6.50 The application site is connected to a well formed network of roads that facilitate significant traffic movements throughout the County. Indeed, the application site would connect to the A303 Trunk Road via Overton Road, whereupon onward connectivity with the M3 Motorway, A3 and A34 are possible. Moreover, the A303 and the roads listed above form part of a network of strategically important roads within the County that are designated as the preferred '*Minerals and Waste Lorry Routes*'.

6.51 The network of *Minerals and Waste Lorry Routes* is shown below.

Figure 6-4
Minerals & Waste Lorry Routes



Source: Hampshire Minerals and Waste Development Framework – Appendix 5

6.52 In view of the above, the location of the proposed development affords proximate access to a network of roads that, by virtue of their inclusion within the *Minerals and Waste Lorry Routes* network, are considered by the

Minerals & Waste Planning Authority to be amongst the most suitable roads in the County to accommodate significant heavy goods vehicle traffic.

6.53 Indeed, Policy DC6 of the Hampshire Minerals & Waste Core Strategy (2007) states that "*major processing and recovery and treatment facilities will be permitted provided they have a suitable access to and/or route to the minerals and waste lorry route*".

6.54 Hence, as noted above, in agreement with the local highway authority, the study area considered by the EIA incorporates the following junctions and interconnecting links which are critiqued below.

- Overton Road / Proposed Site Access;
- Overton Road / A303 Westbound Carriageway Slip Road; and
- Overton Road / A303 Eastbound Carriageway Slip Roads.

Overton Road

6.55 Overton Road is a single lane County Road that runs broadly on a north-south alignment in the vicinity of the application site. The road is unlit and a build-up of detritus at the side of the carriageway masks the concrete kerb stones. Beyond the kerb edge is soft highway verge covered by established vegetation.

6.56 A short distance north of Western Farm, the carriageway is typically in the order of 7.3 metres in width, which is the standard road width for two-way traffic and is sufficient to enable to goods vehicles to pass with relative ease. However, in vicinity of Western Farm, the road narrows to around 5.8 metres width which is the normal width for minor rural roads. Hence, whilst still being sufficient to allow two goods vehicles to pass, it considered is sub-optimal where there would be a regular two-way flow of goods vehicles.

6.57 In this case, it would be desirable for the carriageway width to be increased to 7.3 metres. This improvement has, however, been incorporated within the design of the proposed site access. Indeed, the extent over which the carriageway is 7.3 metres wide would be extended by almost 100 metres to the south, beyond the proposed site access. Hence, the carriageway of Overton Road would be 7.3 metres wide for the entire length over which development-related goods vehicles would travel.

6.58 It is also pertinent to note the topography of the carriageway. It currently rises towards the A303 from Western Farm at a typical gradient of 1 in 40 until a point some 140 metres from the farm access, where a crest and hidden dip are created by a fall in the carriageway. This serves to limit the forward visibility along the carriageway.

6.59 The photograph below shows the view looking north along Overton Road, towards the crest in the carriageway.

Photograph 6-1
View Looking North along Overton Road from Western Farm

6.60 The negative effect of the crest and hidden dip would also limit visibility from the proposed site access. However, the incorporated highway improvements allow for the reconstruction of this section of the road to remediate this current deficiency and to achieve the requisite sightlines. In so doing, the incorporated access proposals thus provide a wider community safety benefit.

6.61 Consequently, subject to the incorporated improvements mentioned above, the geometric properties of Overton Road are considered to be suitable for the purpose of accommodate goods vehicle traffic associated with the proposed development.

A303 Trunk Road / Overton Road

6.62 Approximately 250 metres north of Western Farm is a grade-separated interchange that provides connectivity between Overton Road and the A303 Trunk Road. The arrangement comprises two right/left staggered junctions that connect the slip roads of the A303 with Overton Road.

6.63 The slip roads serving the A303 westbound carriageway connect with Overton Road on the southern side of the A303 carriageway. The off-slip approach is provided as two lanes of around 3.25 metres that extend back to the diverge (some 200 metres). At this location, the on-slip is a two-way road and the approach to the junction is as a single lane.

6.64 The separation distance between the side roads (i.e. the slip roads) is substandard at 25 metres but it is noted that development traffic would not be affected by this deficiency, since traffic would not travel across the junction.

6.65 Visibility to the north accords with current design requirements for the speed limit of the road (215 metres) whilst visibility to the south is limited by the cresting of Overton Road, to around 100 metres. However, it is noted that the primary effect of the development at this junction would comprise a small increase in the use of the junction by heavy goods vehicles, which afford significantly greater visibility to drivers due to the raised driving position, and it is therefore considered that the effective sightline would more closely reflect the observed vehicles speeds for northbound traffic along Overton Road (44.5mph).

6.66 The junction arrangement between the A303 westbound slips and Overton Road is pictured below for context.

Photograph 6-2
View Looking along A303 Westbound Slip Exit towards Overton Road

6.67 The eastbound carriageway slips are serviced by a similar right/left stagger located on the northern side of the A303 carriageway. At this location, however, the separation between the two side roads is less than 20 metres and is therefore significantly less than the DMRB requirement of 50 metres. However, as with the westbound junction, development traffic would not contribute to the significance of the deficiency since there would be no traffic travelling between the two side roads.

6.68 Visibility from the minor road approaches appears compliant with the requirements of DMRB for the speed limit of the road, at 215 metres.

6.69 The junction arrangement between the A303 eastbound slips and Overton Road is pictured below for context.

Photograph 6-3
View Looking North along Overton Road towards A303 Eastbound Slips

6.70 In view of the above, it is considered that the development proposals would not be affected by, or make worse, the existing design limitations of the A303 slip road junctions into Overton Road. Hence, the junctions are considered to be adequate for the purpose of accommodating development traffic.

Highway Infrastructure (Traffic Demand)

6.71 Traffic flows on the study area highway network were recorded independently and comprised observations at the following:-

- An Automatic Traffic Count (ATC) was positioned across the carriageway of Overton Road, adjacent to the application site, to record the speeds, volume and classifications of traffic travelling on the road for the 7-day period commencing Thursday 24th May 2012; and

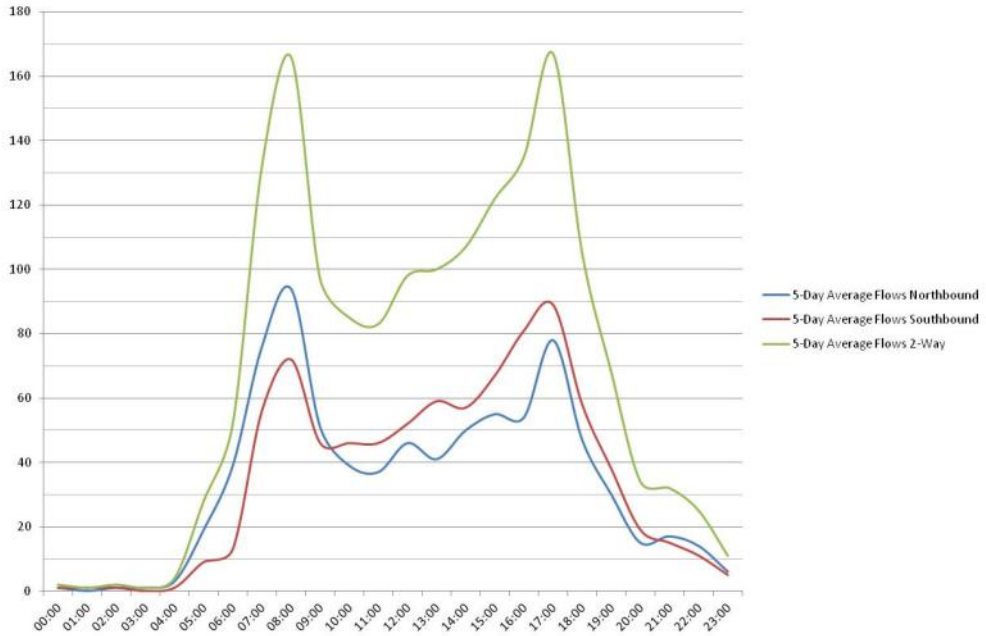
- A 12-hour (7am to 7pm) Manual Traffic County (MTC) was undertaken on Thursday 24th May 2012 using high mast video technology. The survey recorded the volume and classification of vehicles turning at the A303 junctions onto Overton Road.

6.72 It is noteworthy that the above surveys were undertaken during a neutral period that was void of any Bank or School Summer Holidays, in line with best practice guidance given by the Department for Transport.

6.73 The traffic survey results are contained in Appendix 6-2 for reference, with the resultant weekday peak hour traffic movements shown in the diagrams contained in Appendix 6-3.

6.74 Review of the ATC data, shown graphically below, indicates that the peak weekday morning and evening periods reflect the traditionally assumed peak hours of 08:00 to 09:00 and 17:00 to 18:00 hours, respectively. By way of background, both peak hours represent a 25% increase in traffic movements over the preceding hour and at least +60% in the subsequent hour. Hence, there is a defined surge in traffic demand during these periods.

Graph 6-1
Observed Weekday Traffic Demand Profile



6.75 In order to project future traffic volumes, the existing volumes are traditionally "grown", or *factored* up, to replicate ambient "background" traffic growth up to a specified future year scenario. In the case of this assessment, two assessment periods have been chosen on the basis that they represent the anticipated year of opening (2013) and 5 years after the submission of the planning application (2017).

6.76 On this basis, traffic growth factors have been applied to the surveyed traffic flows using uplift factors derived from NTM AF09 data, having been adjusted using TEMPRO local factors for all roads in the Winchester sub region.

6.77 The resultant growth factors are shown in the table below, with the ensuing network traffic flows shown on the diagrams contained in Appendix 6-4 and are also summarised in the table below.

Table 6-2
Tempro Traffic Growth

	Anticipated Opening Year (2012 to 2013)	Horizon Year (2012 to 2017)
AM Peak	1.0057	1.0523
PM Peak	1.0057	1.0525

6.78 The above growth factors have been applied to the observed traffic movements for the study area highway network, and the resultant 'baseline' traffic flows are shown on the diagrams in Appendix 6-5.

Highway Infrastructure (Capacity)

6.79 In order that the impacts of the proposed development may be fully assessed, the operation of the two A303 junctions onto Overton Road has been assessed using the industry-standard analysis software, PICADY.

6.80 The software uses accepted empirical formulae derived from known relationships between junction geometry and traffic demand to determine the operating capacity of a junction. The program provides numerous measurements within its output but those that are most indicative of the overall level of operation is the ratio of flow to capacity (RFC) and the queue length (Q).

6.81 The RFC is provided as an indicator of a junction's performance against capacity shown on a numerical scale where '1' represents capacity. Therefore, where an RFC of less than '1' is returned, the junction is calculated to be within capacity. Conversely, where an RFC of greater than '1' is calculated, junction capacity is calculated to be breached.

6.82 The detailed results of the baseline capacity analyses is provided in Appendix 6-6, whereas the most pertinent outputs are summarised within the Tables below, for convenience.

Table 6-3
AM Peak Baseline Operation – A303 Westbound Slips / Overton Road

Movement	2013 Baseline		2017 Baseline	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.085	0.1	0.089	0.1
On Slip > Overton Road	0.273	0.4	0.285	0.4
Off-Slip > Overton Road	0.234	0.3	0.244	0.3

Table 6-4
PM Peak Baseline Operation – A303 Westbound Slips / Overton Road

Movement	2013 Baseline		2017 Baseline	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.106	0.1	0.094	0.1
On Slip > Overton Road	0.129	0.1	0.137	0.2
Off-Slip > Overton Road	0.372	0.6	0.389	0.6

Table 6-5
AM Peak Baseline Operation – A303 Eastbound Slips / Overton Road

Movement	2013 Baseline		2017 Baseline	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.324	0.5	0.339	0.6
On Slip > Overton Road	0.014	0.0	0.014	0.0
Off-Slip > Overton Road	0.066	0.1	0.067	0.1

Table 6-6
PM Peak Baseline Operation – A303 Eastbound Slips / Overton Road

Movement	2013 Baseline		2017 Baseline	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.180	0.20	0.189	0.3
On Slip > Overton Road	0.036	0.0	0.036	0.0
Off-Slip > Overton Road	0.040	0.0	0.040	0.0

6.83 Review of the above outputs indicates that the existing junctions are expected to operate well below their theoretical capacity limits in both peak periods and under both assessment periods. Indeed, the worst-case RFC is shown to be 0.389 which is suggestive of the junction operating at just 60% of its available capacity. This is confirmed by the anticipated queue lengths, which are indicated to be less than one vehicle.

6.84 On the basis of the above, it is concluded that the existing highway network would operate well within the available capacity with anticipated ambient traffic growth to 2020.

Highway Infrastructure (Safety Risks)

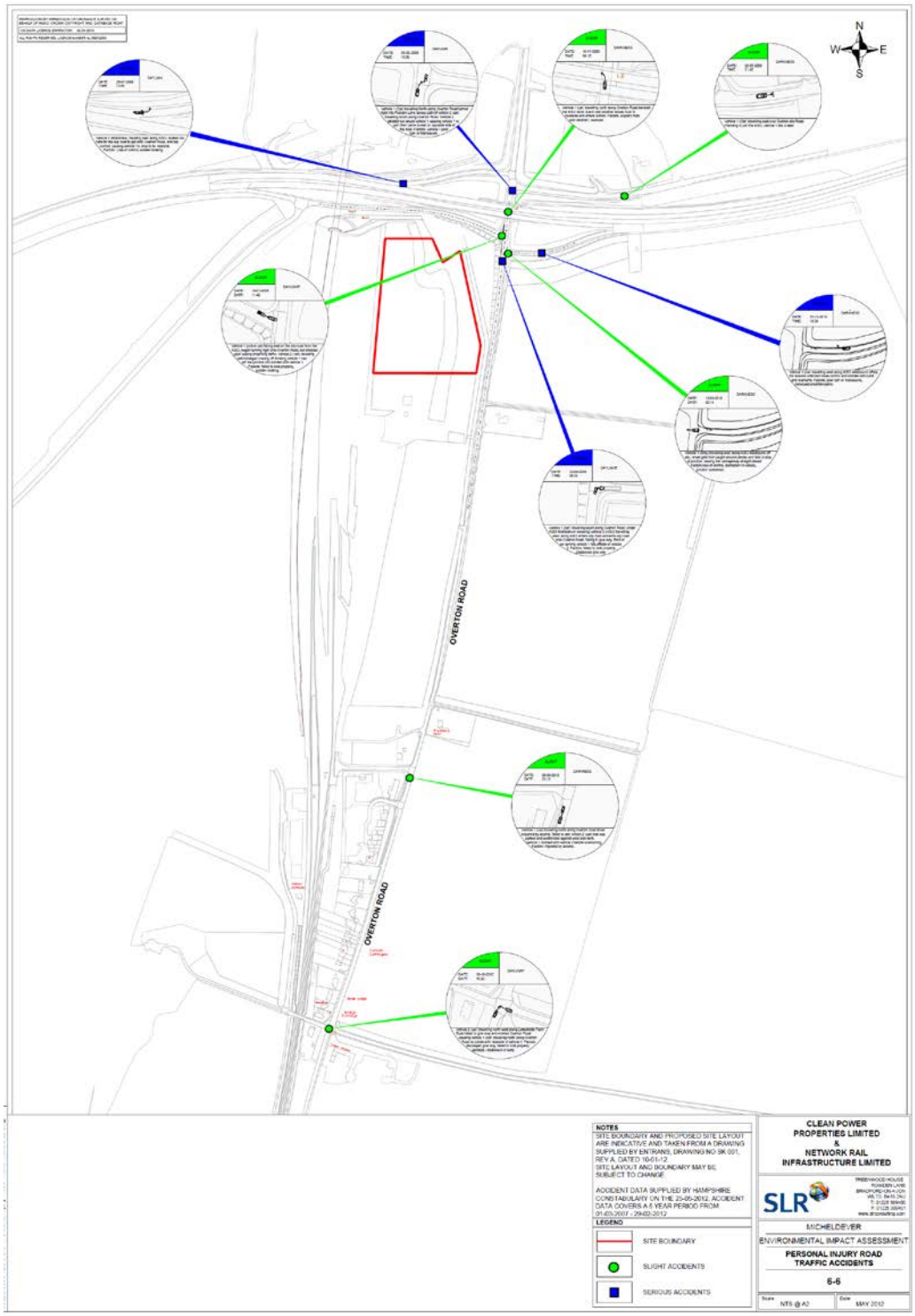
6.85 Personal Injury Accident (PIA) data has been obtained from Hampshire Constabulary for the most recent five-year period available at the time of the request: this being 1st March 2007 to 29th February 2012.

6.86 The data indicates that a total of 10 accidents occurred for the specified period, and these are summarised below. The subsequent Figure (6-5) also shows the location and severity of the accidents.

- Four accidents were classified as resulting in a serious personal injury and comprise the following:-
    - One of the incidents involved a motorcycle travelling too fast whilst making a late turn from the A303 onto the eastbound off-slip.
    - Another occurred when a car lost control for unknown reasons on the westbound off-slip, away from the junction with Overton Road.
    - One accident occurred when a vehicle turning right from Overton Road onto Popham Lane (A303 eastbound on-slip) failed to give-way to oncoming traffic.
- The remaining accidents were classified as resulting in 'slight' injury and comprise:-
    - A car travelling along Popham Lane (A303 eastbound on-slip) collided with a wild animal in night time conditions. No other vehicle was involved;
    - One car lost control beneath the A303 dual carriageway on Overton Road due to wet weather. No other vehicles were involved;
    - A rear end collision occurred when a vehicle waiting to turn right from the A303 westbound on-slip onto Overton Road was hit from the rear;
    - A goods vehicle travelling down the A303 westbound off-slip lost control of his vehicle when his foot was caught between the pedals, causing the vehicle to leave the carriageway. No other vehicles were involved;
    - One accident occurred on Overton Road, in vicinity of the junction with New Road, when the driver failed to see a parked car ahead and collided with it. The driver was impaired by alcohol; and

- An accident involving two vehicles occurred at the Overton Road / Larkwhistle Farm Road junction (outside of the study area) when one of the vehicles failed to give-way at the junction.

Figure 6-5
Recorded Personal Injury Accidents



6.87 In view of the above, it is considered that the over-whelming cause of accidents was attributable to driver behaviour, with excessive speed, awareness or drunk driving noted as contributory factors. Of the remaining incidents, their frequency and locations are not suggestive of an existing deficiency in the highway network that is manifested by an adverse highway safety risk.

6.88 Moreover, responding to the point raised by the consultation response regarding the safety of Overton Road, the EIA notes that, away from the junction with the A303 Trunk Road, just two accidents were recorded. Of these, one involved a drunk driver and the other occurred at a junction that would remain unaffected by goods vehicles that would be travelling to the proposed development.

6.89 Allied to this, from the results of the speed survey observations, noted previously in this section, it is concluded that there is no existing adverse highway safety risk along Overton Road and certainly not one that can be attributed to excessive speed.

6.90 In view of the above, it is concluded that there is no existing adverse highway safety risk that is attributable to the geometry of the existing study area highway network. Hence, subject to the magnitude of change in traffic flows arising from the development, mitigation of highway risks would be unnecessary.

Non-Car Accessibility

6.91 The application site is located within a broadly rural setting and access to non-car infrastructure reflects this. Indeed, there are no footpaths, cycleways or bus stops within accessible distance of the application site.

6.92 Nevertheless, the opportunity to travel to the site by non-car travel modes would be limited by virtue of the number of staff that would be employed at the site and the bias towards shift patterns of working, which naturally reduces the propensity to travel by means other than car. Hence, the main opportunity for sustainable travel exists with the potential to encourage staff to car share, which would reduce the number of private motor vehicles on the road network. This would be secured by Section 106 Agreement and a Framework Travel Plan is provided later in this section.

6.93 Notwithstanding this, it should be recognised that, due to the nature of the proposed development, it would be unlikely that an alternative location could be found within a more built-up area that would afford the geographical proximity and physical connectivity to residential areas from which just a few staff may reside.

6.94 Hence, the accessibility credentials of the application site are considered entirely suitable for the scale and nature of the proposed development. Indeed, it should be noted that the accessibility credentials of the application site are comparable to similar waste treatment facilities that have recently

been permitted by the Secretary of State, including a large 300,000 tonne per annum Energy from Waste facility at Ardley, Oxfordshire.

Rail Opportunities

6.95 Notwithstanding non-car access for staff travel, it is noted that the location of the application site, adjacent to the Micheldever rail sidings infrastructure, affords the potential for the proposed development to benefit from rail access for waste deliveries or the export of recyclate.

6.96 Network Rail remain committed to increasing the amount of freight moved by rail and the proposed development has therefore been designed so as to facilitate the transportation of waste products/recyclate via the rail network at some point in the future, should suitable contracts be secured.

6.97 However it is not possible at this stage to include details of any rail loading/unloading facilities within the planning application because, in order to justify the level of investment required, it would be necessary for any future operator to secure a contract from a single source to supply either a substantial proportion of the proposed inputs or a single contract to manage the recyclate produced by the plant.

6.98 At this stage in the project's life, this level of information is simply not known and, as the emerging Hampshire Minerals and Waste Plan identifies, the principal need for new waste recovery capacity is to manage the commercial waste stream which is more likely to come from a wide number of sources within Hampshire, rather than a large single source, located on or near to a railhead.

6.99 In any case, as this section has identified above, the site enjoys excellent access on to the strategic route network and there would be no highway justification for requiring rail access, as to do so would unnecessarily restrict the ability of Hampshire to deliver the waste recovery and renewable energy generation capacity that is required to meet the needs of the County.

EFFECTS OF DEVELOPMENT

Introduction

6.100 This sub-section sets out the trip generation effects of the proposed development.

Trip Generation (Construction Phase)

6.101 Construction of the facility is anticipated to occur over a 26-30 week programme commencing in late 2012 and ending early in 2013. The main elements of construction on the site are summarised below:

- earth moving operations and ground works;
- construction of building foundations and below ground elements;
- construction of building steel structure and facades;

- installation of mechanical equipment;
- site ground-works and landscaping; and
- testing and commissioning.

6.102 From a trip generation perspective, it is likely that the most intensive period of construction would be during the earth works and construction of the foundations.

6.103 The applicant has advised that, during these times, it would be robust to assume a maximum of 5 goods vehicle trips per hour. In the context of concrete deliveries this would translate to the importation of up to 800 cubic meters per day based on each vehicle having a 16 cubic metre drum. For exports of soil, the rate would translate to around 1,000 tonnes per day based on payloads of around 20 tonnes. Hence, in the absence of a detailed construction schedule, these figures appear reasonable.

6.104 Thus, the goods vehicle trip generation associated with the construction phase of the development would be less than the operational phase, which is considered below.

6.105 The number of construction staff would also vary throughout this phase of the development and would again be expected to peak during the early phases of construction. At these peak times it would be anticipated that the development would employ up to 100 staff.

6.106 Assuming a typical car occupancy rate of 1.2 persons per vehicle, the unmitigated trip generation would be around 83 vehicles. However, the appointed contractor would be expected to provide a bus service to minimise car traffic further. Each bus could carry up to 30 staff and hence two bus services would reduce the trip generation to a level comparable to the operational phase impacts.

Trip Generation (Operational Phase)

6.107 Given the nuances of the proposed development and its operation, it has been necessary to calculate the likely trip generation of the facility based on first principles assumptions, drawing on such factors as the annual throughput of the facility and typical vehicle payloads. In this respect, the following assumptions have been made and the resultant trip generation is summarised in Table 6-7.

Assumptions of Input

1. The development throughput would be 154,000 tonnes per annum.
2. 50% of material would be by bulk trailer with a typical capacity of 24 tonnes.
3. 10% of material would be by commercial waste vehicles with typical payloads of 8 tonnes.
4. 10% of material would be in refuse collection vehicles with 4.5 tonne payloads.

5. 30% of material would be delivered to the site in skip-lorries carrying 15 tonne payloads.

Assumptions of Output

1. Recyclates would comprise 30% of the ACT throughput.
2. Vitrified slag would comprise 3% of ACT throughput.
3. Liquid Output from the AD process would comprise 31.5% of AD throughput.
4. Solid Output from the AD process would comprise 13.5% of AD throughput.
5. 2% of total throughput would comprise material requiring landfill.

Table 6-7
Trip Generation Summary

	Vehicle Type	Ave payload	%age	Tonnes per day*	Ave. Veh per day	Trips per day
MATERIAL IN	Bulk trailer	24	50%	275	11	23
	Commercial Waste	8	10%	55	7	14
	Refuse vehicle	4.5	10%	55	12	24
	Skips	15	30%	165	11	22
MATERIAL OUT	Recyclates	15	30%	107	7	14
	Disposal	15	2%	11	1	1
	Vitrified slag	20	3%	11	1	1
	AD liquid out	38	31.5%	30	1	2
	AD solid out	24	13.5%	13	1	1
	TOTAL	-	-	-	**51**	**102**

**based on 5.5 day working week*

6.108 In addition to the above would be the need for staff to travel to the facility in line with the arrangements identified under the heading 'Development Proposals'. In this respect, the daily trip generation relating to staff trips would be 17 (34 two-way movements) which would increase the total traffic generation of the development to 68 trips (136 two-way movements) per day.

Timing of Traffic Movements

6.109 Deliveries have been assumed to occur uniformly throughout the day such that the hourly trip generation of goods vehicles would be equal to one-eleventh of the daily trip generation. However, this assessment assumes an hourly trip rate that is equivalent to one-eighth of the daily rate in order to allow for the fact that some vehicles may arrive or depart the facility outside of the average situation, thereby nominally increasing the traffic generation for that given period. However, it should be noted that this would occur exclusively to that hour and would not affect the daily trip generation of the facility.

6.110 Staff trips would comprise administration staff working typical office hours (9am to 5pm) and personnel working 12-hour shifts. Whilst impossible in reality, in the absence of a confirmed work programme this assessment assumes the shift changeovers would coincide with the each of the weekday peak hours.

6.111 Based upon the above assumptions, a typical daily profile of traffic movements has been generated and is shown below. It should be noted that a summation of the totals in Table 6-8 below would give a higher daily flow than the maximum amounts predicted in Table 6-7 above.

Table 6-8
Trip Generation Demand Profile

Hr. Commencing	Goods Vehicles		Staff Vehicles		All Vehicles		
	In	Out	In	Out	In	Out	2-Way
07:00	7	7	-	-	7	7	14
08:00	7	7	10	7	17	14	31
09:00	7	7	-	-	7	7	14
10:00	7	7	-	-	7	7	14
11:00	7	7	-	-	7	7	14
12:00	7	7	-	-	7	7	14
13:00	7	7	-	-	7	7	14
14:00	7	7	-	-	7	7	14
15:00	7	7	-	-	7	7	14
16:00	7	7	-	-	7	7	14
17:00	7	7	7	10	14	17	31
TOTAL	**77**	**77**	**17**	**17**	**94**	**94**	**188**

6.112 On the basis of the above, the proposed development would generate the significant share of traffic outside of the peak periods on the highway network. Indeed, ignoring that the above calculations assume all staff car movements occur within the peak periods, which is improbable, 65% of all traffic generated by the proposed development would occur during times outside of the peak hours, when the available capacity in the highway would be at its greatest.

6.113 The above calculations also indicate the generation of 31 two-way traffic movements in each of weekday peak hours, which equates to approximately one additional traffic movement every two minutes during the course of that hour period. Such an increase would typically not be sufficient to create a discernible worsening of conditions on a free-flowing highway network, especially when over half of the movements are attributed to staff car trips which have a reduced effect.

6.114 Notwithstanding this, the effects of the development in the context of environmental impact, highway capacity and highway safety are considered in the subsequent sub-section.

Trip Distribution & Assignment

6.115 All goods vehicle traffic associated with the proposed development would enter the site from Overton Road via the A303 Trunk Road (i.e. from the north). As specified earlier, this arrangement could be secured by an appropriate Routing Agreement. However, the wider distribution of vehicles cannot yet be fully understood as availability of waste contracts would determine the origin and distribution of goods vehicle trips on the network.

6.116 In order to provide a rigorous assessment, therefore, two scenarios have been considered to assess the sensitivity of the highway network around the A303 Trunk Road junctions onto Overton Road. The two scenarios are as follows:-

- **Scenario 1:** 75% of goods vehicles arrive from the east with the balance of 25% arriving from the west, on the A303.

- **Scenario 2:** 25% of goods vehicles arrive from the east with the balance of 75% arriving from the west, on the A303.

6.117 The distribution of staff trips would similarly be determined in the future, following the completion of the recruitment process. Hence, in order to make an allowance for such trips on the network, they have been distributed in accordance to the proportions of traffic entering and leaving the study area highway network, as observed by the traffic surveys undertaken. The resultant staff vehicle distribution is as follows:-

Table 6-9
Distribution of Staff Trips

	AM Peak	PM Peak
A303 Westbound	40%	40%
A303 Eastbound	15%	10%
Overton Road North	25%	30%
Overton Road South	20%	20%

6.118 The development trip generation is shown on the drawings in Appendix 6-7, having been assigned in accordance with the above assumptions. The drawings contained in Appendix 6-8 show the 'with development' traffic scenarios that have been derived from application of the above development trip generation to the baseline traffic flow scenarios.

DEVELOPMENT IMPACTS

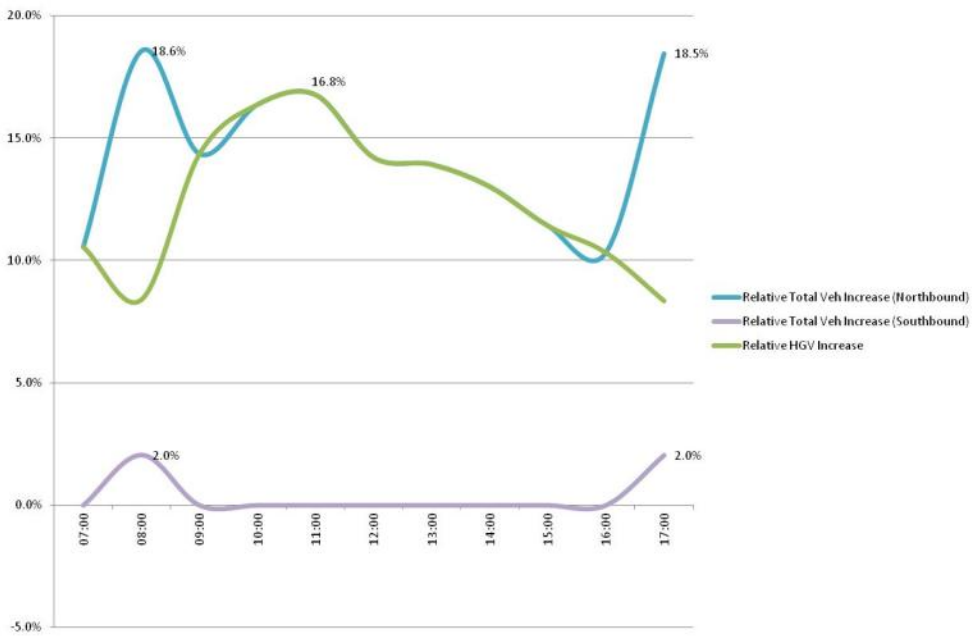
6.119 This sub-section quantifies the magnitude and severity of the traffic related environmental impacts of the proposed development, the resulting change in the capacity performance of the local highway network and the significance of any increased highway safety risk.

Environmental Impacts

6.120 In accordance with the guidelines for Environmental Assessment of Road Traffic (IEA, 1993), the daily profile of development related traffic demand has been evaluated in the context of ambient flow conditions in order to identify the period when the absolute level of impact is at its greatest and to illustrate the impact during those periods when the greatest level of change is likely to occur.

6.121 In this way, the effect of the proposed development traffic flows has been overlain onto the baseline traffic flows for 2013: given that the effect of ambient traffic growth would be diminish the relative impact of the development, analysis of the impacts at 2012 would yield the worst-case scenario. The resultant analysis is shown in the Graph below.

Graph 6-2
Relative Impact at 2013 (Opening Year)



6.122 Based on the above results, the relative impact of development travelling north towards the A303 would be greatest during the period of 08:00 to 09:00 hours, with an 18.6% change in traffic flow. The relative increase in goods vehicle traffic travelling in the same direction would peak at 11:00 to 12:00 hours, with a 16.8% increase. No effect of goods vehicle traffic would ensue south of the site, although the relative impact of staff vehicles would peak at 2.0% in the morning and evening peak hours.

6.123 Guidance on the significance of the change is also given by the Environmental Assessment of Road Traffic, which asserts that projected changes in traffic of less than 10% would create no discernible environmental impact. Where the impacts are greater than this, as noted above the guidance advocates the use of two broad criteria to define where impacts may be considered to be discernible, which are as follows:

- Highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); or
- Sensitive areas where traffic flows will increase by 10% or more.

6.124 The only sensitive area in the locality of the application site is Micheldever Station, where the impact of the development would be limited to a nominal increase in traffic by staff employed at the facility. Indeed, the Graph 6-2 above confirms that the effect of such movements would be significantly below the 10% threshold identified above.

6.125 Consequently, it is concluded that the proposed development would not result in any discernible impact in this location, and it therefore follows that any environmental impacts would be both insignificant and immaterial.

6.126 By virtue of the fact that there would be no exposure to residential areas or pedestrians, it is noted that the environmental impact of development traffic, which relate to noise nuisance, severance, pedestrian delay and intimidation, would be irrelevant.

6.127 Consequently, the environmental impact of development traffic can be concluded to be acceptable in the context of the available guidance.

Highway Capacity Impacts

6.128 Having established environmental impacts to be within acceptable thresholds, the assessment has also considered the impacts of the proposal in the context of the operation of the key junctions within the study area road network.

6.129 To this end, capacity analysis has been undertaken of the proposed site access onto Overton Road and the analyses undertaken previously under the heading of 'Highway Infrastructure (Capacity)' have been updated to reflect the 'with development' traffic flow scenarios.

Site Access / Overton Road

6.130 PICADY has been used to assess the operation of the proposed access junction, using the calculated traffic flows shown at the diagrams contained in Appendix 6-9.

6.131 The detailed output of the assessment is included in Appendix 6-10, whilst the most salient measures of performance are summarised in the tables below.

Table 6-10
AM Peak with Development Operation – Site Access

Movement	2013 Baseline		2017 Baseline	
	RFC	Q	RFC	Q
Overton Road > Site	0.028	0.0	0.028	0.0
Site > Overton Road	0.031	0.0	0.031	0.0

Table 6-11
PM Peak with Development Operation – Site Access

Movement	2013 Baseline		2017 Baseline	
	RFC	Q	RFC	Q
Overton Road > Site	0.24	0.0	0.25	0.0
Site > Overton Road	0.37	0.0	0.37	0.0

6.132 The above results indicate that the proposed access would operate well within the theoretical capacity limitations. Indeed, the worst-case RFC is

calculated to be 0.37 which suggests that the junction would operate with around 60% reserve capacity. Moreover, the results confirm that there would be no material queuing of vehicles on Overton Road that would cause significant delay to ambient traffic.

A303 Trunk Road / Overton Road

6.133 The baseline capacity models of the A303 junctions onto Overton Road have also been updated with the calculated 'with development' traffic demand in the 2013 and 2017 assessment scenarios. The detailed results are contained in Appendix 6-11 whilst the most salient outputs are summarised below.

Table 6-12
AM Peak '2013 with Development' Operation – A303 Westbound Slips / Overton Road

Movement	2013 Scenario 1		2013 Scenario 2	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.086	0.1	0.085	0.1
On Slip > Overton Road	0.274	0.4	0.275	0.4
Off-Slip > Overton Road	0.237	0.3	0.236	0.3

Table 6-13
AM Peak '2017 with Development –Operation – A303 Westbound Slips / Overton Road

Movement	2017 Scenario 1		2017 Scenario 2	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.090	0.1	0.090	0.1
On Slip > Overton Road	0.287	0.4	0.287	0.4
Off-Slip > Overton Road	0.247	0.3	0.246	0.3

Table 6-14
PM Peak '2013 with Development' Operation – A303 Eastbound Slips / Overton Road

Movement	2013 Scenario 1		2013 Scenario 2	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.092	0.1	0.091	0.1
On Slip > Overton Road	0.132	0.2	0.132	0.2
Off-Slip > Overton Road	0.383	0.6	0.374	0.6

Table 6-15
PM Peak '2017 with Development' Operation – A303 Eastbound Slips / Overton Road

Movement	2017 Scenario 1		2017 Scenario 2	
	RFC	Q	RFC	Q
Overton Road N> On Slip	0.096	0.1	0.096	0.1
On Slip > Overton Road	0.138	0.2	0.138	0.2
Off-Slip > Overton Road	0.393	0.6	0.392	0.2

6.134 The above results indicate that the junctions would operate well within the theoretical capacity limitations. Indeed, the worst-case RFC is calculated to be 0.392 which suggests that the junction would operate with around 60% reserve capacity. Moreover, the results confirm that there would be no material queuing of vehicles on Overton Road that would cause significant delay to ambient traffic.

Highway Safety Impacts

6.135 In view of the magnitude in the change in traffic and the zero exposure to vulnerable road users, allied with the fact that the highway network would continue to operate well within its available capacity, it is concluded that there

would be no material or significant worsening of highway safety risks as a result of the proposed development.

6.136 Consequently, the proposed development is considered to be acceptable in the context of highway safety.

MITIGATION MEASURES

Construction Travel Plan

6.137 In order to mitigate the impact of construction traffic during network peak hours, a Construction Phase Travel Plan would be developed and implemented by the successful contractor. Elements of this specific plan would include:

- co-ordination of car share for construction personnel;
- implementation of contractor operated mini bus service as necessary;
- restriction of unnecessary vehicle movements during the day; and
- co-ordination of deliveries to arrive outside of peak times where appropriate.

6.138 With the implementation of these measures, it can be expected that the volume of light vehicle trip generation can be brought down below the levels assessed for the operational phase of the development.

Routing Agreement

6.139 As previously mentioned within this Chapter, the applicant would accept a Routing Agreement to ensure that all goods vehicles arrive and depart from the site to the north, along Overton Road.

Staff Travel Plan

6.140 In order to further mitigate the already negligible traffic impact of the proposed development during the operational phase, a travel plan would be prepared which would be aimed at encouraging staff to travel to and from the development using sustainable non-car travel modes.

6.141 As part of the Plan, a Travel Plan Coordinator (TPC) would be appointed who would have the responsibility for inducting new staff to the travel plan and highlighting to them the health and environmental benefits associated with travelling to work by modes other than car.

6.142 The TPC would provide copies of the travel plan to all members of staff and updated versions would be provided if and when required. The TPC would also be responsible for maintaining a database of all staff addresses, contact details and work patterns. The TPC would regularly review this database to identify where opportunities exist for staff to share their journey to work through car sharing. This would be supplemented by details of web based car share clubs such as www.2carshare.com and www.nationalcarshare.co.uk, which would be provided within the Plan. This

would increase the potential for staff to car share with employees of any business located nearby.

6.143 Car sharers would also be guaranteed a lift home in case of emergency or if the driver of the car share vehicle is required to leave work outside of the agreed hours. This would allay fears amongst potential car sharers of being stranded.

6.144 The proposed development includes 16 parking spaces and this figure reflects operational car parking demand for staff and visitors. It also includes an allowance for shift changeovers in order to avoid overspill parking on the internal circulation roads or loading/unloading areas while the shifts are changing. Of the 16 car parking spaces, electric vehicle charging points (EVCP's) would be provided at a 20% active/20% passive ratio to encourage the uptake of electric vehicles.

RESIDUAL IMPACTS

6.145 Taking into account all the factors assessed in this section, including the mitigation measures outlined above, a final analysis of the impacts resulting from the proposed development has been undertaken and is summarised in the table below.

Table 6-15
Summary of Impacts

Potential Impact	Impact Duration	Significance	Mitigation	Residual Impact
Construction Impacts	Temporary	Minor Adverse	Routing Agreement	Minor Adverse
Highway and Junction Capacity	Permanent	Minor Adverse	Staff Travel Plan	Minor Adverse
Driver Delay	Permanent	Minor Adverse	Staff Travel Plan	Minor Adverse
Road Safety	Permanent	Minor Adverse	Localised Road Widening	Minor Positive
Pedestrian / Cyclist Amenity	Permanent	No Impact	N/A	No Impact
Detritus on Highway Network	Permanent	Moderate Adverse	Good management practice	Minor Adverse
Public Rights of Way	Permanent	No Impact	N/A	No Impact

6.146 In view of the above, it is concluded that the proposed development would result in a minor adverse effect from a transportation perspective. However, the significance of the impact would be inconsequentially small given that all

changes could be accommodated without material detriment to the environment.

SUMMARY & CONCLUSIONS

Report Summary

6.147 This Chapter of the ES has been prepared to assess the environmental impacts associated with the traffic effects of a proposed ACT development at Overton Road, Micheldever. The findings of the report are summarised below:-

- The historic use of the application site was as an oil terminal associated with a rail freight yard and rail head, although it has lain derelict for a number of years.

- The proposed development comprises a waste management facility that employs Advanced Conversion Technology (ACT) and an Anaerobic Digestion (AD) plant that will process a total of 154,000 tonnes of waste per annum.

- Whilst every endeavour will be made to source waste by rail, the EIA has assumed that all waste arrives by road, via the A303 Trunk Road. Hence, the development would not result in an intensification of goods vehicle movements through Micheldever Station. A Routing Agreement would be accepted for both construction and operational phases of the development.

- Incorporated within the development proposals is a new priority T-junction access onto Overton Road that will comprise local widening and changes to the levels of the main carriageway, in order to address an existing deficiency in forward visibility.

- The EIA concludes that the application site is remote and does not benefit from any meaningful opportunities to travel by non-car modes. Notwithstanding this, however, similar facilities with similar accessibility credentials have recently received direction for planning permission to be granted by the Secretary of State. Hence, the opportunities to travel by non-car modes are considered acceptable for the scale and type of development proposed.

- A review of personal injury accident data has confirmed that were is no existing adverse safety recorded related to the geometry of the road network or heavy goods vehicle traffic. In view of the quantum of movements generated by the development proposal, the EIA concludes that the development would not materially or discernibly worsen the existing safety conditions.

- Traffic surveys were undertaken at key parts of the study area highway network and factored to provide an indication of future traffic levels. Development traffic was calculated on a first-principles basis and applied to the baseline traffic flows under two distribution scenarios designed to assess the sensitivity of the network.

- Capacity analysis confirmed that the existing highway network would operate with sufficient reserve capacity with the development in place under both distribution scenarios considered. Hence, the proposed development would not cause any unacceptable worsening in the operation of the highway network.

Report Conclusion

6.148 In view of the findings set out above, this Chapter of the ES concludes that the proposed development could be accommodated without any material worsening of the highway network, subject to the mitigation measures set out within the Chapter.