

7. TRAFFIC

7.1 Introduction

Atkins McCarthy were commissioned by Project Management to carry out a traffic impact assessment to assess the impact of construction and operational generated traffic on traffic levels on the surrounding road network.

The assessment involved carrying out a traffic count to establish existing traffic levels on the adjacent regional roads. By estimating the levels of construction and operational generated traffic the impact of this traffic on the surrounding road network was then predicted.

An analysis of the capacity of the road infrastructure at the proposed site entrance was carried out using the UK Department of Transport PICADY (Priority Intersection Capacity and Delay) model. This Model predicts capacities, queues and delay at major and minor road junctions.

The traffic flow capacity of the roads was established using design guideline RT180 'Geometric Design Guidelines' published by the Environmental Research Unit.

A full copy of the traffic impact assessment report is included in Attachment 8.

7.2 Existing Environment

7.2.1 Road Infrastructure

The development site is located on the north side of the R152 regional road between Drogheda and Duleek. The R152 is a single carriageway road with a typical carriageway width of approximately 7.0 metres and a 60mph speed limit (at the development site). It extends from the N1 National Primary Route at Drogheda to the N2 National Primary Route south of Rathleigh. The R152 forms a traffic signal controlled T-junction with the N1 and a priority controlled T-junction with the N2.

To the south-west of the site the R152 forms a priority controlled junction with the R150 which provides a link to the N1 at Julianstown and the N2 north of Balrath.

The National Roads Authority (NRA) programme includes a plan to by-pass Drogheda as part of the M1 Northern Motorway scheme. This is expected to be open to traffic from 2004. This by-pass will form an important addition to the North/South strategic road corridor improving traffic flow.

The horizontal alignment of the proposed motorway will traverse the R152 at the proposed Drogheda South Interchange approximately 2km north of the development site. The Drogheda South Interchange is a split type interchange on the Donore Road and the R152 Platin Road which provides a new link road between the Donore Road and the R152. The proposed interchange will facilitate all traffic movements on and off the motorway.

7.2.2 Existing Traffic Flows

Traffic counts were carried out on the 18th May 2000 during morning and evening peak periods on the R152 at the proposed site and on the R150 west of Duleek. The counts were carried out from 7.00 to 9.00 am and 4.30 to 6.30 pm. The overall recorded morning and evening peak flows occurred between 7.45 am and 8.45 am and 5.00 pm and 6.00 pm respectively. The two-way peak hour traffic flows are summarised in Table 7.1 below. All traffic flows are expressed in terms of passenger car units (pcu's).

Table 7.1: Existing Traffic Flows

Road	Morning Peak Hour (pcu's)	Evening Peak Hour (pcu's)
R150	264	278
R152	799	902

The percentage of heavy commercial vehicles (hcv's) on the R150 was approximately 18% during the morning peak hour and 16% during the evening peak hour. The proportion of hcv's on the R152 was 13% during the morning peak hour and 12% during the evening peak hour.

The design capacity of the R152 is in the range 700 to 1,200 pcus/hour two-way at Level of Service C (LOS C) and 1,300 to 1,500 pcus /hour two-way at Level of Service D (LOS D) based on the design capacities for undivided rural roads in the E.R.U. design guideline RT180. The design capacity of the R150 west of Duleek is in the range 575 to 950 pcus/hour two-way at LOS C and 1,025 to 1,200 pcus at LOS D.

7.2.3 Predicted Traffic Flows

There are a number of planned developments along the R152 which would lead to increased traffic flows, most notably and a proposed AgriPark development, an Industrial Park at Duleek and the Marathon Power Plant, opposite the proposed development site. The Marathon Power Plant EIS predicts insignificant operational traffic and construction traffic associated with up to 300 construction employees and 50 hcv's per day.

Inspection of the planning files for the proposed AgriPark and Industrial Park indicates that these developments could lead to an increase in peak flows of about 120 pcus.

The development of the M1 motorway is predicted to result in reduced flows on the R152. This is because a proportion of existing traffic uses the N2 and R152 as an alternative route to the N1, and it is expected that this traffic will transfer to the M1 motorway when completed. The Preliminary Design Report for the Drogheda bypass section envisaged that this would lead to reduction of 30% in traffic flows on the R152.

Taking all these factors into account it is estimated that the year 2004 peak traffic flow will be 890 pcus.

7.3 Construction Impacts and Mitigation

7.3.1 Construction Traffic

Peak construction employment on-site is expected to be approximately 300 personnel. Assuming that all construction employees will travel to and from work by car with an average occupancy of 1.2 persons per vehicle, it is expected that the total two-way peak traffic would be of the order of 250 pcus. As the majority of construction employees will work from 7.00 am and 7.00 pm the predicted two-way peak traffic flows generated by construction employees will occur before the morning peak and after the evening peak hour.

Two-way peak construction deliveries are expected to be of the order of 100 hcvs per day, or 300 pcus, with a total two-way peak of 42 pcus.

Assuming a 64:36 north south distribution for construction employees (based on population centres around the site) and a 70:30 north south distribution for construction deliveries (based on the assumption that the majority of hcvs will travel via the M1), this results in a peak hourly flow of 160 pcus for personnel and 29 pcus for hcvs (assuming 1 hcv is equivalent to 3 pcus). This represents an increase of 189 pcus or 21% over the predicted traffic flows of 890 pcus.

7.3.2 Possible Cumulative Impacts

The operational traffic from other developments in the vicinity of the proposed development is accounted for in the predicted year 2004 traffic flows.

However, should the peak construction activity coincide with peak construction activity on the Marathon site, this would result in the order of an additional peak flow of 378 pcus on the R152. This would represent an increase of about 42% over predicted flows, giving a total flow of 1,268 pcus. This is within the capacity of the road at Level of Service D.

This increase would represent a minor to moderate temporary impact on traffic on the R152. In the unlikely event that the peak construction activity for both developments should coincide, Indaver Ireland will implement a range of mitigation measures. These will include the provision of buses from population centres for site workers, provision of cycle parking and showering facilities for locally based workers, restriction of hcv deliveries during peak hours, and staggering the arrival and departure times of site workers.

7.4 Operational Impacts and Mitigation

7.4.1 Operational Traffic

The proposed development will employ a total of ca. 50 people. Traffic will be generated as a result of employees commuting to work and also the various operational activities on site. A summary of the predicted two-way traffic volumes generated by the proposed development during the daily operational period and peak hour period is summarised in Table 7.2.

Table 7.2 Predicted Two-Way Traffic Volumes

Activity	Daily Operational Period (two-way)	Peak Hour (two-way)
Employees	111 cars	34 cars
Waste to Energy	122 hcvs	15 hcvs
Industrial Waste Sorting	22 hcvs	4 hcvs
Community Recycling Park	134 cars	6 cars
Visitors	20	1

It is anticipated that approximately 64% of all hcvs associated with the development will travel to and from the site via the M1 and the R152, i.e. from the north. The remaining 36% of the hcvs will travel to and from the site via the N2 and R152, i.e. from the west.

A similar distribution on the R152 is expected for traffic generated by both employees and the community recycling park. This assessment is based on the location of urban centres within a 30 minute travel time of the proposed waste management facility.

7.4.2 Impact of Operational traffic on road network

As the development is expected to be completed in 2004, this year is taken as the plan year for the purposes of this assessment. The traffic levels on the M1 motorway and N2 primary route were obtained from the EIS for the proposed M1 Northern Motorway scheme. The existing (2000) traffic volumes were factored to 2004 levels using an assumed annual average growth rate of 5%. The proposed Drogheda by-pass is also due to open in 2004.

The predicted peak hour two-way traffic flows for 2004 (Plan Year) on the surrounding local road network with and without the proposed development are summarised in Table 7.3.

Table 7.3: Predicted 2004 Two-Way Peak Hour Traffic Flows

Route	Predicted 2004 Two-Way Peak Hour Traffic Flows (pcus)	
	Without Development	With Development
R152, north of site	890	953 (+7.1%)
R152, south of site	890	925 (+3.9%)
R150, west of site	340	363 (+6.8%)
M1, south of Drogheda South Interchange	2,350	2,390 (+1.7%)
N2	650	670 (+3.0%)

During the plan year the R152 would operate within capacity at LOS D and possibly within LOS C depending on the percentage sight distance greater than 460m. The R150, west of Duleek, would operate within capacity at LOS C with or without the development in place. Therefore the operational generated traffic will have not have a significant impact on traffic levels on the R150 and R152 roads.

Traffic generated by the development will have a negligible impact on traffic levels on the M1 northern motorway and the N2 primary route. Both would operate within capacity at LOS C with or without the development in place.

As no significant impacts on traffic levels during operation have been identified no mitigation measures are required. However the site entrance will be designed to a high standard to prevent any local impacts at the junction.

7.4.3 Site Entrance

The entrance to the development site will be on the R152 road. Based on the recommendations of the E.R.U. RT180 design guideline there are no requirements for speed change lanes at the proposed priority controlled entrance. However, in order to allow traffic enter and leave the site without interfering with other traffic the following works are proposed at the entrance junction:

- An deceleration lane
- A climbing lane
- A right-turn lane
- A 15m turning radius at the entrance

In addition, a footpath (2m wide) on the northern side of the R152 at the development site and a pedestrian refuge island at the proposed entrance will be constructed. A layout drawing of the entrance junction is included in the main report.

Subject to discussions with Meath County Council, Indaver Ireland will provide lighting along the portion of the R152 adjoining the site. Also, subject to discussions with the local Gardai, Indaver Ireland will provide, or fund the provision of, a speed camera on the R152 in the vicinity of the site entrance.

The proposed new entrance junction was analysed for the predicted Plan Year (2004) peak hour traffic flows using the PICADY model for priority controlled junctions. The model predicted that the junction would operate with a highest Ratio of Flow to Capacity (RFC) of 0.08 and highest average delays would be 9 seconds. No significant delays would occur for turning vehicles. Therefore no further mitigation measures are required.

7.5 Conclusions

The development will generate both construction and operational traffic. The levels of both construction and operational traffic will not significantly impact on the surrounding road network and will not cause the design capacity of the roads to be exceeded. A priority controlled entrance to the development site with deceleration, acceleration and turning lanes will allow traffic enter and leave the site without interfering with other traffic on the R152.

A traffic management plan will be implemented during the construction phase to ensure that no impacts will occur during construction. These will include the provision of buses from population centres for site workers, provision of cycle parking and showering facilities for locally based workers.

The only potential impact identified is if the Marathon Power Plant peak construction phase coincides with that of the proposed development. In this case a minor to moderate impact is predicted as the increase in flows will be in the order of 40%. The R152 would still however operate within capacity at LOS D.

In the unlikely event of this occurring Indaver Ireland will implement further mitigation measures including restriction of hcv deliveries during peak hours, and staggering the arrival and departure times of site workers.

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