

Submission to Oral Hearing

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Christy O'Sullivan

ILTP Project Code & Reference:

CK_WTEOH

1 PROOF OF EVIDENCE – JOHN PAUL FITZGERALD

1.1 Background

- 1.1.1 ILTP Consulting was established just over six years ago and provides advice on Infrastructure, Land Use and Transport Planning predominantly in Ireland, but occasionally overseas. The company supplies and supports the S-Paramics, ParkCad and AutoTurn, specialist transport planning software packages in Ireland. ILTP also provide specialist training on transport modelling and planning.
- 1.1.2 John Paul FitzGerald will be presenting evidence regarding the review of the traffic impacts associated with the Waste-to-Energy Facility and Waste Transport Station proposed for Ringaskiddy, Cork. John Paul has undertaken this assessment in consultation with his colleague Christy O'Sullivan, who is unavailable to attend today. However, Christy hopes to be available for cross-examination if required.
- 1.1.3 John Paul FitzGerald is a Transport Engineer with ILTP Limited. John Paul graduated from UCC in 2004 with a 1st Class honours in Civil and Environmental Engineering, where he specialised in transport engineering. John Paul has 5 years experience with ILTP and has worked on numerous projects involving strategic infrastructure and large developments. Such projects include the Cork South Ring Road, Dunkettle Interchange Upgrade, Dublin Port Tunnel operational assessment, Dublin Airport Operational Assessment, Gorey Bypass, Adare Bypass 2 + 1 pilot scheme, Mitchelstown Traffic and Transport Management Plan, and the Cork South Docklands LAP.
- 1.1.4 John Paul gave evidence last year, on behalf of CHEPA, at the Oral Hearing for the Relocation of Port of Cork to the Oysterbanks in Ringaskiddy. The evidence compared the traffic and transport impacts of the Oysterbanks location to an alternative location at Marino Point.
- 1.1.5 ILTP have been involved in a very wide range of projects in recent years. We have been involved at in a various ways in all three SDZs (Special Development Zones) approved to date by Government. We provided technical transport input to the Hansfield SDZ on behalf of Fingal County Council and have continued to provide the traffic and mobility management inputs to the Adamstown Planning Scheme (SDZ) on behalf of the developers, while we had overall responsibility for the preparation of the Clonmagadden SDZ on behalf of Meath County Council.
- 1.1.6 ILTP have also undertaken a wide variety of transportation assessments regarding major infrastructure development and freight movement and are currently working on some of the most significant redevelopment projects in the state. These include:



- Dunkettle Interchange Upgrade – Client CNRDO
- Cork South Ring Road – Client CNRDO
- N21 Adare Bypass 2 + 1 Pilot scheme – Client Mid-West RDO
- Dublin Port Tunnel Operational Assessment – DCC/NRA
- IKEA Planning Application – Client FCC
- Waste Energy Plant Poolbeg – Client DCC
- Dublin Airport 2nd Runway – FCC
- Gorey Bypass – Client Tramore House RDO
- Mitchelstown Traffic and Transport Management Plan – Client Cork County Council
- Cork South Docklands LAP – Cork City Council (Part of a team led by Brady Shipman Martin)
- The Dublin Northern Area Fringe – Client DCC

1.2 Background and Scope

- 1.2.1 ILTP were requested to review the traffic impacts associated with the Waste-to-Energy Facility and Waste Transfer Station proposed for Ringaskiddy, Cork.
- 1.2.2 ILTP have reviewed the Roads and Traffic Section of the Environmental Impact Statement (EIS) undertaken by Arup. Road and traffic concerns associated with the proposed Waste-to-Energy and Transfer Station have been identified. ILTP have also reviewed the Inspector's Report for the Planning Application for a previous Waste-to-Energy facility proposal in Ringaskiddy.

2 REVIEW OF EIS

2.1 Introduction

- 2.1.1 As part of this assessment, ILTP have reviewed the Roads and Traffic Section of the EIS prepared by Arup Consulting Engineers on behalf of Indaver Ireland. Further to reviewing the EIS this section also seeks to address certain issues raised in the evidence given by Mr. Tony Lynch.

2.2 Review of Existing Situation

- 2.2.1 The Arup report states that "In recent years, the Ringaskiddy area has experienced rapid levels of industrial growth, with some further growth likely in the future. The increase in industrial growth has led to a significant increase in traffic within the Ringaskiddy area." The EIS also acknowledges that while the N28 was designed to accommodate high volumes of traffic "The roadway, however, does experience congestion during peak periods."
- 2.2.2 The EIS highlights a number of junctions on the N28 that were included in the assessment. These include:
- Shannon Park Roundabout
 - Raffeen Bridge Junction
 - Shanbally Junctions
 - Ringaskiddy Junction

- Ferry Port Access

2.2.3 The EIS acknowledges some queuing experienced on the approach to the Shannon Park Roundabout, “in particular from the Ringaskiddy direction during the evening peak period.” The Raffeen Bridge Junction is detailed to experience some “queuing on the Raffeen Bridge arm of the junction during the morning peak periods.” The EIS also states “queues of eastbound traffic extending back for a considerable distance in the morning peak period” are experienced at the Shanbally Roundabout.

2.2.4 ILTP have undertaken site visits and generally agree with the EIS regarding queuing and congestion in the area, particularly on the N28. However, the ILTP site visits have indicated some larger queue lengths than stated in the EIS. Queuing was observed at the Shannon Park Roundabout in the PM peak to be greater than that stated in the EIS.

2.3 Review of Traffic Generation

2.3.1 The traffic generated by the proposed development was estimated based on two types of traffic: HGV traffic and Car traffic.

2.3.2 HGV traffic was generated based on the anticipated volumes of waste and the likely number of HGVs required to accommodate that waste. HGV surveys undertaken at Indaver sites in Flanders and in Dublin were used to develop daily HGV traffic profiles for the site. Car traffic was generated based on the number of employees predicted for the facility. A limited number of visitors to the site were predicted. Shift starting times, ending times, change over and lunch hours were used to develop the daily car traffic profiles for the site.

2.3.3 ILTP generally agree with the traffic generation methodology detailed in the EIS.

2.4 Review of Traffic Distribution and Assignment

2.4.1 In the EIS the distribution of HGV and Car traffic through the local road network was based on existing traffic patterns in the area. The EIS states “The traffic from the proposed development has been distributed through the road network based on existing traffic patterns. The total two-way traffic recorded at the main road network extremities during the survey period (06:00 – 24:00) has been used for this”.

2.4.2 ILTP disagree with this method of distribution on a number of grounds. As the proposed Waste-to-Energy Facility is to serve the waste needs of Cork City and County, and is to be the sole hazardous waste incinerator for Ireland, it would stand to reason that the facility would be of regional significance, if not national, in dealing with hazardous waste. No catchment/distribution assessment was undertaken for the development to determine the likely distribution of traffic to and from the site, countywide, province-wide or nationwide.

2.4.3 Using the existing traffic patterns as the distribution for the proposed development would seem to over predict HGV traffic for the Waste-to-Energy Facility to utilise regional and local roads as opposed to the Strategic National Road Network. Some of these regional roads have been highlighted in the EIS as having “substandard alignment in parts, reducing Heavy Goods Vehicle accessibility”. Overly predicting HGV traffic to utilise lower order roads seems contrary to the “Strategic” nature of the development, and would therefore underestimate the impact on the National Road Network.

2.4.4 ILTP disagree with the method of distribution and assignment for the traffic generated by the proposed development. Overall, the traffic distribution and assignment applied to the development traffic appears to reduce the impact of the development traffic on the Strategic Network, by dispersing some of it on local and regional roads in the Carrigaline/Ringaskiddy

area. No catchment/distribution assessment was undertaken to determine the traffic distribution. The distribution appears to over predict the use of substandard lower order roads for HGV traffic.

- 2.4.5 In the event of large amounts of strategic traffic utilising lower order roads, it would be expected that mobility and mitigation measures would be introduced to ensure HGVs utilise the National Routes, given that the nature of the development would be of regional or national significance.

2.5 Review of HGV Impact on Road Network

- 2.5.1 Due to the nature of the proposed development the majority of generated vehicles will be Heavy Goods Vehicles (HGVs). The proportion of HGV traffic for the proposed development was predicted to be approximately 55%, which equates to 188HGV/day. This proportion of HGVs is very high compared with the percentage of HGVs on the national roads, which in general have a HGV proportion of approximately 10%.
- 2.5.2 ILTP feel that the HGV impact on the road network is not emphasised adequately in the EIS. HGVs have a greater impact on roadways and in particular at junctions than Cars or Light Goods Vehicles (LGVs). In strategic traffic modelling and assessment, traffic is represented in small units called Passenger Car units (PCUs), which equate to one car. HGVs are generally represented by 3 PCUs per HGV, due to the greater impact HGVs have on the junctions and the road network. In basic terms, 1 HGV has the equivalent impact of 3 cars. PCUs are a better representation of HGV impacts on the network as they give a better appreciation for the greater impacts associated with the HGVs.
- 2.5.3 To ensure robustness of assessment, particularly with regards to large volumes of HGV traffic, it is recommendable to utilise equivalent PCU values, rather than vehicle numbers. In this respect, ILTP feel that the HGV impact on the road network is not emphasised adequately in the EIS.

2.6 Review of Road Network Operation Assessment

- 2.6.1 In Section 8.7 of the EIS, the traffic generated by the proposed development is assigned to the road network, showing the percentage increase in traffic on the road network. ILTP disagree, as stated in Section 3.4, with the distribution and assignment of traffic on the road network, as it appears to reduce the impact of the development traffic on the Strategic Network, by dispersing it on local and regional roads in the Carrigaline/Ringaskiddy area.
- 2.6.2 ILTP also disagree with the presentation of the projected traffic flows and percentage increase as they do not adequately represent the impact of the increased traffic on the road network, as it represents the increase in terms of vehicles/hour as opposed to PCUs/hour.

2.7 Review of Projected Junction Operation Assessment

- 2.7.1 Section 8.7 of the EIS also details and assesses the projected junction operation for 6 junctions. This assessment utilised ARCADY to assess roundabouts and PICADY to assess priority junctions. The junctions assessed include the following:
- Shannon Park Roundabout
 - Raffeen Bridge Junction
 - Shanbally Junctions
 - Ringaskiddy Junction
 - Ferry Port Access
 - Proposed Indaver Site Entrance

- 2.7.2 ILTP undertook a site visit, which included a queue length survey at the Shannon Park Roundabout. During the site visit queuing was observed at the Shannon Park Roundabout, in particular extensive queuing was surveyed westbound on the N28 from the Shannon Park Roundabout in the PM peak. Figure 2.1 shows extensive westbound queuing on the N28 at the Shannon Park Roundabout in the PM peak at approximately 17:00 on 27th January 2009.



Figure 2.1 : Westbound Queuing on the N28 at Shannon Park Roundabout in the PM Peak

- 2.7.3 In addition to the site visit at Shannon Park Roundabout, an in-vehicle video survey of the westbound approach was undertaken as a distance and journey time survey at approximately 17:50 on 27th January 2009. Queuing on this approach was observed to extend 415m from the Shannon Park Roundabout. To travel the 415m of queued westbound traffic took 6:05 minutes. Figure 2.2 illustrates the extent of this queuing surveyed in the PM peak.



Figure 2.2 : Queuing Surveyed Westbound on N28 At Shannon Park Roundabout in PM Peak

- 2.7.4 In Appendix 8.1 of the EIS the ARCADY assessment of the Shannon Park Roundabout for the 2008 year existing scenario describes the N28 on the east of the Shannon Park Roundabout having a Demand/Capacity ratio of 67%, a maximum queue of 2 vehicles and an average delay of 0.15 minutes. This would imply that this approach could accommodate in the order of 50% more traffic. The ILTP survey highlighted a major discrepancy between the existing scenario at the Shannon Park Roundabout when compared to the 2008 Base Year Scenario ARCADY model in the EIS.
- 2.7.5 ILTP feel that the 2008 Base Shannon Park roundabout scenario modelled in ARCADY is not calibrated or validated accurately to represent the existing situation. Due to the inaccuracy of the base model the future year modelling assessment cannot be relied upon.
- 2.7.6 In addition to the assessment issues highlighted for the Shannon Park Roundabout operational assessment, ILTP have concerns regarding the accuracy of the modelling of the Shanbally Junctions. The EIS only considers the roundabout in the assessment, when in fact the adjacent priority junction can impact on the overall capacity of the network.
- 2.7.7 For the existing scenario, the EIS states “queues of eastbound traffic extending back for a considerable distance in the morning peak period” are experienced at the roundabout. The EIS also states that the “priority junction exacerbates congestion problems with commuters from Monkstown and Passage West using the junction to access the N28, avoiding traffic queues on the N28 between Raffeen bridge Junction and the Shanbally Roundabout”.
- 2.7.8 As the roundabout and the adjacent priority T-junction interact and at times reduce overall capacity at this location it would seem appropriate to assess the combined impact of traffic on the two junctions, and not just the roundabout. This would particularly be the case since traffic is assigned to this local road from the proposed development, and would likely compound the impact on the overall capacity at this location. ILTP feel that the impact of development traffic at these junctions has been under-represented, due to the assessment of only one of the junctions.

2.8 Review of Impact on Ringaskiddy Village Urban Area

- 2.8.1 ILTP also assessed the impact of traffic generated by the proposed development on the urban area of Ringaskiddy Village. Section 8.7 of the EIS for the proposed Waste-to-Energy Facility details that the proposed development traffic will increase through traffic in Ringaskiddy Village by 4.1% in the AM peak hour, by 14.7% in the Midday Peak hour, and by 3.6% in the PM peak.
- 2.8.2 As stated above, in Section 3.5, ILTP feel that the HGV volumes have been under-represented in the EIS. HGVs should be represented using PCU values instead of vehicles, as it assesses their impact more robustly. ILTP have re-assessed the percentage increase in traffic for Ringaskiddy Village based on a PCU value of 3 PCUs per HGV. Table 2.1 details the vehicular increase in terms of vehicles/hour and also in terms of PCUs/hr.

Table 2.1: Comparison of Traffic Impacts in Ringaskiddy Village

	Existing	Existing + Dev	Increase		Existing	Existing + Dev	Increase
	veh/hr	veh/hr	%		PCU/hr	PCU/hr	%
AM Peak	941	980	4.14%		989	1032	4.35%
Midday Peak	435	499	14.71%		495	611	23.43%
PM Peak	617	639	3.57%		659	721	9.41%

- 2.8.3 Assessing the impact of the traffic generated by the proposed development in this manner allows for the appropriate impact to be fully assessed. It can be seen from Table 2.1 that the traffic impact in Ringaskiddy Village is greater than that stated in the EIS, particularly for the Midday and PM peak scenarios.

2.9 Traffic and Transport Assessment Guidelines – Threshold Guidelines

- 2.9.1 The evidence provided by Mr. Tony Lynch relies heavily on reference to the guideline thresholds in the NRA's 'Traffic and Transport Assessment Guidelines' September 2007, in indicating that the traffic associated with the development would be insignificant. The following is reported in Mr. Tony Lynch's statement of evidence on pages 3 and 4:
- 2.9.2 "... During the operational period the projected increase in traffic is very low with traffic on the N28 East of Shannonpark expecting a 1.6% increase in traffic during the morning peak period and 1.3% increase during the evening peak period, with a slightly greater increase noted during the lunchtime peak period at 5.5%..."
- 2.9.3 Traffic increases of this nature would be considered insignificant. The NRA's 'Traffic and Transport Guidelines' September 2007 states that a threshold approach should be considered to understand the extent of the influence a particular development. The following extract from the above document illustrates these thresholds.
- 2.9.4 'The threshold approach should be used to establish the area of influence of the development. In general, the study area should include all road links and associated junctions where traffic to and from the development will exceed 10% of the existing traffic movements, or 5% in congested or other sensitive locations, including junctions with national roads.'
- 2.9.5 It can clearly be seen that increases of 1% - 2% during the busy morning and evening peak periods and 5% - 8% during off peak periods will not influence traffic conditions and will not have any material effect on traffic conditions at those locations."

- 2.9.6 The NRA's 'Traffic and Transport Guidelines' September 2007 does not state that traffic volumes that fall under these thresholds are insignificant. The extract from the document merely sets out guideline thresholds for the scoping of the study area for a Traffic and Transport Impact Assessments; it is not a statement of the significance of the traffic impact.
- 2.9.7 If this statement were to be used as the threshold of the impact of traffic associated with a development, then the more traffic observed on a congested road network, the larger the development could be built without being said to have an impact.
- 2.9.8 Take two examples: an increase of 200pcu/hr on a road catering for 200pcu/hr consists of a 100% increase in traffic, while an increase of 200pcu/hr on a road catering for 4000pcu/hr consists of a 5% increase in traffic. From the two examples the volume of traffic in the second example has a far lower percentage increase but could have a greater impact on the road network due to total traffic volumes.
- 2.9.9 This is why this statement is intended for guideline study area threshold purposes and not for traffic impact purposes. The impact of development traffic on the network and junctions is assessed through the "analysis of junction capacity including queue lengths and reserve capacity", not through the use of the guideline study area scoping thresholds.

2.10 Summary

- 2.10.1 In summary, ILTP feel that the Roads and Traffic section of the EIS is under-representative of the impact that the traffic generated by the proposed development would have on the road network.
- 2.10.2 ILTP disagree with the method of distribution and assignment for the traffic generated by the proposed development, as no catchment/distribution assessment was undertaken for the development to determine the likely distribution of traffic to and from the site, countywide, province-wide or nationwide. Overall, the traffic distribution and assignment applied to the development traffic appears to reduce the impact of the development traffic on the Strategic Network, by dispersing it on local and regional roads in the Carrigaline/ Ringaskiddy area.
- 2.10.3 ILTP disagree with the method in which the impact of HGV traffic generated by the proposed development is assessed in the EIS. HGVs have a greater impact on the road network than cars and should be assessed as such. To ensure robustness of assessment, particularly with regards to large volumes of HGV traffic, it is recommended to utilise equivalent PCU values, rather than vehicle numbers. In this respect, ILTP feel that the HGV impact on the road network is not emphasised adequately in the EIS.
- 2.10.4 The interaction of the two junctions at Shanbally is not assessed, only the roundabout is assessed, even though it is stated that the nearby priority T-junction negatively impacts on the capacity of the roundabout and hence the road network at this location.
- 2.10.5 The base year calibration of the Shannon Park Roundabout does not accurately reflect the existing situation, particularly in the PM peak. In fact it under-represents N28 eastbound queuing by approximately 400m. Due to the inaccuracy of the base model the future year modelling assessment cannot be relied upon.

3 REVIEW OF PREVIOUS PLANNING APPLICATION – INSPECTOR’S REPORT

3.1 Introduction

- 3.1.1 ILTP have reviewed the Inspector’s Report, dated 5-1-2004, for the previous application for a smaller Waste-to-Energy facility for Ringaskiddy, in terms of roads and traffic. While this refers to

a previous application on the site, ILTP feel that some of the issues raised in the Inspector's Report are still applicable and valid in relation to the current application.

3.2 Adequacy of Content of the EIS: Traffic

3.2.1 The Inspector stated "all of the measurements were given in vehicles per hour, rather than PCUs, and hence equated a very large HGV with a private motor car, despite their obvious differences in size and extent of road coverage in congested conditions. This had the effect of underestimating the impact of HGV traffic (which would represent a significant proportion of the traffic that would be generated by the development)". As stated previously in this report the new application for the increased size Waste-to-Energy Facility has again underestimated the impact of HGV traffic by not converting HGVs to PCUs, which are more appropriate to determining the full impact.

3.3 Proper Planning and (Sustainable) Development: Inadequate Infrastructure - Roads

3.3.1 The inspector also states, regarding the inadequacy of the existing road network, "It is evident to me that the existing traffic situation in the area, and in particular in Shanbally and Ringaskiddy, and along the N28 from the Shannon Park Roundabout, is extremely congested, and is of a standard that could not justify further development without improvement". In the intervening years between the previous application and the current application the road network has not been improved by any significant amount (if at all), and as a result ILTP agree with the Inspector's Report that the road network could not justify further development without infrastructure.

3.4 Conclusion and Recommendation

3.4.1 In the Conclusion and Recommendation Section of the Inspector's Report the following is stated:

- "Having regard to the location of the proposed development at the end of the peninsula of Ringaskiddy, with a single road access and no rail access, on the southern coast of the State, and to the scale of the development which is designed to source waste from all parts of the State, it is considered that the proposed development would involve excessive movement of vehicular traffic through urban areas, and hence would give rise to conditions that would be prejudicial to public safety and amenity. The proposed development would therefore be contrary to the proper planning and development of the area".
- "The existing road infrastructure in the vicinity of the site, particularly along the N28 National Primary Route at Carr's Hill, the Shannon Park Roundabout and Shanbally Roundabouts, and along the LP2545 local road within Ringaskiddy, is currently the subject of serious congestion, and is inadequate to accommodate the extra volume of traffic and traffic movements that would be generated by the proposed development, both during construction and operational phases, particularly the significant HGV content. It is considered that the proposed development would endanger public safety by reason of a serious traffic hazard and obstruction of the road users".
- "The proposed development would be premature by reference to the existing deficiencies in the road network serving the area of the proposed development, which it is not likely will be rectified within a reasonable period".

3.4.2 ILTP agree with the Conclusion and Recommendations set out in the Inspector's Report for the previous application as it highlights deficiencies in the road network, existing at the time of the previous application, which have not been fully addressed in the EIS for the current application. Inadequacies in the Roads and Traffic Section in the current application EIS, with regards to the adequate representation of HGV traffic, have not been rectified and still underestimate the impact associated with the HGV traffic.



4 CONCLUSIONS

- 4.1.1 From our assessment of the proposed development, we find that the traffic generated by the proposed development has been under-represented in the EIS, the distribution and assignment methodology is flawed and the junction analysis was undertaken on the base model simulations that were not validated accurately to existing conditions.
- 4.1.2 The Inspector's Report from the previous application was highly critical of the previous traffic assessment in terms of HGV representation in vehicles per hour, and also in terms of the lack of capacity of junctions on the N28. In the current application the HGV traffic is again represented in vehicles and not in PCUs. Since the Inspector's Report for the previous application, the capacity issues at the junctions have not been addressed and congestion is still experienced at peak times.
- 4.1.3 From our assessment of the proposed development, we find the development to be premature on roads and traffic grounds, pending the upgrade of the N28, and would urge An Bord Pleanála not to grant permission.