



Development of Waste Treatment Facility, comprising Reception and Recycling Hall; Mechanical Biological Treatment (MBT) Facility; Advanced Conversion Technology (ACT) Facility; Power Generation and Export Facility; Education and Office Accommodation; Landscaping; and, Access.

Sinfin Lane, Derby

Resource Recovery Solutions (Derbyshire) Ltd

Environmental Statement

Chapter 6:

Traffic and Transport

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6 Traffic and Transport

6.1 Introduction

- 6.1.1 This chapter assesses the potential traffic and transport impacts associated with the proposed Waste Treatment Facility, Reception and Recycling Hall, Mechanical Biological Treatment (MBT) Facility, Advanced Conversion Technology (ACT) Facility, Power Generation and export facility, Education and Office Accommodation - collectively known as new Waste Treatment Facility (WTF).
- 6.1.2 Full details of the development proposed are presented in Chapter 4 which sets the basis against which this assessment has been conducted.
- 6.1.3 This chapter describes the methods used to assess the potential effects; the baseline conditions currently in the study area; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed. The chapter has been prepared by RPS Transport in liaison with Derby City Council (DCC), following a scoping exercise. A Transport Assessment has also been undertaken in liaison with DCC and is attached at Appendix 6.1.
- 6.1.4 The proposed site is located on the eastern side of Sinfin Lane, to the south of the railway line. The A5111 Ring Road is approximately 500m to the north of the site. Access will be taken via a newly constructed ghost island right turn priority junction from the eastern side of Sinfin Lane.
- 6.1.5 The proposed site is located on the eastern side of Sinfin Lane, to the south of the railway line. The A5111 Ring Road is approximately 500m to the north of the site. Access will be taken via a newly constructed ghost island right turn priority junction from the eastern side of Sinfin Lane. This access has been designed with regard to current design standards and has been accepted in principle by highways officers at Derby City Council.
- 6.1.6 Access to the site from the east through the retail park via Peak Drive was also considered. However, Peak Drive is an access road to a car park and was not designed to cater for onward travel. Indeed, there are a number of vehicles circulating and looking for parking spaces along Peak Drive, as well as a large number of pedestrians who walk in and across the road without much care and attention. The use of Peak Drive as an access route was therefore considered less attractive to that proposed from Sinfin Lane.

6.2 Legislation and Policy Context

National Policy & Legislation

Planning Policy Guidance 13 (PPG13): Transport, March 2001

6.2.1 PPG13 sets out the overall strategy for a sustainable transport system with the objectives of integrating planning and transport at the national, regional, strategic and local level to promote more sustainable transport choices for both people and for moving freight, promoting accessibility and reducing the need to travel, especially by car.

6.2.2 With specific reference to freight, PPG13 acknowledges that road transport is likely to remain the main mode for many freight movements and recognises that land use planning can help to promote sustainable distribution, including where feasible, the movement of freight by rail. In this context it advises that, in preparing their development plans and in determining planning applications, local authorities should:

- identify and, where appropriate, protect sites and routes, both existing and potential, which could be critical in developing infrastructure for the movement of freight (such as major freight interchanges including facilities allowing road to rail transfer or for water transport) and ensure that any such disused transport sites and routes are not unnecessarily severed by new developments or transport infrastructure;
- where possible, locate developments generating substantial freight movements such as distribution and warehousing, particularly of bulk goods, away from congested central areas and residential areas, and ensure adequate access to trunk roads;
- promote opportunities for freight generating development to be served by rail or waterways by influencing the location of development and by identifying and where appropriate protecting realistic opportunities for rail or waterway connections to existing manufacturing, distribution and warehousing sites adjacent or close to the rail network, waterways or coastal/estuarial ports.

6.2.3 Where developments are likely to have significant transport implications, PPG13 requires Transport Assessments to be prepared and submitted alongside the relevant applications for development.

Planning Policy Statement 10 (PPS10): Planning for Sustainable Waste Management PPS10, July 2005, and Companion Guide, June 2006

6.2.4 PPS 10 notes that one of the criteria to be considered by waste planning authorities in deciding which sites and areas to identify for waste management facilities is the capacity of existing and potential transport infrastructure to support the sustainable movement of waste,

and products arising from resource recovery, seeking when practicable and beneficial to use modes other than road transport.

- 6.2.5 Consideration has been given to waste arriving to the site by rail. However, deliveries by rail requires suitable rail heads at waste origin locations. Given the majority of waste from the County is generated from within Derby City, the use of rail is unlikely to reduce total road mileage by any significant amount. Furthermore, the importing of waste by rail requires significant loads per train to be economically viable. This would require large amounts of waste to be 'stored' at rail heads awaiting transfer to the NWTF.
- 6.2.6 In addition, there is a large level difference between the site and the existing rail lines adjoining the site. Such level differences would require a significant mechanism to raise the waste up to the proposed NWTF and this in itself could raise environmental issues. Such a mechanism would also require a large land take and may not be accommodated on site.
- 6.2.7 Annex E sets out the locational criteria to be used in testing the suitability of sites and areas which include consideration of the suitability of the road network and the extent to which access would require reliance on local roads.

Regional Policy

The East Midlands Regional Plan (RSS8)

- 6.2.8 The East Midlands Regional Plan (EMRP) provides a framework for growth and development within the East Midlands region until 2026. The plan was published on the 12th March 2009 and is also known as the Regional Spatial Strategy (RSS). The Plan guides the direction of development within the region and the function that different localities will assume. Its aim is to balance economic and housing growth whilst improving accessibility to jobs and services and enhancing and protecting the urban and rural environment.
- 6.2.9 Transport infrastructure is a significant influence to the growth and development of a region and as such a Regional Transport Strategy (RTS) has been established within the EMRP. The RTS provides the context within which other relevant regional transport strategies, including those of the Highways Agency (HA), should be developed. It also provides the context within which Local Transport Authorities should produce their Local Transport Plans.
- 6.2.10 Policy 44 of the EMRP provides objectives for the development of transport and transport infrastructure within the three cities sub area (including Derby) and states that the EMRP will aim:
- To reduce congestion and improve safety along the M1 corridor and the highway network

generally.

6.2.11 Policy 55 – Implementation of the Regional Freight Strategy, provides key priorities to support and improve freight transportation across the region. Key priorities include:

- Reducing the environmental impact of all freight... [and] ensuring integration with land-use planning, environmental and economic strategies.

Local Policy

Derbyshire County Council Second Local Transport Plan (2006-2011)

6.2.12 The second Local Transport Plan (LTP2) for Derbyshire provides a strategic framework for the delivery of local transport across the County for a five year period from 2006-2011. Derbyshire's second Local Transport Plan forms a key component, and mirrors the objectives of, Derbyshire's Local Transport Strategy which provides a longer term transport vision for Derbyshire for 15 years until 2021. The overarching vision of Derbyshire's LTP2 is:

- A transport system that is both fair and efficient. Healthier lifestyles, safer communities and better access to jobs and services will be the result. To get there, we will improve the choice and accessibility of transport while balancing the economic, social and environmental needs of everyone.

6.2.13 Objective 3 of Derbyshire's LTP2 contained within Better Air Quality and Environment, states that in order to enhance the local environment and improve air quality Derbyshire County Council will aim to:

- Reduce the adverse impacts of road freight.

6.2.14 As such Derbyshire's Freight Quality Partnership produce and maintain a freight map for Derbyshire (Derbyshire and Derby Advisory Lorry Route Map) and facilitate local accesses including improved signing and local routing agreements. To accord with Objective 3, all HGV movements which are not travelling as part of their collection round will therefore accord with the Lorry Route Map. Furthermore, Objective 3 of the LTP2 aims to integrate transport and land-use planning. As such Paragraph 7.4.10 states that Derbyshire County Council will:

- Encourage development in locations served easily by rail and/or major roads

6.2.15 Access and egress from the site is taken from the A52 which routes directly to the M1 and the principal road network. It is considered the proposals are in accordance with Objective 3 of the LTP2.

The second Derby Joint Local Transport Plan 2006-2011

6.2.16 The second Derby Joint Local Transport Plan (LTP2) provides a strategic framework for the delivery of local transport across Derby City and the surrounding rural area for a five year

period from 2006-2011. The overarching vision of Derby's Joint LTP2 is:

- To develop and maintain an integrated transport network which promotes safety and sustainability and contributes to creating a better quality of life for people living, working or visiting the LTP area.

6.2.17 Paragraph 6.5.6 of Derby's LTP2 – Strategic Traffic Management and Demand Restraint, states that Derby City Council will aim to:

- Reduce the environmental impacts of freight movements.

6.2.18 The location of the site has been chosen with regard to the waste sources and is located in such a location to minimise total vehicle-kilometres. The proposals therefore accord with the LTP2 policy.

Derby and Derbyshire Waste Local Plan

6.2.19 The Derby and Derbyshire Waste Local Plan, adopted in 2005, provides policy guidance to help determine planning applications for waste development in the administrative areas of Derby and Derbyshire. The overarching aim of the Waste Management Plan is:

- To establish a planning framework which enables the provision of adequate facilities and an integrated system for the management of waste whilst: respecting the principles of sustainable development; and protecting people and communities, the countryside, natural resources and the built heritage from the adverse effects of waste management.

6.2.20 The site is consistent with paragraph 2.25 of the Waste Local Plan which states:

- Waste should generally be managed as near as possible to its place of production in order to avoid passing the environmental costs of waste management to communities which did not produce the waste and to reduce the environmental costs of transporting waste.

6.2.21 In addition, the site is consistent with paragraph 2.72 which states that central objectives of the Waste Local Plan include:

- To permit an adequate supply of appropriate sites and facilities to cater for the needs of the plan area and its communities and for the needs of the waste collection and disposal authorities and the waste management industry.

6.2.22 Furthermore paragraph 2.72 aims to:

- To permit development which contributes to the establishment of an integrated approach to waste management... [and] to permit development which: makes good

use of existing infrastructure or of derelict, despoiled or under-used land and buildings...

Derby and Derbyshire Waste Sites Development Plan Document

6.2.23 Work on the Waste Site Development Plan Document ceased in December 2008 and Derbyshire County Council are currently preparing a Waste Core Strategy which will include site allocations. However, until publication of the waste core strategy, the Development Plan Document remains live for information only.

City of Derby Local Plan Review 2006

6.2.24 The City of Derby Local Plan Review, adopted in 2006, provides a strategic strategy for growth and development in Derby and offers guidance and controls for proposed development across the City. The Local Plan Review will be progressively replaced by the Local Development Framework (LDF). However, some specific policies contained within the Local Plan have been 'saved' for three years since its adoption in 2006 and therefore will not be replaced by the LDF until 2009. It is possible that after 2009, some existing policies within the local plan will continue to be saved.

6.2.25 Derby's Local Plan Review accords with the policies outlined in the Derby and Derbyshire Joint Structure Plan and Joint LTP2 and specifically aims to achieve a balanced approach to delivering an integrated transport system for the City. Accordingly, policy T1 states that:

- In considering applications for planning permission, the City Council will seek to ensure that the proposed development will not result in increased traffic congestion, have a detrimental effect on the local environment or lead to a reduction in road safety.

6.2.26 The site is consistent with policy GD7 – Comprehensive Development, which states that:

- Planning permission will only be granted where a comprehensive and co-ordinated approach to development can be demonstrated...

6.2.27 It is considered that the development proposals are consistent with local transport and planning policy.

Summary

6.2.28 The proposed development is consistent with planning policies at a national, regional and local level. The site is well situated in terms of access to primary routes and trunk roads and is located within the preferred options for the location of waste sites. Indeed, the site selection process identified the site as being located directly adjacent to the A5111 Ring Road which is classified as a primary route and suitable for HGV travel.

6.3 Assessment Methodology

Relevant Guidance

6.3.1 As a matter of best practice, this assessment has been undertaken based on the relevant guidance for the assessment of road traffic. This includes:

- “Guidelines on the Environmental Assessment of Road Traffic” published in 1993 by The Institute of Environmental Management and Assessment (IEMA). (These guidelines have been used to gauge the significance of the changes in environmental conditions caused by road traffic).
- “Guidelines on Transport Assessment” published in March 2007 by the Department for Transport
- DfT Circular 02/2007 “Planning and the Strategic Road Network.”
- Environmental Impact Assessment, A Guide to Procedures, DETR (2000).

Consultations

6.3.2 As detailed in Chapter 1, a formal scoping exercise has been undertaken to inform the scope of the Environmental Assessment. The formal Scoping response is included at Appendix 1.2. The exercise highlighted the following issues relevant to traffic and transport impacts:

- Any transport assessment should also have regard to any planned changes in traffic likely to affect air quality

6.3.3 A Transport Assessment Scoping Note was submitted to Derby City Council, full details of which are attached in the appended Transport Assessment. Comments received to the Scoping Note are attached in the Transport Assessment and did not request any additional assessment to be included which were not proposed within the Scoping Note.

6.3.4 In addition to the above, RRS undertook an extensive stakeholder engagement programme, including four public information days held in March 2009. The events identified the following potential issues raised by the public:

- Impact of traffic along Sinfin Lane and capacity of Sinfin Lane
- Road safety
- The location of the proposed access junction

Methodology

6.3.5 This assessment has taken account of the Guidelines for the Environmental Assessment of Road Traffic (Guidance Note No. 1) prepared by The Institute of Environmental Assessment (IEA) (now The Institute of Environmental Management & Assessment). The IEMA Guidelines recommend two rules to be considered when assessing the impact of development traffic on a

highway link:

- **Rule 1:** Include highway links where traffic flows will increase more than 30% (or the number of HGVs will increase by more than 30%); and
- **Rule 2:** Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

6.3.6 The above guidance is based upon knowledge and experience of environmental effects of traffic and also acknowledges that traffic forecasting is not an exact science. The 30% threshold is based upon research and experience of the environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic. At a simple level, the guidance considers that projected changes in traffic flow of less than 10% create no discernible environmental effect, hence the second threshold as set out in Rule 2.

6.3.7 Column 3 in Table 2.1 of the IEMA Guidelines set out a list of environmental effects which should be assessed for their significance.

6.3.8 Definitions of each of the potential effects identified in the IEMA Guidelines are set out below along with explanatory text relating to assessment criteria. It is on this basis that the assessment in this Chapter has been undertaken. It is acknowledged at paragraph 2.4 of the IEA Guidelines that not all the effects listed in Column 3 of Table 2.1 would be applicable to every development.

- **Noise and Vibration:** The environmental implications of noise and vibration arising from changes in traffic flow have been separately assessed at Chapter 12.
- **Visual Effects:** The visual effect of traffic is complex and subjective and includes both visual obstruction and visual intrusion. The IEMA Guidelines acknowledge that in the majority of situations the changes in traffic resulting from a development will have little effect.
- **Severance:** Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. Severance is difficult to measure and by its subjective nature is likely to vary between different groups within a single community. In addition to the volume, composition and speed of traffic, severance is also likely to be influenced by the geometric characteristics of a road, the demand for movement across a road and the variety of land uses and extent of community located on either side of a road. All these factors are considered when determining the likely severance effect. In general terms according to the IEMA guidelines a 30% change in traffic flow is likely to produce a 'slight' change in severance, with 'moderate' and 'substantial' changes occurring at 60% and 90% respectively.

- **Driver Delay:** Delay to drivers generally occurs at junctions where opposing vehicle manoeuvres are undertaken with vehicles having to give or receive priority depending upon the type of junction arrangement. A number of traffic modelling computer programs are available which are able to predict the average vehicle delay at junctions. Assessments have, where appropriate, been undertaken on the adjoining road network to establish the existing average vehicle delay during the weekday peak hour periods when traffic flows are at their greatest. Development traffic flows have then been added and further operational assessments undertaken to establish the average vehicle delay following development. The change in average vehicle delay as a result of the Proposed Development is then identified and its significance assessed. Details of the operational assessments are set out in the TA at Appendix 6.1.
- **Pedestrian Delay:** The delay incurred by pedestrians is generally a direct consequence of their ability to cross roads. Thus the provision of crossing facilities, the geometric characteristics of the road, and the traffic volume, composition and speed are all factors that can affect pedestrian delay and have been considered when assessing this effect. It should be noted that the IEMA guidelines advise that in assessing levels of, and changes in, pedestrian delay, assessors do not attempt to use quantitative thresholds. Instead, the Guidelines recommend the use of professional judgement to determine whether pedestrian delay is a significant effect.
- **Pedestrian Amenity:** The term pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is considered to be affected by traffic flow, speed and composition as well as footway width and the separation/protection from traffic. It encompasses the overall relationship between pedestrians and traffic, including fear and intimidation which is the most emotive and difficult effect to quantify and assess. There are no commonly agreed thresholds for quantifying the significance of changes in pedestrian amenity, although where traffic flow (or its Heavy Goods Vehicle (HGV) component) doubles significant effect is likely to arise. All the above factors are considered in reaching a professional judgement when assessing this effect.
- **Accidents and Safety:** To establish the effect on the road safety record of the adjoining road network Personal Injury Accident (PIA) statistics have been obtained from Derbyshire Police Constabulary. These statistics provide information on the location and severity of PIAs. The data obtained covers the three-year period up to 30 November 2008. Assessments have considered the statistical incidence of accidents and assessed the likely change in the frequency of accidents as a result of the Proposed Development. In addition, consideration has been given to the local circumstances prevailing in particular traffic speed, flow and composition as well as vehicle conflict and pedestrian activity. A combination of these assessments enables a professional judgement to be made regarding the significance of the effect.

- **Hazardous Loads:** The Guidelines for the Environmental Assessment of Road Traffic acknowledge, in paragraph 2.4, that most developments would not result in an increase in the number of movements of hazardous or dangerous loads. In this instance, the transporting of hazardous loads would only occur if it was necessary to remove such material from the site in advance of construction. Studies to date have not identified any such material.
- **Air Pollution:** Chapter 7 assesses the potential air quality effects of the traffic generated by the proposed facility. This shows that traffic will have a negligible effect on local air quality, which is well within the relevant guidelines.
- **Dust and Dirt:** Potential dust and dirt arising from traffic is mainly associated with HGV traffic. The extent of any impact of dust and dirt arising from the construction and post construction phase would be dependent upon the management practices adopted on site. Specifically procedures such as washing down of wheels and sheeting of HGVs likely to shed debris would prevent the occurrence of dust and dirt spreading from the site to the adjoining road network. Such procedures remove the possibility of dust and dirt impacting upon the surrounding road network.

Assessment of Significance

6.3.9 The methodology used in assessing the significance of any particular effect is set out in the paragraph above. A description of the terminology used is set out below.

Negligible	No significant effects
Minor	not noteworthy or material – impacts are of low magnitude and frequency and will not exceed relevant quality standards, residual effects will be negligible
Moderate	noteworthy, material – impacts are of moderate magnitude and frequency. Relevant quality standards may be exceeded to limited extent. Possible secondary impacts, residual effects will be minimal.
Major	Impacts are likely to be of a high magnitude and frequency with quality standards being exceeded, at times considerably. There may be secondary impacts of some magnitude, residual effects will be of some significance.
Substantial	Impacts will be of a consistently high magnitude and frequency with Standards exceeded by a significant margin. Secondary impacts also likely to have a high magnitude and frequency. Significant residual effects.

Cumulative Impacts

6.3.10 Review of proposed or possible future third party projects that may have a cumulative impact with the development proposals has been undertaken and used to inform this Environmental Statement.

6.3.11 In relation to transport, the following developments have been identified as committed having been granted planning consent at a recent joint Public Inquiry:

- Highfields Farm – 1200 dwellings
- Boulton Moor – 1058 dwellings
- Stenson Field, Derby – 500 dwellings

6.3.12 Liaison with South Derbyshire District Council, Derby City Council and Derbyshire County Council revealed that the Derby Area Traffic Model (DATM) was used to estimate the impact of the development traffic flows. However, the model was only run for each individual site and not the three sites combined and as such the true net changes in traffic flows on the network are, at the time of submitting this application, not fully known by the Authorities. It is understood that the model is currently being run to determine the likely net changes in traffic flows for the three combined sites.

6.3.13 Notwithstanding this, Derby City Council have stated in their Scoping Note response that there is no need to consider these developments in our assessments or as a cumulative assessment and the application of growth would suffice as a cumulative assessment. This was based on their view that although these three developments are planned to come forward they are unlikely to start before the proposed opening year of this proposal (2011/12) and indeed, there is no guarantee will actually come forward at all. Furthermore, the application of traffic growth allows for an increase in background traffic flows as well as an increase in traffic resulting from developments. The use of traffic growth as a cumulative assessment is therefore a common approach and it is agreed with Derby City Council that it is appropriate in this instance.

6.4 Baseline Conditions

Highway Network

6.4.1 Sinfin Lane is a wide urban single carriageway road with street lighting and is subject to a 30mph speed restriction along its length. The carriageway has a width of approximately 10 metres and there are footways of between approximately 2 and 2.5 metres on both sides. There are double yellow line parking restrictions along both sides of Sinfin Lane adjacent to the site.

6.4.2 Approximately 500m to the north of the site is a four armed signal controlled crossroads where Sinfin Lane forms the southern arm with the A5111 (east and west) and Balaclava Road.

6.4.3 To the south of the site Sinfin Lane is generally some 10m wide. At the southern end of the site frontage, where a new site access junction is proposed, Sinfin Lane is some 14m wide.

To the north of the site Sinfin Lane becomes a dual carriageway where it passes over the railway line.

- 6.4.4 The existing access to the site is gated off and is on the bridge where Sinfin Lane is a dual carriageway where vehicular movements are restricted to “left in/left out” only. Visibility from the existing site access onto Sinfin Lane is limited and sub standard.
- 6.4.5 A “left in/left out” vehicular access is provided on the east side of Sinfin Lane to the north of the site boundary serving the terrace of 5 houses. Some 35m south of the site on the east side of Sinfin Lane is a priority junction access to the adjoining site.
- 6.4.6 The A5111 varies between a single and dual carriageway route which routes east to west and provides a link between the A52 and the A6 to the east and the A38 to the west. It has street lighting and footways along its length. The A5111 is subject to a speed restriction of 40 mph within the vicinity of Sinfin Lane.
- 6.4.7 Balaclava Road is a single carriageway road routing north to south becoming St Thomas Road to the north. It is mainly residential in nature with an approximate carriageway width of 7.2 metres. Footways of approximately 2 metres and street lighting are provided on each side of the carriageway along its route.
- 6.4.8 Approximately 350 metres to the north of the site Sinfin Lane forms a traffic signal controlled junction with Foresters Way which provides an access to a leisure development. Approximately 400 metres to the south of the site Sinfin Lane forms a traffic signal controlled junction with Wilmore Road. Wilmore Road is approximately 7.4 metres in width and routes northwest to southeast providing a connection to the A514 via Merrill Way.

Road Safety

- 6.4.9 Personal Injury Accident (PIA) statistics have been obtained for the surrounding highway network for the latest available 36 months (three years) between 01 December 2005 and 30 November 2008. The study area included Sinfin Lane between the A5111 and Wilmore Road, Wilmore Road, Foresters Way, The A5111 between Portland Street and 50 metres to the west of its junction with Sinfin Lane.
- 6.4.10 The study area is shown in Figure 6.1 along with a summary of the PIA's in terms of their location and severity. In total there were 48 PIA's during the three year period of which three were serious injury accidents and 45 were slight injury accidents. There were no fatal injury accidents within this location during this period. Of the 48 PIA's six involved pedestrians, five involved cyclists and four involved motorcycles. There were no PIA's involving HGV's or buses

during this period.

- 6.4.11 The three PIA's resulting in serious injuries occurred at different locations. All three involved pedestrians being struck by vehicles whilst crossing the carriageway. The first was crossing the A5111 at its junction with Sinfin Lane, another was at the A5111 near Hopetoun Street and the remaining accident occurred on Sinfin Lane between the site access and Wilmore Road.
- 6.4.12 22 PIAs occurred at the junction of the A5111 and Sinfin Lane. One of the accidents resulted in serious injury and 21 resulted in slight injuries. Three involved pedestrians, one involved a cyclist and one involved a motorcyclist. Nine were the result of vehicles turning right and colliding with oncoming traffic, one of which involved a cyclist. Five were the result of rear end shunts one of which involved a motorcyclist. Five were the result of vehicles turning left and colliding with oncoming vehicles. The remaining three were the result of pedestrians being struck by vehicles whilst crossing.
- 6.4.13 Five PIAs occurred at the junction of Sinfin Lane and Kitchener Avenue. All of the accidents were slight injury accidents and one involved a cyclist. Three of the accidents were the result of rear end shunts and the remaining two accidents were the result of vehicles overtaking and colliding with other vehicles. One of the rear end shunts involved a cyclist.
- 6.4.14 Four PIAs occurred at the junction of Sinfin Lane and Foresters Way. All of these were slight injury accidents. Two accidents involved rear end shunts with one involving a cyclist and one involving a motorcyclist. Another involved a vehicle losing control whilst turning right. The remaining accident at this location involved a collision between two vehicles whilst one was performing a u-turn.
- 6.4.15 Four PIAs occurred at the junction of the A5111 and Portland. All of these were slight injury accidents. One occurred when a vehicle lost control whilst turning right. Another occurred when a vehicle collided with another vehicle whilst overtaking. Another occurred when a crossing pedestrian was struck by an oncoming vehicle. The remaining accident was the result of a rear end shunt.

Public Transport Provision

- 6.4.16 The closest bus stops to the site are located on Sinfin Lane approximately 200 metres south of the site. The northbound stop has a shelter, timetable and a bus lay-by. The Number 38 Service serves the bus stops on Sinfin Lane providing links to Derby City Centre every 10 minutes throughout the day.

6.4.17 There are further bus stops on Browning Street and on the A5111 within approximately 850 metres. These are served by the number 36 and 40 services and also provide frequent direct links into Derby City Centre.

6.4.18 It is considered that the bus routes serving these stops are comprehensive. The approximate frequencies per hour during the day are shown in Table 6.1 below. The bus routes within the vicinity of the site are set out in the appended Transport Assessment.

Table 6.1: Bus Service Summary

No.	Stop *	Route	Weekday				Weekend			
			Frequency (approx)				Time		Frequency (approx)	
			AM Peak	Off Peak	PM Peak	Evening	First Service	Last Service	Sat	Sun
38	1	Derby to Sinfin	6 per Hour	6 per Hour	6 per Hour	2 per hour	553	8	6 per Hour	2 per hour
36	2	Derby to Sunny Hill via Cavendish	3 per hour	4 per hour	4 per hour	2 per hour	642	2323	4 per hour	2 per hour
40	3	Derby to Alvaston via Allenton	4 per hour	4 per hour	3 per hour	2 per hour	644	2323	4 per hour	2 per hour

Arriva Bus Timetables updated October 2008

* Stops: 1) Sinfin Lane, 2) Browning Street, 3) Pear Tree A5111

6.4.19 Peartree Rail Station is located within a 1 kilometre walk from the site and is situated on the Derby to Crewe line providing services three times per day (one in the PM Peak) Monday to Saturday. There are no services on a Sunday from Peartree Rail Station.

Facilities for Pedestrians and Cyclists

6.4.20 There are footways on each side of the carriageway on Sinfin Lane. The footways vary in width but within the vicinity of the site frontage it is generally in excess of 2.5m. Where the footway crosses over the railway line north of the site it forms a footpath some 3m wide.

6.4.21 A pelican crossing is situated approximately 80 metres to the south of the site boundary. There are also pedestrian crossing facilities at the signal controlled junction of Sinfin Lane and Foresters Way some 350m north of the site. These footways and crossings form part of pedestrian routes to the north and the south of the site linking to the residential areas within the vicinity of the site.

6.4.22 Paragraph 75 of PPG13: Transport suggests that walking is a suitable alternative to replace car trips for journeys of under 2km. The IHT publication ‘Providing for Journeys on Foot’ (IHT

2000) suggest acceptable walking distances for various land uses, as set out in Table 6.2.

Table 6.2: Suggested Acceptable Walking Distance

	Town Centres	Commuting/School	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1000m	800m
Preferred Maximum	800m	2000m	1200m

Source: IHT's Providing for Journeys on Foot, 2000

6.4.23 The closest bus stops are within a 200 metre walk which is within desirable commuting distance. In addition further bus stops and the Peartree Rail Station are 1 km which is an acceptable walking distance from the site. In addition parts of the residential areas within Sinfin and Sunnyhill are within recommended maximum commuting distances demonstrating the accessibility of the site via walking.

6.4.24 Paragraph 78 of PPG13: Transport suggests cycling has the potential to substitute for shorter car journeys of under 5km. Sinfin Lane forms part of the recommended on road cycle network providing unbroken links into Derby City Centre along Kitchener Avenue, Upper Dale Road, St Chad's Road, Normanton Road and Green Lane as well as links to Peartree and Derby Rail Stations.

6.4.25 Derby Orbital Route 66 is located to the south of the site which routes along a section of Sinfin Lane to the south of Redwood Road. Full details of the cycle network in the vicinity of the site is set out in the Transport Assessment at Appendix 6.1.

6.4.26 A number of cycling infrastructure and priority measures have been implemented along Sinfin Road. An advisory on carriageway cycle lane is provided in each direction to the south of the Sinfin Lane/Wilmore Road Junction until the junction with Shakespeare Road.

6.4.27 In addition advanced stop lines are provided with 5 metre reservoirs at the Sinfin Lane/Wilmore Road signal controlled junction on Sinfin Lane (south) and Wilmore Road. It is considered that the site has good accessibility via cycling to the surrounding residential areas and areas within recommended cycling distances.

Traffic Flows

6.4.28 Traffic flows have been obtained for the length of Sinfin Lane between the A5111 and south of Wilmore Road. Four traffic surveys have been undertaken and an Automatic Traffic Count (ATC) has been obtained from DCC. The flows establish a baseline position against which the proposed development traffic can be assessed. Details of these surveys have been outlined

below.

- 6.4.29 The Traffic Surveys were undertaken by an independent specialist survey company (Sky High Ltd) to establish existing traffic flows on Sinfin Lane and the A5111. Manual Classified Counts (MCC's) were undertaken on Wednesday 5 March 2008 over a 12 hour period between 0700 and 1900. The MCC's were undertaken at the junctions of Sinfin Lane/A5111/Balaclava Road and Sinfin Lane/Wilmore Road and were fully classified by turning movement and vehicle type.
- 6.4.30 In addition, Automatic Traffic Counters (ATC's) were placed on Sinfin Lane immediately south of the A5111 and on the A5111 immediately east of Sinfin Lane for the two week period 25th February to 9th March 2008.
- 6.4.31 Traffic flow data was also obtained from DCC from a permanent ATC site on Sinfin Lane some 45m south of the southern site boundary. This survey has provided traffic flows and vehicle speeds for the two week period between 6 October and 19 October 2008. The flows over the two week period have been averaged with these average flows used to establish a baseline position for traffic on Sinfin Lane within the vicinity of the site.
- 6.4.32 A full summary of the traffic flows, including the peak hours, are set out in the appended Transport Assessment.

Committed Developments and Future Year Traffic Flows

- 6.4.33 As set out above, the following three residential sites were recently granted consent at Public Inquiry:
- Highfields Farm – 1200 dwellings
 - Boulton Moor – 1058 dwellings
 - Stenson Field, Derby – 500 dwellings
- 6.4.34 Transport Officers at Derby City Council have advised that although these three developments are planned to come forward they are unlikely to start before the proposed opening year of this proposal (2011/12) and indeed, there is no guarantee will actually come forward at all. In their TA Scoping Note response, Derby City Council subsequently advised that the use of traffic growth factors will represent a reasonable estimate of future year traffic flows, since these factors allow for an increase in background traffic flow as well as an allowance for development traffic flows. Derby City Councils TA Scoping Note response is set out in the appended Transport Assessment.

6.4.35 The baseline traffic flows have been growthed to the proposed first full year of operation of 2012 using the National Road Traffic Forecasts (NRTF) low growth rate of 1.047, full details of which are set out in the appended Transport Assessment. The subsequent 2012 baseline traffic flows are shown in Table 6.1.

6.5 Incorporated Enhancement and Mitigation

6.5.1 The proposed new access junction will incorporate an on-road cycle lane along the northbound and southbound carriageways of Sinfin Lane. This will improve and build upon the existing cycle network in the local area and improve the safety of cyclists along Sinfin Lane by separating the road surface for vehicles and cyclists.

6.5.2 The proposed access junction will require a vertical realignment of the southbound carriageway together with its resurfacing, thus improving the surfacing of the existing carriageway. This will also require new white lining along Sinfin Lane, thus offering an improvement over the existing lining.

6.5.3 A pedestrian refuge will be provided within the site access, thus maintaining the pedestrian route along the eastern side of Sinfin Lane. In addition, a 2.0m wide footway will be provided directly into the site from Sinfin Lane, thus providing a dedicated link onto the existing footway network.

6.5.4 The proposals will remove the existing access to the site, which is located on the southbound carriageway of the railway bridge to the north of the proposed access. Although currently not in use, it is a consented access junction and its removal will complete the pedestrian route over the bridge and remove an access with sub-standard visibility. The new access will provide increased visibility and thus represent a significant improvement over the existing situation.

6.5.5 The internal site layout has been designed so as vehicles can enter and wait (if required) without blocking back onto Sinfin Lane. Indeed, the weighbridge has been located approximately 120m within the site and there is a further waiting lane of approximately 60m if required.

6.5.6 A Travel Plan has been prepared to accompany the proposals and this will seek to reduce the number of trips made by private car. This has been prepared in accordance with current guidance and in particular seeks to reduce the number of staff trips undertaken by single occupancy private car.

6.6 Identification and Evaluation of Key Impacts

6.6.1 The likely effect of road traffic as a result of the development has been considered during the construction and operational phases of the proposed WTF. The assessments for both are set out below.

Operational Phase

6.6.2 As stated previously the proposed WTF will be able to treat 190,000 tonnes per annum, however, will be able to receive up to 200,000 tonnes per annum. This assessment has therefore been based on the upper 200,000 tonnes per annum. For a worst case assessment the trip generation has been based upon the 2011/2012 total waste projection data as enclosed in the appended Transport Assessment. The total waste inputs for 2011/2012 are estimated at 126,018 tonnes per annum. This includes 11,860 tonnes of bulker deliveries.

6.6.3 The Waste Collection Authority delivers the highest level of waste at 114,158 tonnes during this opening year of the proposed WTF compared with the following four years and therefore the site generates the highest level of traffic movements during this period. The waste inputs to the proposed WTF would be all the waste types detailed below (Household Landfill, Bulky Household, Clinical, Commercial, Fly Tipped, Gully Waste, Street Sweepings, Housing, Clear Up, CA Residual High Tax and Lime/carbon) in addition to the bulker deliveries.

6.6.4 The proposed WTF generates export vehicles resulting from the Advanced Conversion Technology (ACT) process. The process involves converting the imported waste to generate gas and renewable energy and therefore the volume of outputs is lower than the level of inputs. The proposed WTF generates export vehicles associated with the ACT relating to Recyclates, Bulkers to landfill, Bottom Ash, Fly Ash, Gully waste and Clinical waste.

6.6.5 The waste projection data has been used to estimate the total number of waste vehicles for a typical day generated by the site. A summary of the typical day waste input vehicle movements categorised by waste and vehicle types has been shown within Table 6.3 below.

Table 6.3. Proposed WTF Typical Day Waste Input Vehicle Trips

Waste Type	% of Total Waste Inputs (114,158 tonnes)	Daily Waste input (tonnes)	Average Payload Per Vehicle (tonnes)	Vehicle Type	Vehicles per day
Household Landfill	73.09%	321	7.08	Refuse Collection HGV	45
Bulky Household	0.81%	4	2.80	Small to Mid Sized Vans	1
Clinical	0.35%	2	1.02	Small to Mid Sized Vans	2
Commercial	4.87%	21	5.41	Refuse Collection HGV	4
Fly Tipped	1.97%	9	0.62	Small to Mid Sized Vans	14
Gully Waste	2.41%	11	4.61	Refuse Collection HGV	2
Street Sweepings - Derby City	5.64%	25	0.87	Street Sweeper	29
Street Sweepings - County	4.16%	18	2.03	Street Sweeper	9
Housing	0.32%	1	0.49	Small to Mid Sized Vans	3
Clear Up	5.37%	24	3.81	Small to Mid Sized Vans	6
CA Residual High Tax	1.00%	4	6.95	Refuse Collection HGV	1
Bulker deliveries	(additional 11,860 tonnes)	46	20.00	Bulker HGV	2
TOTAL		486			118

Source: Waste Projection data in Appendix 8.

* Based on 260 operational days per year.

** On a typical day, lime/carbon generates just 0.2 vehicles and has therefore been excluded from analysis.

6.6.6 Table 6.2 shows that the proposed WTF could generate approximately 118 vehicles on a typical day associated with waste inputs to the site. Approximately 54 of these vehicles would be HGVs, with the remaining 64 being small to mid sized vans and street sweepers.

6.6.7 The operator also provided details of vehicles generated by the export of waste on a typical day. As stated above the proposed WTF is expected to generate export vehicles associated with Recyclates, Bulklers to landfill, Bottom Ash, Fly Ash, Gully waste and Clinical Waste. The volume of each type of waste, the number of vehicles generated and the average payload per vehicle of export waste is shown within Table 6.4 below. These figures are based on the throughput and operating capacity of the ACT facility

Table 6.4. Proposed WTF Typical Day Waste Export Vehicle Trips

Waste Type	Total Waste Exports (tonnes per year)	Daily Waste Exports (tonnes)	Average Payload Per Vehicle (tonnes)	Vehicle Type	Vehicles per day
Recyclates	18,785	72.2 *	15	Bulker HGV	4.8
ACT shutdowns - Bulkers to landfill	65,917	422.5 *	20	Bulker HGV	21.1
Bottom Ash	3,439	13.2 *	20	Bulker HGV	0.7
Fly Ash (use Lime Delivery vehicle 50% of time)	817	5.1 ***	20	Bulker HGV	0.3
Gully waste out to Landfill	1,654	6.4 *	10	Bulker HGV	0.6
Clinical Waste out to Landfill	398	1.5 *	7	Bulker HGV	0.2
Total	91,010				28

SOURCE: Waste Projection Data in Appendix 8.

* Based on 260 operational days per year.

** Based on 156 operational days per year.

*** Based on 80 operational days per year

6.6.8 Table 6.4 shows that the proposed WTF could generate 28 vehicles associated with the export of waste on a typical day. All of these vehicles would be HGVs. The operator has also provided details of the potential number of employee and visitor vehicles generated on a typical day.

6.6.9 It has been assumed that the site would generate six visitor vehicles on a typical day. For the purposes of this assessment and as a worst case it has been assumed that the site would generate 32 employee vehicles. The worst case total number of employee and visitor vehicles generated by the proposed WTF on a typical day is considered therefore to be 38 vehicles. This is considered a worst case as measures to encourage sustainable modes of travel for employees will be set out within a Travel Plan.

6.6.10 The total number of vehicles and two-way traffic movements generated by the proposed WTF on a typical day has been summarised within Table 6.5 below.

Table 6.5. Proposed WTF Total Vehicle Movements on a Typical Day

Generated Vehicles (Daily)				Two-Way Vehicle Movements (Daily)		
Waste Inputs	Waste Exports	Staff/Visitors	Total	Waste Vehicles (HGVs)	Total	Waste Vehicles (HGVs)
118	28	38	184	146 (82)	368	292 (164)

6.6.11 Table 6.5 shows that on a typical day the proposed WTF could generate approximately 368 two-way vehicle movements with 292 of these trips being waste vehicles. These 292 waste vehicles will range in vehicle type; for example, some will be small transit style vans or small caged vehicles and some will be refuse collection vehicles (RCV's). Of the 292 waste vehicle movements it is estimated that 164 of these will be HGV's (only 56%). In terms of total site movements, only 44% of all trips will be HGVs. However, for assessment purposes only, it has been assumed that all waste vehicles will be HGVs as this represents a worst case scenario. As stated previously the annual waste tonnage that the flows have been based on is a typical 126,018 tonnes per annum.

6.6.12 It should be noted that these traffic flows are based on a worst case opening period scenario and are calculated for the purposes of this assessment only. They do not represent the typical daily traffic flows generated by the site throughout its life.

6.6.13 Indeed, as set out at Appendix 10 of the Transport Assessment, a typical daily traffic flow to the site will be in the order of 160 vehicles.

6.6.14 For a worst case assessment the maximum capacity of waste that the site can receive would be 200,000 tonnes per annum. To represent a worst case non-typical day the traffic flows for the total waste inputs and exports have therefore been increased by a rate of 1.59 (200,000 divided by 126,018). This increases the input flows to 188 vehicles and the export flows to 45 vehicles. The staff and visitor flows would remain at 38 vehicles. As a worst case non-typical day there could be 271 total vehicles (233 waste vehicles) generated over a daily period or 542 two-way total vehicle (466 waste vehicles) movements. It should be noted that this number of trips is not likely to be generated and has only been estimated to demonstrate the highway network could accommodate an increased amount of traffic. Indeed, this has been calculated on the basis of Derby and Derbyshire generating 59% more waste than Derby City and Derbyshire County Councils predict. Such a level of trips would not occur and has only been used for assessment purposes.

6.6.15 The proposed WTF daily waste HGV traffic movements have been temporally distributed across the day for both a typical day and a worst case non-typical day based on the waste

projection data. This assumes that the majority of the waste vehicles generated by the site are between 0700 and 1700 with 1% of the waste vehicles generated in the hour before this.

6.6.16 The subsequent temporal distribution percentages and number of waste vehicles generated in each hour on a weekday are shown within Table 6.6 for a typical day and Table 6.7 for a worst case below.

Table 6.6. Proposed WTF HGV Temporal Distribution (Typical Day)

Hour Begins	HGV %	Two-Way Waste Vehicles
06.00	1.0%	3
07.00	5.2%	15
08.00	7.2%	21
09.00	12.3%	36
10.00	10.4%	30
11.00	13.7%	40
12.00	16.5%	48
13.00	16.8%	49
14.00	10.2%	30
15.00	5.5%	16
16.00	1.2%	4
17.00		0
Daily		292

6.6.17 Table 6.6 shows that on a typical day the proposed WTF could generate approximately 21 two-way HGV trips during the AM peak period and no two-way HGV trips in the PM peak. The maximum number of HGV trips would be generated between 1300 and 1400 with 49 two-way HGVs.

Table 6.7. Proposed WTF HGV Temporal Distribution (Worst Case)

Hour Begins	HGV %	Two-Way Waste Vehicles
06.00	1.0%	5
07.00	5.2%	24
08.00	7.2%	34
09.00	12.3%	57
10.00	10.4%	48
11.00	13.7%	64
12.00	16.5%	77
13.00	16.8%	78
14.00	10.2%	48
15.00	5.5%	26
16.00	1.2%	6
17.00		0
Daily		466

* Differences in figures due to rounding

6.6.18 Table 6.7 shows that on a worst case day the proposed WTF could generate approximately 34 two-way HGV trips during the AM peak period and no two-way HGV trips in the PM peak. The maximum number of HGV trips would be generated between 1300 and 1400 with 78 two-way HGVs.

6.6.19 In terms of employee movements, it is assumed that all staff arrive and depart in the hours before and after their shifts. The operator has provided data of a typical pattern of operational hours. The breakdown of job types and shift patterns is shown within Table 6.8 (based on 31 employees) and the resultant employee temporal distribution (factored up to 38 employees) is shown within Table 6.9. The 38 vehicles generated are assumed to include vehicles generated by visitors.

Table 6.8. Proposed WTF Employee Shift Patterns

Job Type	Shift	Number of Staff
Operations Director	0800-1700	1
Treatment Manager	0800-1700	1
Maintenance Manager	0800-1700	1
Waste Composition Technician	0800-1700	1
Administration	0800-1700	3
Weighbridge Operator	0700-1700	2
Maintenance Fitters	0700-1700	2
Senior Shift Controllers	2 Shifts (0600 to 1400 and 1400 to 2200)	2
Reception Hall Operators	2 Shifts (0600 to 1400 and 1400 to 2200)	4
Crane Operators	2 Shifts (0600 to 1400 and 1400 to 2200)	2
MBT Operators	2 Shifts (0600 to 1400 and 1400 to 2200)	2
ACT Operators (2 shifts)	2 Shifts (0600 to 1830 and 1800 to 0630)	10

Table 6.9. Proposed WTF Employee and Visitor Temporal Distribution

Hour Begins	Vehicles In	Vehicles Out	Vehicles Two Way
0500	12	0	12
0600	5	6	11
0700	9	0	9
0800	0	0	0
1300	6	0	6
1400	0	6	6
1700	6	13	19
1800	0	6	6
2200	0	6	6
Total	38	38	76

* Differences due to rounding

6.6.20 The total combined proposed WTF traffic flows across the day can be seen within Table 6.10 for a typical day and Table 6.11 for a worst case non-typical day.

Table 6.10. Proposed WTF Two Way Temporal Distribution (Typical Day)

Hour Begins	HGV	Light Vehicles	Total Vehicles
0500	0	12	12
0600	3	11	14
0700	15	9	24
0800	21	0	21
0900	36	0	36
1000	30	0	30
1100	40	0	40
1200	48	0	48
1300	49	6	55
1400	30	6	36
1500	16	0	16
1600	4	0	4
1700	0	19	19
1800	0	6	6
2200	0	6	6
Total	292	76	368

* Differences due to rounding

6.6.21 Table 6.10 shows that on a typical day the proposed WTF could generate approximately 21 two way vehicle trips in the AM peak period (0800-0900) and 19 two way vehicle trips in the PM peak period (1700-1800). The peak development period is between 1300-1400 whereby the proposed WTF generates 55 two-way vehicle trips.

Table 6.11. Proposed Two Way Temporal Distribution (Worst Case)

Hour Begins	HGV	Light Vehicles	Total Vehicles
0500	0	12	12
0600	5	11	16
0700	24	9	33
0800	34	0	34
0900	57	0	57
1000	48	0	48
1100	64	0	64
1200	77	0	77
1300	78	6	84
1400	48	6	54
1500	26	0	26
1600	6	0	6
1700	0	19	19
1800	0	6	6
2200	0	6	6
Total	466	76	542

* Differences due to rounding

6.6.22 Table 6.11 shows that on a worst case non-typical day the proposed WTF could generate approximately 34 two way vehicle trips in the AM peak period (0800-0900) and 19 two way vehicle trips in the PM peak period (1700-1800). The peak development period is between 1300-1400 whereby the proposed WTF generates 84 two-way vehicle trips.

6.6.23 Full details of the trip distribution and assignment is set out in the Appended Transport Assessment. In summary the following distribution was estimated for waste vehicles:

- A5111 west – 45.5%
- A5111 east – 45.5%
- Balaclava Road – 2%
- Wilmore Road – 2%
- Sinfin Lane (South of Wilmore Road) – 5%

6.6.24 And the following distribution was estimated for staff and visitors:

- A5111 west – 38.5%
- A5111 east – 42.5%
- Balaclava Road – 0.4%

- Wilmore Road – 4.4%
- Sinfin Lane (South of Wilmore Road) – 14.2%

6.6.25 The development traffic flows have been assigned onto the network in accordance with the above distribution and the resultant development traffic flows by link are shown in Table 6.12 Appendix 6.2) for a typical day and Table 6.13 for a worst-case non-typical day (Appendix 6.3)

Quantification of Impact

6.6.26 In addition to development traffic flows, Tables 6.12 and 6.13 also show the predicted increases in traffic on each link. As Table 6.12 shows, the greatest increase in traffic is predicted to occur along Sinfin Lane between the site access and the A5111 where a daily (12 hour, 07:00 to 19:00) increase of 2.2% is estimated. A maximum hourly increase of 4.5% is predicted between 13:00 and 14:00. The percentage increase in daily HGV content is predicted to increase by 22.6% and a maximum hourly increase of 41.4% is predicted between 13:00 and 14:00. It should be noted that this is simply the HGV content and can not therefore be used on its own in considering the impact of development or highway capacity. The overall increase in traffic should be considered and is stated above (2.2% and 4.5% respectively).

6.6.27 All traffic flow increases are predicted to be well below the 10% threshold identified by the IEMA which would require further more detailed assessments. However, the HGV content along Sinfin Lane between the site access and the A5111 is predicted to be in excess of the 10% threshold. It should be noted that this is not the overall increase in traffic but is simply the HGV content. Although total daily traffic flows will increase by only 2.2%, it was decided appropriate to undertake further, more detailed, environmental assessments along Sinfin Lane between the site access and the A5111. These are set out below.

6.6.28 It should be noted that traffic flow increases along the A511 can on occasion exceed the 10% threshold, however, the A5111 forms a principal route within the Derby road hierarchy and as such is not considered sensitive. Indeed, the A5111 forms part of the Derby Lorry Route. It is therefore considered the 30% threshold applies to the A5111 and there is therefore no requirement to undertake detailed environmental assessments.

6.6.29 Although not likely to occur in practice, Table 6.12 shows the likely increase in traffic on a worst basis. This shows the similar increases to those for a typical day in that the only percentage increases which exceed the thresholds are on Sinfin Lane between the site access and the A5111.

6.6.30 There are occasions on the A5111 when the 30% HGV content threshold is exceeded, however, these only occur on the occasional hour on a Saturday when background HGV numbers are low. Indeed, the total traffic increases during these periods are around 1% to 3%. Given this, and given that this is based on a worst-case non-typical day which is unlikely to occur, it is considered that this does not require any further detailed assessment.

6.6.31 As stated above, the below assesses the environmental effect of road traffic along Sinfin Lane between the site access and the A5111 in accordance with the IEMA guidelines.

Noise and Vibration

6.6.32 The noise and vibration effects of road traffic are assessed in detail in Chapter 10. In summary, the effect of traffic is not estimated to have any impact.

6.6.33 It is thus considered that the development generated traffic would be of negligible significance

Visual Effects

6.6.34 Development related traffic would route via existing roads, which already carry existing traffic. The developments will not substantially alter the composition of traffic on the road network, with all routes affected currently accommodating all vehicle types.

6.6.35 It is thus considered that the development generated traffic would be of negligible significance.

Severance

6.6.36 Severance is only likely to occur on highly trafficked roads and result from the perceived division the road and traffic creates between either side. The maximum hourly traffic flow along Sinfin Lane under 2012 baseline conditions is 1351 vehicles between 08:00 and 09:00. This equates to one vehicle every 2.66 seconds.

6.6.37 With the addition of development, the traffic flow during this period is predicted to increase by only 2.4% to 1383 vehicles. This equates to one vehicle every 2.60 seconds. This represents a change in vehicle rates of only 0.06 vehicles per second, which would be very difficult to detect.

6.6.38 The change in vehicle rates of 0.06 vehicles per second is not likely to be noticeable and would not impact upon severance. Indeed, according to the IEMA Guidelines, traffic flow increases would need to increase by more than 30% in order for a 'slight' change in severance to occur.

6.6.39 It is thus considered that the development generated traffic would be of negligible significance.

Driver Delay

6.6.40 Delays to drivers are generally caused at junctions and are only likely to be significant when traffic flows on the network are close to capacity. Detailed operational assessments have been undertaken at the proposed site access and at the Sinfin Lane / A5111 junction, full details of which are set out in the appended Transport Assessment.

6.6.41 The assessments show that the site access junction is predicted to operate well within its operation capacity with no delay incurred to drivers on Sinfin Lane.

6.6.42 It is recognised that the Sinfin Lane approach to the A5111 junction currently operates at capacity during the AM and PM peak hours and delay to drivers can occur. In particular, the right turn from Sinfin Lane onto the A5111 has a higher flow than the left turn and thus experiences more delay.

6.6.43 Under 2012 base conditions, a total delay through the junction (all movements) of 412.4 seconds is predicted during the AM peak hour and 475.8 seconds during the PM peak hour. With the addition of development on a worst case non-typical day, this is predicted to increase to 425.9 seconds and 488.7 seconds respectively.

6.6.44 This represents increases in driver delay of 13.5 seconds and 12.9 seconds respectively, which represents an increase of only 3%. It should be reminded that these are total increases through the junction and account for all movements. The additional delay for any one movement will be far less than this. Furthermore, in the context of a longer journey and the delays incurred, such increases will not be noticeable.

6.6.45 It is thus considered that the development generated traffic would be of negligible significance.

Pedestrian Delay and Amenity

6.6.46 Delay to pedestrians in terms of road traffic is generally a function of being able to cross the road. Studies have shown that pedestrian delay is perceptible or considered significant beyond a lower delay threshold of 10 seconds, for a link with no crossing facilities. A 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour.

6.6.47 The predicted 2012 base two-way traffic flow along Sinfin Lane is 1351 and is therefore approximately equal to the lower delay threshold of 10 seconds. However, as set out above, the change in vehicle rates during peak periods is predicted to be only 0.06 vehicles per

second. This is not likely to be noticeable and would not impact upon the ability for a pedestrian to cross Sinfin Lane.

6.6.48 Indeed, on the basis that 1,400 vehicles per hour equates to a pedestrian crossing delay of 10 seconds, 1,351 vehicles per hour (2012 base conditions) equates to an approximate crossing delay of 9.65 seconds and 1,383 vehicles per hour (2012 base plus development on a worst-case non-typical day) equates to an approximate crossing delay of 9.88 seconds. This represents an increase of 0.23 seconds. This is not likely to be noticeable.

6.6.49 There are footways along both sides of Sinfin Lane which are approximately 2.5m wide, in some places being 3.0m wide. Pedestrian activity is not excessive and 2.5m to 3.0m wide represents a wide footway. Indeed, this represents a typical width for a combined footway / cycleway.

6.6.50 It is therefore considered that there would be no noticeable effect for pedestrians along Sinfin Lane. Pedestrian amenity is not impacted upon by existing traffic flows and is not likely to be effected by the proposals.

6.6.51 It is thus considered that the development generated traffic would be of negligible significance

Accidents and Safety

6.6.52 Personal injury accident (PIA) statistics have been obtained for the surrounding highway network for the latest available 36 months (three years) between 01 December 2005 and 30 November 2008. All of these injury accidents occurred in only slight injury. There were no PIA's involving HGV's or buses during this period.

6.6.53 There were nine injury accidents along Sinfin Lane between the site access and the A5111, none of which involved HGVs. All of the injury accidents occurred at junctions where vehicle are undertaking various turning manoeuvres, with five occurring at the Sinfin Lane / Kitchener Avenue junction and four occurring at the Sinfin Lane / Foresters Way junction.

6.6.54 Of the five injury accidents occurring at the Sinfin Lane / Kitchener Avenue junction, three were the result of rear end shunts and two were the result of vehicles overtaking and colliding with other vehicles.

6.6.55 Of the four injury accidents occurring at the Sinfin Lane / Foresters Way junction, two resulted from rear end shunts with one involving a cyclist and one involving a motorcyclist, one resulted from a single vehicle losing control whilst turning right and one resulted from a vehicle performing a u-turn.

- 6.6.56 The injury accidents were all the result of different factors and there were no consistent factors throughout. Furthermore, there were no injury accidents involving HGVs. It is therefore considered that there is not an existing accident or safety problem along Sinfin Lane and the proposals will not have any effect on accidents and safety.
- 6.6.57 In terms of the site access, traffic on Sinfin Lane will have priority at all times (unlike signalised junctions) and will therefore remain similar to the current situation. Turning traffic in and out of the site access will have to give way to those on Sinfin Lane and visibility from the site access and the right turn into the site access has therefore been designed with regard to current design standards. Indeed, highways officers at Derby City Council have confirmed their acceptance in principle of the access design. There is therefore no reason to suspect that a safety issue would arise as a result of the proposals.
- 6.6.58 It is thus considered that the development generated traffic would be of negligible significance.

Hazardous Loads

- 6.6.59 The Guidelines for the Environmental Assessment of Road Traffic acknowledge, in paragraph 2.4, that most developments would not result in an increase in the number of movements of hazardous or dangerous loads. The proposed development will treat non hazardous waste. The process will however generate flue gas residues which are described as a hazardous waste and these will be taken from site in a sealed bulk container. If any hazardous wastes be brought to site then these will be stored separately and be removed in accordance with procedures agreed with the Environment Agency. Any hazardous waste which does arrive at the site will therefore be stored, treated, managed and transported in a safe manner and in accordance with current regulations. Hazardous waste should not therefore represent a safety issue/
- 6.6.60 It is thus considered that the development generated traffic would be of negligible significance.

Air Quality

- 6.6.61 The effects of road traffic on air quality has been assessed in detail in Chapter 7. In summary, the effect of traffic is not estimated to have any impact. It is thus considered that the development generated traffic would be of negligible significance and will not affect local air quality.

Dust and Dirt

- 6.6.62 Dust and dirt arising from traffic is mainly associated with HGV traffic undertaking particular activities. The extent of any impact of dust and dirt arising from the proposed operations would be dependent upon the management practices adopted on site. Specifically procedures such as washing down of wheels and sheeting of HGVs likely to shed debris prevents the occurrence of dust and dirt spreading from the site to the adjoining road network. These procedures will be included and set out as part of a comprehensive Operation Method Statement.
- 6.6.63 All vehicular routes within the site will be surfaced and it is therefore unlikely that any dust or dirt would arise from traffic generated by the site. The mitigation measures outlined above will ensure that any dust and dirt that may be generated is controlled.
- 6.6.64 It is thus considered that the development generated traffic would be of negligible significance.

Construction Phase

- 6.6.65 At this current time, the frequency and type of construction vehicles are unknown as this is dependant upon a detailed method statement being developed by the chosen contractor. Furthermore, construction vehicle numbers can vary on a day to day basis throughout the construction period dependant upon the contractors, construction techniques and method statement.
- 6.6.66 It is therefore difficult at this stage to estimate with any certainty the numbers of HGVs likely to be generated and their likely effect upon the road network. In such cases it is normal to consider the routing of HGV's to the site.
- 6.6.67 In any event, the number of daily construction vehicles will be far lower than the number of operational HGV's and it is therefore considered that the assessment of operational vehicles, as above, represents an overestimate of the likely effect of construction vehicles.
- 6.6.68 The A5111 forms a strategic east-west route around southern Derby and is classified as a principal route within the Derby road hierarchy. The A5111 is therefore considered an appropriate route for construction vehicles.
- 6.6.69 There are already HGVs which use Sinfin Lane on a daily basis and, as assessed above, no environmental effect is predicted.
- 6.6.70 It is thus considered that the construction generated traffic would be of negligible significance.

Cumulative Assessment

- 6.6.69 As set out above, Derby City Council has stated that there is no need to consider the traffic flows from other developments as a cumulative assessment. Derby City Council have advised that the application of traffic growth would represent a reasonable estimate for a cumulative assessment. This was applied in order to assess the effect of development and so a cumulative assessment has been undertaken as part of the operational phase assessments above.

6.7 Mitigation

- 6.7.1 As set out above, the effect of road traffic as a result of the proposed WTF, or construction of, is not predicted to have any perceptible environmental effect. This is based on the assessment guidelines set out by the IEMA in their 'Guidance Note No. 1: Guidelines for the Assessment of Road Traffic'. As set out in Tables 6.11 and 6.12, the increase in total traffic as a result of development is less than the threshold which would require any more detailed assessments although its HGV content along Sinfin Lane between the site access and the A5111 is predicted to be in excess of this threshold.
- 6.7.2 Further, more detailed, assessments were therefore undertaken and established that there is unlikely to be any noticeable environmental effect. It is thus considered that the generated traffic would be of negligible significance and there is no need for any further mitigation measures. Notwithstanding this, this does not obviate the need for the on site management of HGV's exiting the site.

6.8 Residual Impact

- 6.8.1 The above assessments have demonstrated that the traffic generated by proposed WTF is not considered to be significant. Indeed, in accordance with the IEMA guidelines, the proposed development is unlikely to have any perceptible effect on the adjacent road network. As set out above, it is considered that the traffic generated from the development would not create any adverse environmental effects.

6.8.2 Residual impacts, their magnitude and significance are summarised in the table 6.11 below.

Table 6.11: Summary of Residual Impacts												
Resource	Phase	Residual Effect	Sensitivity of Receptor	Magnitude of Impact	Duration	Nature	Significance	Geographical Level of Importance of Issue				
								-	N	R	D	L
Traffic and Transport	Construction	Increase in traffic flows	Medium	Minor	Temporary	Adverse	Negligible					L
		Visual Effects	Medium	Minor	Temporary	Adverse	Negligible					L
		Severance	Medium	Minor	Temporary	Adverse	Negligible					L
		Driver Delay	Medium	Minor	Temporary	Adverse	Negligible					L
		Pedestrian Delay/Amenity	Medium	Minor	Temporary	Adverse	Negligible					L
		Accidents and Safety	Medium	Minor	Temporary	Adverse	Negligible					L
		Hazardous Loads	Medium	Minor	Temporary	Adverse	Negligible					L
		Dust and Dirt	Medium	Minor	Temporary	Adverse	Negligible					L
	Operation	Increase in traffic flows	Medium	Minor	Permanent	Adverse	Negligible					L
		Visual Effects	Medium	Minor	Permanent	Adverse	Negligible					L
		Severance	Medium	Minor	Permanent	Adverse	Negligible					L
		Driver Delay	Medium	Minor	Permanent	Adverse	Negligible					L
		Pedestrian Delay/Amenity	Medium	Minor	Permanent	Adverse	Negligible					L
		Accidents and Safety	Medium	Minor	Permanent	Adverse	Negligible					L
		Hazardous Loads	Medium	Minor	Permanent	Adverse	Negligible					L
		Dust and Dirt	Medium	Minor	Permanent	Adverse	Negligible					L

Key: I: International

N: National

R: Regional

D: District

L: Local

6.9 Conclusions

- 6.9.1 The effect of road traffic resulting from the proposed WTF has been assessed in accordance with the guidance set out in the IEMA publication Guidelines for the Environmental Assessment of Road Traffic, Guidance Note No. 1.
- 6.9.2 The assessments undertaken above have demonstrated that the proposals would increase daily traffic flows along Sinfin Lane by only 2.2% which will have no noticeable impact on the local road network.
- 6.9.3 In accordance with the IEMA guidelines, further more detailed assessments were undertaken and established that such increases are unlikely to create any perceptible effect upon the road network. Indeed, the environmental assessments undertaken have demonstrated there will be no noticeable impact upon visual effects, noise or vibration, severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety, hazardous loads, air pollution or dust and dirt.
- 6.9.4 It is considered there will no perceptible environmental effect as a result of the proposed WTF.

6.10 References

Guidelines on the Environmental Assessment of Road Traffic” published in 1993 by The Institute of Environmental Management and Assessment (IEMA). (These guidelines have been used to gauge the significance of the changes in environmental conditions caused by road traffic).

“Guidelines on Transport Assessment” published in March 2007 by the Department for Transport

DfT Circular 02/2007 “Planning and the Strategic Road Network.”

Environmental Impact Assessment, A Guide to Procedures, DETR (2000).