Chapter 13: Traffic and transport

Introduction

13.1 This chapter presents a detailed assessment of transport related matters associated with the construction, operation and decommissioning of the proposed West Wight wind farm. The study and report was commissioned from Entran Limited. Key references and sources of data are listed on table 13.1.

13.2 In order to provide a logical progression of assessment, a staged approach has been followed, examining:

- baseline conditions
- three phase impact assessment
- construction period (phase I)
- operational period (phase II)
- decommissioning period (phase III)
- identification of mitigation measures
- identification of residual effects.

Volume 5, Section 2, Part 2 of the *Design Manual for Roads and Bridges* (TA79/99)
Guidelines for the Environmental Assessment of Road Traffic', IEA, 1993
IoWC traffic count data
Guidelines for Traffic Impact Assessments, IHT, 1994
Table 13.1: references and sources of information

Methodology

Overview of guidance and standards

13.3 The assessment uses guidance for conducting and reporting traffic impact assessments produced by the Institution of Highways and Transportation (IHT), entitled '*Guidelines for Traffic Impact Assessments*'. Published in 1994, this guidance is now considered to be dated, but no replacement best practice guide has yet been produced for areas of the UK outside Scotland.

13.4 Whilst the IHT guidelines are considered best practice for traffic impact assessments *per se*, they do not establish best practice for transport assessment associated with environmental impact assessment.

13.5 The IHT guidance therefore cross references its best practice with that published by the Institute of Environmental Assessment (IEA). This guidance note, '*Guidance Notes No 1. - Guidelines for the Environmental Assessment of Road Traffic*' published in October 1993, sought to address the differences

between the assessment of traffic associated with the operational performance of the local highway network and that of its effect on local receptors.

13.6 The methodology used in this assessment follows the IEA guidance and also relies upon the professional competence of the traffic consultant, as expected in the guidance:

'*These Guidelines are intended to complement professional judgement and the experience of trained assessors.*'

13.7 Local policy guidance for the Isle of Wight is covered in the planning supporting document which accompanies the planning application

Consultation overview

13.8 In accordance with best practice, the transport assessment has been discussed as appropriate with the local highway authority, the local police authority and the Highways Agency.

13.9 Three classes of vehicle are associated with the development of the West Wight wind farm:

- light vehicles (eg contractors vans, private motor cars etc)
- heavy vehicles (eg HGVs of maximum rigid length of 12 metres and a maximum articulated length of 16.5 metres)
- abnormal vehicles (classified as any vehicle over 25 metres in length or 3.6 metres wide).

13.10 The transport assessment considers all three, and the local highway authority, the local police authority and the Highways Agency were consulted on the passage of such vehicles across the Island.

13.11 All consultees recognised that the highway is for the passage of all persons associated with a variety of activities, but sought assurance that an increase in traffic associated with the proposals would not materially affect the operational performance of the network.

13.12 In addition to this, and in respect of abnormal loads, all consultees refer the appointed haulier to Schedule 12 of The Road Vehicles (Construction & Use Regulations) 1986 as amended (SI 1986/1078). Schedule 5 of The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (SI 1998).

13.13 This legislation requires hauliers to notify the movement of most abnormal loads and abnormal vehicles to the police before moving them by road. There is also a requirement to notify heavier loads and vehicles to highway authorities to ensure that bridge structures can accommodate these heavy loads; this has been considered in this assessment. Before moving the largest and heaviest abnormal loads, prior permission is required from the Highways Agency. If it is an abnormal vehicle, authorisation is required from the Department for Transport.

13.14 Hauliers involved in the movement of abnormal loads or abnormal vehicles have a responsibility to ensure that each movement is conducted in a controlled and safe manner.

13.15 In addition to the above matters, the local police authority, who will provide the escort service, have stated that the movement of abnormal loads or abnormal vehicles are to be conducted outside of the following times:

- AM peak period : 07.00 to 09.30
- PM peak period : 16.00 to 18.30
- school collection time : 15.00 to16.00
- night-time movements to occur in exceptional circumstances only.

Assessment criteria

13.16 The IEA guidance recommends that the assessment should identify environmental impacts arising from changes in traffic levels on affected groups or locations that may be sensitive to changes in traffic conditions (table 13.2).

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 and dirt	Open spaces, recreational sites, shopping areas
	Sites of ecological/nature conservation value
	Sites of tourist/visitor attraction

Table 13.2: sensitive receptors from IEA guidance

13.17 The environmental impacts arising from changes in traffic levels that are considered in this chapter are:

- severance
- driver delay
- pedestrian delay and amenity
- accidents and safety
- hazardous loads.

13.18 Dust and dirt from traffic are covered in the air quality chapter of this environmental statement, and traffic noise in the noise chapter.

13.19 The significance of potential effects has been determined using criteria developed from best practice techniques and expert knowledge. Significance has been derived from two measures: sensitivity of receptors (figure 13.1) and the magnitude of change (figure 13.2). Feeding the two sets of criteria (magnitude and sensitivity) into the significance matrix generates the generic definitions of the significance of potential effects as set out in figure 13.3.

Route audit process

13.20 A detailed route audit was conducted in April 2006 to ascertain the likely routes taken by vehicles associated with the three phases of the proposals, and any affected parties.

13.21 The route audit is an important part of the assessment of road traffic associated with the development. In recognition of this, the route audit was conducted by means of an accurate, logical and retraceable process with due regard to the three vehicle classes noted above.

13.22 There are essentially three discrete elements to the route audit process:

- the movement of freight and personnel to mainland ferry ports
- the point of entry to the Isle of Wight (ie arrival port)
- the movement of freight and personnel on the Isle of Wight.

13.23 All three elements have been considered in a qualitative manner, with the final part also being considered in quantitative terms, as this is considered to be the most sensitive.

13.24 The assessment process cannot be conducted sequentially, as the Isle of Wight's ports and routes to the development site will have a bearing on which mainland port is used and accordingly routes to it.

Baseline

Point of entry to the Island

13.25 A number of possible port and river reception facilities exist for delivering turbine and ancillary components to the Island:

- East Cowes Ferry Terminal
- Vestas East Cowes blade storage facility
- Medina Wharf quayside facility
- Vestas Newport blade factory
- Yarmouth Ferry Terminal.

East Cowes ferry terminal

13.26 The link span used to unload vehicles from the ferry at the East Cowes Ferry Terminal is considered unsuitable for the passage of very large vehicles and is

only just passable by Heavy Goods Vehicle (HGV) due to geometric constraints.

13.27 The vertical alignment of the link span from the ferry to the quay also exceeds that which is negotiable by the very large vehicles as there are no transition curves, which could result in vehicle grounding.

Vestas East Cowes blade storage facility

13.28 The Vestas East Cowes blade storage facility is used by Vestas to receive and store turbine blades transported along the Medina River from the Vestas Blades manufacturing facility at Newport. Turbine components could be delivered to, and unloaded at the new 40-tonne on-link span at this facility. However, this storage facility is designed to receive materials delivered by means of the River Medina, and the local road infrastructure serving the site from the A3021 is not of sufficient standard to accommodate large vehicles.

Medina Wharf

13.29 Medina Wharf is a quayside loading area located to the south of the centre of Cowes, on the west side of the River Medina. In order to use these facilities a mobile crane would be brought into Medina Wharf to unload components floated to the wharf, onto waiting road vehicles.

Vestas Newport blade factory

13.30 The Vestas blades manufacturing facility is located in Newport on the River Medina. Although the facility is used to load turbine blades onto floating barges, the jetty infrastructure could also be suitable for unloading the major turbine components (including blades, tower sections and nacelle).

Yarmouth ferry terminal

13.31 The Yarmouth ferry terminal is located to the west of the Isle of Wight. The link span at the terminal is of insufficient load bearing capacity to receive the vehicles.

13.32 Of the options considered for the delivery of major turbine components, it is considered that the most appropriate method of delivering the out-sourced turbine components to the Isle of Wight, is via one or both of:

- Vestas blades facility at Newport
- Medina Wharf facility.

The movement of freight and personnel on the Isle of Wight

13.33 The preceding analysis focuses on the ability of the facilities at the ports to take delivery of large materials and plant, and does not take into account the available routes from the ports to the site.

13.34 A qualitative route audit has been conducted to address this matter of establishing an acceptable route for the transportation of outsourced material and personnel.

13.35 The routes across the island from the Vestas blades facility at Newport and the Medina Wharf facility at Cowes have been split into sections 1 to 9 in order to conduct a logically formatted route audit. The section start and end points have been derived using junction locations or distinct changes in the existing land uses within the vicinity of the highway.

13.36 Route sections 1 to 9 are detailed in table 13.3 and shown as a simplified schematic in figure 13.4.

Route section number	Route description
1	From the Medina Wharf facility along the facilities access road to the A3020 (Newport Road) to its junction with the A3054 (Forest Road) via the Somerton Road roundabout.
2	From the Vestas blades facility at Newport to the Forest Road roundabout at the junction of Newport Road.
3	The A3054 (Forest Road) to the Shalfleet shuttle signals.
4	The A3054 from the Shalfleet shuttle signals to its junction with the B3401 (Thorley Road) in Yarmouth.
5	The B3401 (Thorley Road) from its junction with A3054 to its junction with Broad Lane in Thorley.
6	The B3401 (Main Road) from its junction with Broad Lane through Wellow to its junction with Station Road. This section also includes Station Road from its junction with the A3054 to its junction with the B3401.
7	From the Broad Lane junction with Newport Road to the B3401 junction with Station Road via Newbridge.
8	The B3401 from the Glebe Farm access through Calbourne up Sur Hill and down Calbourne Road to the Forest Road roundabout.
9	Elm Lane from its junction with the A3054 to its junction with the B3401.

Table 13.3: route section descriptions

13.37 A summary of the findings of the audit of each section is given below. This identifies whether the route section is passable, the potential sensitive receptors, and an early indication of any accommodation works that might be necessary.

Route section 1

13.38 Access from the Medina Wharf facility onto the A3020 is negotiable by large vehicles via the Artic Road priority junction which is of sufficient geometry to allow for all types of vehicles to conduct the necessary manoeuvre.

13.39 The mini roundabout illustrated in figure 13.5 provides access from the Medina Wharf site onto Artic Road. Whilst this roundabout can accommodate HGVs, temporary removal of the mini roundabout signs may be required to allow for the movement of abnormal loads or vehicles.

13.40 There is limited residential frontage from the Artic Road priority junction with the A3020 to the Somerton roundabout, although a school does back onto the A3020 at the Love Lane junction. The school is not accessed from the A3020.

13.41 The A3020 is approximately 7.0 metres in width and can accommodate the passage of all vehicle types. The roundabout at Somerton Road and the traffic signals at Nodes Road do not pose difficulties for the passage of any type of vehicle, including abnormal loads or vehicles.

13.42 The A3020 from the Nodes Road signals to the Forest Road roundabout can accommodate the passage of large vehicles. This route is characterised by very limited residential frontage.

13.43 Whilst the A3020 widens to provide a dual-carriageway on its approach to the Forest Road roundabout, the geometry of the roundabout prevents the passage of abnormal loads or vehicles, although all other vehicle types could negotiate this junction.

13.44 The route passes St Mary's Hospital at this point of section one.

13.45 In order to facilitate the passage of abnormal loads or vehicles, it will be necessary for the vehicles to cut across the running lanes and pass through the northbound left slip from the A3054 Forest Road to the A3020, effectively travelling the wrong way along this short stretch of carriageway. Accordingly, an over-run of verges and central reserves will be required, and some associated reinstatement is likely to be necessary.

13.46 A track plot analysis of this manoeuvre could be conducted on topographical survey mapping to establish the extent of over-run and required amendments (figure 13.6).

13.47 This route to the Forest Road roundabout is characterised by limited residential frontage, but it does pass close to the rear of a school and St Mary's Hospital. All junctions and sections of the highway are passable by all vehicle types, though the geometry of the Forest Road roundabout requires abnormal loads or vehicles to be taken against the normal flow of traffic.

Route section 2

13.48 This route passes along Bishops Way, Manners View and Daish Way to the Dodnor Lane roundabout adjacent to the B&Q Superstore. This route is passable without affecting street furniture, although footways will be over-run by the larger vehicles. Receptors along this section to Dodnor Lane are limited to light industrial units.

13.49 Passage through the Dodnor Lane roundabout can be achieved by all vehicle types other than abnormal loads or vehicles, which will have to travel counter-clockwise around the roundabout aided by the removal of street furniture such as signs and 'keep left' bollards (figure 13.7).

13.50 While the passage of abnormal loads or vehicles through the Forest Road roundabout will be restricted, the route through to Forest Road from the Dodnor Lane direction can be achieved by over-running of central reserves and straddling of running lanes.

13.51 There is a right / left 'S' bend beyond the Forest Road roundabout (figures 13.8 and 13.9). This is passable by all vehicle types, though abnormal loads or vehicles would have to straddle both running lanes, and some temporary removal of street furniture will be necessary.

Route section 3

13.52 At this section, the two routes from the Medina Wharf facility and the Vestas blade facility converge. The A3054 from the Forest Road roundabout to Shalfleet benefits from good forward visibility along its length. In the past, this has given rise to high traffic speeds, which has in turn resulted in retro-fitted traffic calming measures.

13.53 At the eastern end of this section the traffic calming measures have been implemented at the location of a zebra crossing at Kitbridge School. The western end has residential frontages taking access directly from Forest Road. The traffic calming and frontage access is illustrated in figure 13.10.

13.54 Whilst the traffic calming scheme has been designed to accommodate all standard types of vehicles, it will be necessary to temporarily remove the yellow bollards to allow abnormal vehicle over-run.

13.55 The horizontal alignment of the carriageway at Vittlefields Farm and Winchester Corner will require abnormal loads to straddle both lanes. With limited forward visibility, this manoeuvre could only be made with an escort or abnormal load banksman.

13.56 At the western end of this section, traffic calming is again encountered within Shalfleet. This is passable with care by all vehicle types.

13.57 As with the eastern of this section, residential properties are in close proximity to the carriageway and are accessed directly from the A3054.

13.58 This route section is characterised by the presence of very few receptors along its length, other than those at either end of the section in Newport and Shalfleet.

Route section 4

13.59 This section of the A3054 is similar to section 3, with limited residential frontage, but Shalfleet C of E Primary School is located at the corner of the Station Road junction.

13.60 In order for this route to be used for the passage of vehicles to the site it would be necessary to access the B3401 in Yarmouth (figure 13.11). However, the geometry of this junction does not allow the passage of abnormal vehicles, thus limiting this route to HGVs and light vehicles.

13.61 In conclusion, route section 4 can only accommodate the passage of abnormal vehicles or loads up to its junction with Station Road (see route section 6 below). However, it does offer a route into the site for heavy and light vehicles.

Route section 5

13.62 Following on from the A3054 junction with the B3041 (Thorley Road), although not accessible as an abnormal load route, route section 5 is passable with care by heavy and light vehicles.

13.63 Although this route does pass through the village of Thorley, the residential properties are set back from the carriageway edge. Accordingly this route to Broad Lane, from which it is proposed the site access be taken (see below), is a good alternative for heavy and light vehicles.

Route section 6

13.64 The school at the Station Road junction with the A3054 gives rise to two concerns, the sensitivity of the school itself as a receptor, and also on-street parking associated with school drop-offs and pick-ups; whilst largely contained on Station Road, it was also noted to encroach onto the junction with the A3054.

13.65 The priority junction is wide and has verges that could be over-run, though some reinstatement would probably be necessary. Use of this route by abnormal vehicles would require on-street parking to be temporarily suspended.

13.66 Route section 6 continues from Station Road along Main Road through Wellow, where there are residential frontages and local amenities such as churches and a post office, resulting in an area of significant community related activity.

13.67 Main Road is locally narrowed to 5 metres, which would require abnormal loads to straddle the carriageways, but would enable normal HGVs to pass by one another unimpeded.

13.68 Access to the site will be beyond the row of dwellings on the southern side of Main Road in Wellow (figure 4.1). Here the oversized vehicles will cut across the north-west corner of the site on a short section of temporary access track shown (figure 4.1). Oversized vehicles will therefore avoid the left hand bend into Broad Lane (13.12).

13.69 The existing width restriction applied to Broad Lane does not prevent vehicles requiring access, though it is recommended that it is observed, due to the potential conflicts that could occur.

13.70 As the convergence point for all vehicles, be they from along the audited route or from elsewhere on the island, Main Road is likely to be point at which the

greatest change will be perceptible. This matter is further explored in the impact assessment below.

Route section 7

13.71 Two sections of carriageway are considered in the route section 7 audit, these being the route through Newbridge and the B3401 (north / south alignment), and the B3401 from its junction with Broad Lane to its junction with Glebe Farm access (east / west alignment).

13.72 The section of carriageway forming the north / south alignment is not passable by abnormal vehicles due to the left hand bend over the River Caul Bourne and the width of the bridge (figure 13.13). This width restriction could only be addressed through widening of the parapets.

13.73 There are other obstacles along this route, including significant horizontal deviations and localised widening (figures 13.14 and 13.15).

13.74 The section of carriageway forming the east / west alignment is passable for all vehicle types, though the horizontal alignment of the carriageway close to the Watermill would require straddling of the centre line and possibly over-running of the verge.

Route section 8

13.75 From Calbourne, the A3401 to Newport has vertical and horizontal deviations that restrict forward visibility (figure 13.16). Whilst passable by heavy and light vehicles, abnormal loads or vehicles would have a difficult passage.

13.76 Further difficulties would be encountered by abnormal vehicles or loads on arrival into Newport, as passage would be required through the centre of Newport to return to one of the two Island entry points. However, in the main, the geometry of the route is adequate for the passage of HGVs, as shown by current usage by retail delivery vehicles.

Route section 9

13.77 This section was investigated during the study as a possible local alternative. Elm Lane could provide a connecting link between the A3054 and the B3401. The junctions of Elm Lane with the A3054 and the B3401 are of sufficient width to accommodate heavy vehicles and abnormal loads or vehicles without significant engineering works (figures 13.17 and 13.18).

13.78 Site observations identified the Elm Lane junction with the A3054 as a regular U-turning point for local buses, further establishing its suitability as a large junction with good visibility.

13.79 The width of Elm Lane allows the passage of heavy and abnormal vehicles, although straddling of the running lanes will be required at points along its length by abnormal loads. Residential frontages to Elm Lane in Calbourne would be sensitive receptors. On-street parking associated with these properties is also a relevant consideration.

Preferred dock to site route summary

13.80 From the route audit reported above, and in order to minimise impact on identified sensitive receptors, the routing of vehicles as set out in table 13.4 has been assessed and will be carried forward into a construction environmental management plan.

Abnormal vehicles or loads	Heavy and light vehicles associated with construction
Route section 1	Route section 2
Route section 3	Route section 3
Route section 6	Route section 4
Route section 3	Route section 5
Route section 1	Route section 7
-	Route section 8
-	Route section 2

Table 13.4: preferred routing of vehicles

13.81 An alternative using Elm Lane could have provided a return route for all vehicles, which would leave the site in a southerly direction along Broad Lane to the B3401, avoiding the village of Wellow. Upon entering Calbourne vehicles would have travelled north along Elm Lane to re-join the A3054. This would have needed a temporary one-way order to ensure operational performance and safety, and is therefore not the favoured option due to the disruption.

13.82 Table 13.5 provides a summary of the predicted modifications to road furniture that will be required along the preferred route.

Route	Modifications considered necessary to road network
1	Removal of signs for mini roundabout on Artic Road Over-run of verges and central reserves on A3054
2	Footpath over-run by larger vehicles passing along Bishops Way, Manners View and Daish Way to the Dodnor Lane roundabout Dodnor Lane roundabout, removal of street furniture such as signs and keep left bollards. Over-run of central reserves and straddling of running lanes on Dodnor Lane to Forest Road. Beyond Forest Road roundabout will require straddling of both running lanes with some temporary removal of street furniture
3	Temporary removal of yellow bollards
4	No predicted changes
5	No predicted changes
6	Station Road junction with the A3054; reinstatement of verges if they are over-run. Temporary suspension of on-street parking
7	Possible over-running of verge at Watermill. This route is not expected to have oversize vehicle passage thereby limiting the modifications to the road furniture.
8	No predicted changes

Table 13.5 : possible modifications to road furniture on preferred dock to site route.

Mainland

13.83 Access to the Isle of Wight from the mainland can be achieved most easily via one of three ports:

- Lymington
- Southampton
- Portsmouth.

13.84 However, the point of entry to the Island limits the mainland port choice to Southampton. As a port city, the highway network to Southampton has been developed to accommodate large vehicles and fluctuating demand.

13.85 Accordingly it is predicted that the small increase in vehicular movements on the mainland will be imperceptible to the receptors located alongside the existing transport routes to the dock side.

13.86 The only exception to this will be the passage of abnormal loads or vehicles, which will be escorted in accordance with the voluntary guidance developed by the Highways Agency, as detailed previously.

Baseline traffic data

13.87 Traffic count data have been used to understand the operational dynamics of the local highway network, and in particular the identified route from the import dock to the site.

13.88 Data for the 2005 summer high traffic flow and for the 2004 winter low traffic flow have been obtained from IoWC.

13.89 The traffic data were collected by IoWC using a automated traffic counter located on the A3054 at the junction of the A3054 and Gunville Road.

13.90 Tables 13.6 and 13.7 show the summer high and winter low 5-day average daily traffic flow (Monday to Friday) traffic counts for this location for the 12 hour period from 7 am to 7 pm (representing the working day).

	07.00 to 19.00		
	East bound	West bound	East / west average
01/08/05 to 07/08/05	6,620	5,395	6,008
08/08/05 to 14/08/05	5,197	5,471	5,334
15/08/05 to 21/08/05	5,176	5,361	5,269

Table 13.6: traffic count data for A3054 / Forest Road (summer high)

	07.00 to 19.00		
	East bound	West bound	East / west average
23/11/04 to 28/11/04	3,972	4,054	4,013
29/11/04 to 05/12/04	4,270	3,812	4,041
06/12/04 to 12/12/04	3,856	Not available	3,856

Table 13.7: traffic count data for A3054 / Forest Road (winter low)

13.91 A five day average for each period has been determined using the data in tables 13.6 and 13.7 (table 13.8).

	Summer high	Winter low
07.00 to 19.00	5,537	3,970

Table 13.8: five day average summary

Identification of receptors

13.92 The sensitivity to traffic of the receptors alongside the preferred route was established in accordance with the criteria in figure 13.1. Table 13.9 provides a summary.

Route section	Receptors	Sensitivity of receptor
1	Limited residential frontage Limited shop frontage Back of School (playing fields) St Mary's Hospital	Medium
2	Light industrial units Yard type retail	Negligible
3	Limited residential frontage Limited shop frontage School Churches	Medium
4	School Limited residential frontage	Medium
5	Limited and setback residential frontage	Low
6	Residential frontage Shop frontage School Churches	High
7	Limited residential frontage Limited shop frontage Churches	Medium
8	Residential frontages Shop Frontages Churches	High

Table 13.9: sensitivity of receptors identified within the route section audit

Traffic generation

Construction period (phase I)

13.93 Construction of the wind farm is likely to last approximately six to nine months, and will be executed on a rolling programme.

13.94 This construction period will include the following sub-phases:

a. site mobilisation and establishment of construction compound
b. establishment of access tracks and crane pads
c. turbine and switching station foundation construction
d. erection of wind turbines and switching station
e. cabling and site commissioning.

13.95 The estimated number of vehicles required for each phase of construction is set out in table 13.10. The figures assume an occupation rate of 3 people per car. Information about the number of vehicles required at each phase of construction was advised by YEL from experience elsewhere.

	Construction month					
Activity	1	2	3	4	5	6
Site mobilisation and establishment of construction compound	100	-	-	-	-	-
Establishment of access tracks and crane pads	1000	900	-	-	-	-
Turbine and switching station foundation construction	-	375	375	375	-	-
Erection of wind turbines and switching station	-	-	300	300	300	-
Cabling and site commissioning	-	-		150	150	150
Approximate total vehicle movements per month	1100	1275	675	825	450	450
Approximate total vehicle movements per day	51	59	32	39	21	7

Table 13.10: one way traffic during construction period

13.96 The figures can be divided into light vehicles, heavy vehicles, and abnormal loads or vehicles.

13.97 With reference to the preferred route summarised above, all vehicles other than those classified as abnormal will travel to the Broad Lane site entrance via the B3401 and the A3054 junction at Yarmouth, therefore avoiding the route section whose receptors have been classified as having a high sensitivity to traffic.

13.98 Table 13.11 presents an approximation of the split between the abnormal, heavy and light vehicles, and accordingly an indication of the traffic approaching the site by the two routes.

13.99 From the information presented in table 13.11, the quantum of movements per weekday for each construction month can be summarised as illustrated in figures 13.19 to 13.24 in the appendix at the end of this chapter.

13.100 Whilst the theoretical average of abnormal load movements through Wellow is 1 vehicle per day, abnormal load deliveries will be scheduled throughout the 3 month turbine construction period so that approximately 5 deliveries will be made per day, once per week in order to minimise scheduled disruption to the wider network.

13.101 Should aggregate be sourced from Prospect Quarry, located off Broad Lane to the south of the West Wight wind farm entrance, the numbers of vehicles accessing the site through the public road network (outwith Broad Lane itself), would reduce by between 50% and 70% during months 1 and 2. For the purpose of the transport assessment however, a worst case assumption has been made that material is not sourced from Prospect Quarry, but from the mainland.

		Construction month					
Activity		1	2	3	4	5	6
Site mobilisation and establishment of construction compound	Ab.	0	-	-	-	-	-
	HGV	63	-	-	-	-	-
	Lights	37	-	-	-	-	-
Establishment of access tracks and crane pads	Ab.	0	0	-	-	-	-
	HGV	761	661	-	-	-	-
	Lights	239	239	-	-	-	-
Turbine and switching station foundation construction	Ab.	-	0	0	0	-	-
	HGV	-	63	63	63	-	-
	Lights	-	312	312	312	-	-
Erection of wind turbines and switching station	Ab.	-	-	20	20	20	-
	HGV	-	-	24	24	24	-
	Lights	-	-	256	256	256	-
Cabling and site commissioning	Ab.	-	-	-	0	0	0
	HGV	-	-	-	22	22	22
	Lights	-	-	-	128	128	128
Approximate one-way vehicle movements per month	Ab.	0	0	20	20	20	0
	HGV	824	724	87	109	46	22
	Lights	276	551	568	696	384	128
Approximate one-way vehicle movements per day	Ab.	0	0	1	1	1	0
	HGV	37	33	4	5	2	1
	Lights	13	25	26	32	18	6

Table 13.11: Abnormal (Ab.) / Heavy (HGV) / Lights classification split

13.102 It should be noted that in order to present a robust analysis, these figures present a worst case scenario and are based on the assumption that all site personnel return to Newport at the end of the day. Furthermore it assumes all HGVs will come from the Vestas blades facility at Newport. Aggregate for the construction of site roads may be sourced locally, and will therefore have a different origin to that proposed.

13.103 In order to present the above information in a qualitative manner it is necessary to derive a magnitude of change for each route section for the month (figure 13.2).

13.104 In order to derive the magnitude of change as a function of proportional increase on routes 1 to 8, it is necessary to estimate the volume of annual average daily traffic (AADT).

13.105 The prediction method of AADT flows is based on the following criteria:

- known AADT flows established from the A3054 (Forest Road) continuous automated traffic counter
- maximum peak hour traffic capacity of urban roads as derived from Volume 5, Section 2, Part 2 of the *Design Manual for Roads and Bridges* (TA79/99).

13.106 By deriving the peak capacity flow from TA 79/99, and on the basis that the peak flow hour equates to approximately 12.5% of the AADT, the maximum AADT capacity of certain type and width of road can be derived. It should be noted that the 12.5% peak hour factor has been used for the purpose of this assessment, as actual conversion factors are unknown.

13.107 Knowing the maximum AADT capacity of the road type such as the A3054 (Forest Road), a proportional assessment of the capacity used can be established. By applying this proportional value to the derived maximum AADT of other the routes identified in the baseline, AADT flow can be estimated.

13.108 This method of AADT baseline prediction is detailed in table 13.12.

13.109 Table 13.13 provides a proportional assessment of predicted traffic flows against predicted base traffic flows for each route section, based on when the greatest number of construction traffic vehicular movements occurs.

13.110 Figure 13.2 shows that a change in total traffic, HGV or abnormal load flows of less than 30% is considered to be negligible, so this measure is used in the magnitude of change column in table 13.12.

Route	Season	Cap.	Conv. factor	AADT cap.	AADT flow	% used	Predic. AADT
3	Summer	1,500	1.875	12,000	5,537	46%	N/A
	Winter				3,970	33%	N/A
1	Summer	1,820		14,560	-	46%	6,698
	Winter				-	33%	4,805
2	Summer	1,250		10,000	-	46%	4,600
	Winter				-	33%	3,300
4	Summer	1,500		12,000	-	46%	5,520
	Winter				-	33%	3,960
5	Summer	1,157		9,256	-	46%	4,258
	Winter				--	33%	3,055
6	Summer	1,157		9,256	-	46%	4,258
	Winter				-	33%	3,055
7	Summer	1,500		12,000	-	46%	5,520
	Winter				-	33%	3,960
8	Summer	1,500		12,000	-	46%	5,520
	Winter				-	33%	3,960

Table 13.12: AADT baseline flow predictions

Column headings:
Cap. = Maximum peak hour capacity derived from TA 79/99
Conv. factor = Peak hour to AADT conversion factor (1.875)
AADT cap. = Maximum AADT capacity of road type
AADT flow = Actual AADT traffic flow (unknown for all except route section 3)
% used = Proportion of maximum capacity used
Predic. AADT = Predicted AADT

Route section	Seasonal period	Base traffic	Predicted construction traffic	Proportional increase	Magnitude of change
1	Summer	6,698	5	0.075%	Negligible
	Winter	4,805	5	0.104%	Negligible
2	Summer	4,600	116	2.522%	Negligible
	Winter	3,300	116	3.515%	Negligible
3	Summer	5,537	58	1.047%	Negligible
	Winter	3,970	58	1.461%	Negligible
4	Summer	5,520	58	1.051%	Negligible
	Winter	3,960	58	1.465%	Negligible
5	Summer	4,258	58	1.362%	Negligible
	Winter	3,055	58	1.899%	Negligible
6	Summer	4,258	5	0.117%	Negligible
	Winter	3,055	5	0.164%	Negligible
7	Summer	3,300	58	1.051%	Negligible
	Winter	3,960	58	1.465%	Negligible
8	Summer	3,300	58	1.051%	Negligible
	Winter	3,960	58	1.465%	Negligible

Table 13.13: proportional impact assessment and magnitude of change on daily traffic flows

13.111 Once the final choice of turbines and delivery constraints are known, a specific route capacity analysis based on actual traffic flow data can be conducted.

Operational period (phase II)

13.112 Traffic flows associated with the operation of the West Wight wind farm will be significantly lower than those experienced during the construction period.

13.113 The wind farm will be operated and managed remotely, so operational traffic movements will be restricted to maintenance checks, which are typically carried out using cars or small vans, and will be of the order of one visit per week or fewer. More routine maintenance is programmed once every six months, when a few more vehicles may be expected, delivering personnel, light equipment and materials.

13.114 In the highly unlikely event that any large replacement turbine components such as blades or gearboxes are required, delivery vehicles will travel to site in accordance with the construction transport strategy outlined above, and YEL will provide advance notice to local residents.

13.115 Otherwise, given the low vehicle numbers involved, no operational traffic management plan is proposed and vehicles will be free to access the site via any public road.

13.116 Public access to the West Wight wind farm will not be permitted without prior arrangement. Information panels will be provided at key viewpoints around the Island. This will ensure that the potential for vehicles to be drawn close to the wind farm for viewing interest will be reduced.

Decommissioning period (phase III)

13.117 Decommissioning the wind farm will result in an increased number of vehicles when compared with operation, but less than that experienced during construction. It is likely that on-site permanent access roads will be left *in-situ* for farming use, as will concrete foundations and cabling. Therefore, vehicle movements will mainly be associated with removal of turbines and other surface infrastructure.

13.118 Decommissioning is likely to be carried out over a 4-month period. Large components are likely to be broken-up on site, thereby avoiding the need for abnormal loads to be transported from the site. It is estimated that total traffic movements associated with decommissioning are likely to be less than 25% of traffic movements associated with construction.

Impact assessment

Construction period (Phase I)

Traffic flow change

13.119 By cross referencing the receptor sensitivity with the magnitude of change derived from figures 13.1, 13.2 and 13.12, a qualitative level of traffic change significance can be derived using figure 13.3. The resultant level of significance derived for each route section is summarised in table 13.14.

Route	Receptor sensitivity	Magnitude of change	Traffic change significance
1	Medium	Negligible	None
2	Negligible	Negligible	None
3	Medium	Negligible	None
4	Medium	Negligible	None
5	Low	Negligible	None
6	High	Negligible	None
7	Medium	Negligible	None
8	High	Negligible	None

Table 13.14: derivation of traffic change significance

13.120 The small increases over the estimated baseline traffic flows over the 6 to 9-month development period will not be significant.

Severance

13.121 Given the low levels of daily flows generated by the construction traffic, there will be no significant severance effect.

Driver delay

13.122 Given the low levels of traffic flow generated by the construction traffic, there will be no significant effect on driver delay. Furthermore, the background traffic peak hour movements are unlikely to coincide with any notable peak in construction traffic. Some delay will be experienced by drivers on the local highway network during the movement of abnormal loads and vehicles.

Pedestrian delay and amenity

13.123 Pedestrian activity will not be significantly affected by construction traffic. The routing of vehicles avoids major areas of residential development and town centres where increases could result in an impact on pedestrian activity.

Hazardous loads

13.124 It is not anticipated that the construction process will require carriage of material listed in *The Carriage of Dangerous Goods in the UK*. If these materials become needed during the course of construction, the legal requirements associated with their transit will be enforced.

Operational period (phase II)

13.125 The operational period will result in significantly lower vehicle movements than the construction period.

13.126 Flow changes will be well within normal daily variations, and not noticeable.

13.127 Should significant maintenance work such as major component replacement be necessary, a review of this transport assessment will be conducted in order to account for any changes in the local highway network, best practice and legislation at that time.

Decommissioning period (phase III)

13.128 The wind farm may be decommissioned and the site reinstated at the end of 25 years of operation.

13.129 The information provided derives an estimate of the number of vehicular movements associated with the decommissioning process.

13.130 Given the lower number of vehicle movements experienced during decommissioning, combined with the increase in baseline flows expected to take place over the next 25 years, the predicted impact on traffic during decommissioning of the wind farm is considered to be negligible.

13.131 Prior to commencing the decommissioning operation, a revised transport assessment will be conducted with due regard to the local highway network, best practice and legislation at that time.

Mitigation measures

Construction period (phase I)

13.132 Although the transport assessment demonstrates that there will be no significant traffic impact, some of the large vehicles associated with the development will be noticed on the local highway network due to their size and nature.

13.133 Mitigation measures are proposed in order to address and monitor the movement of these vehicles and to meet the requests of the police and highway authorities:

- working hours will be restricted to 7.30am – 6.30pm Monday to Friday, avoiding the times associated with school peaks and 8am – 1pm on Saturday; no works on Sundays or Bank Holidays
- routing strategy to be included in the construction environmental management plan

- movement of abnormal loads or vehicles to be conducted in accordance with the Highway Agency voluntary guidance, and to be further advertised through local newspapers and radio stations
- community action plan to advise and respond to third party questions and concerns as they relate to highway issues
- stakeholders group meetings/forums to ensure affected residents, schools and businesses are actively involved in monitoring any vehicular movement impacts
- advance track plot analysis as part of the environmental management plan in order to ascertain the extent of accommodation works required at key junctions and pinch points on the local highway network, as identified within the above route audit
- continued monitoring and reinstatement of verges over-run by abnormal vehicles.

Operational period (phase II)

13.134 No mitigation is required during the normal operational period.

13.135 Due consideration will be given to any necessary mitigation required for any unplanned, major maintenance works.

Decommissioning period (phase III)

13.136 The effects on the local highway network will be considered at the time of decommissioning through an update of this transport assessment.

Residual effects

13.137 No significant residual effects are identified, though the nature of some of the construction and delivery vehicles will make them very noticeable on the highway network for a short period.

13.138 Compared to other power generation technologies, wind turbines can be easily and economically decommissioned and removed from site at the end of their economic life and the site returned to its original condition. Accordingly there would be little or no trace that the wind turbines had been there following decommissioning. As implied in the companion guide to PPS 22 (*Planning for Renewable Energy, A Companion Guide to PPS22*, HMSO, 2004) the decommissioning of wind turbines and their removal from the landscape ensures that there are no residual transport impacts.