PORT OF TILBURY LONDON

PLANNING ACT 2008
INFRASTRUCTURE PLANNING (EXAMINATION PROCEDURE) RULES 2010

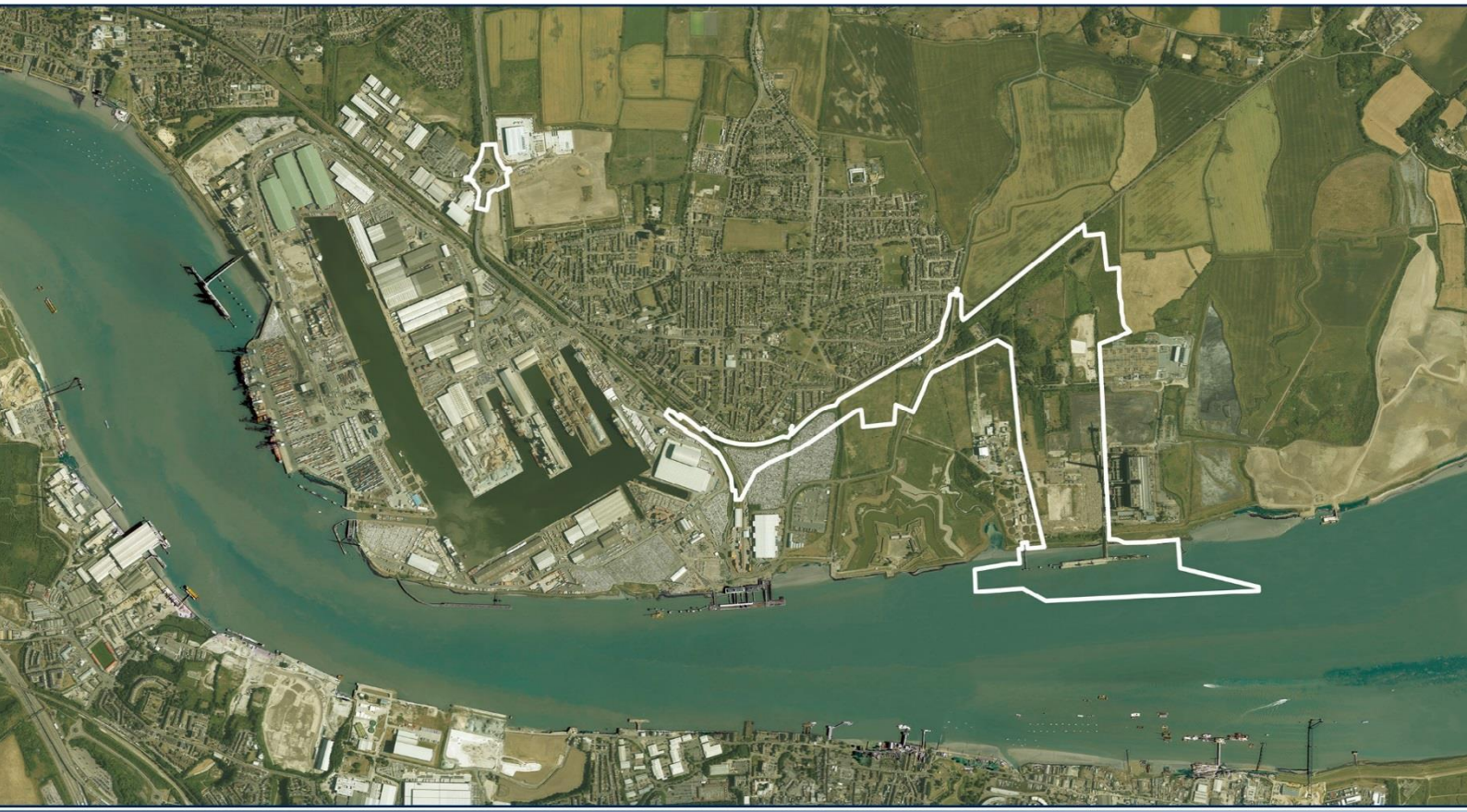
PROPOSED PORT TERMINAL AT FORMER TILBURY POWER STATION

TILBURY2

TR030003

TRAFFIC GENERATION ASSUMPTIONS FOR TILBURY2

TILBURY2 DOCUMENT REF: PoTLL/T2/EX/84



TECHNICAL NOTE

Project No:	**ITL11323**
Project Title:	**Tilbury2**
Title:	**Traffic Generation Assumptions Note**
Ref:	**PH/PR/ITL11323-032 TN**
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SECTION 1 INTRODUCTION

1.1 This Note provides a summary of the clarification which has been provided to Highways England regarding calculation of the traffic generation estimates contained in the Transport Assessment (TA) (Document Reference: APP-072).

1.2 The first section of this Note considers the overall approach to traffic assessment, before proceeding to discuss the significance of the trip rate for the existing port and then deals with and explains the development of the figures for the operational traffic generation of various different uses that the proposed site development, including specifically:

- the CMAT;
- the Ro-Ro Terminal; and
- the General Storage Areas in use as a Vehicle Storage Facility (the worst case for traffic).

1.3 In so doing, it seeks to demonstrate that the traffic generation figures for Tilbury2 are both robust and conservative, and are thus very likely to be less than suggested. As such, no requirement (as has been suggested by Highways England) is considered necessary or appropriate to control these traffic movements.

SECTION 2 APPROACH TO ASSESSMENT

2.1 PoTLL has not undertaken detailed forecasting or modelling for the proposed volumes. Instead, it has relied on its longstanding experience of managing a port alongside discussions with potential customers and knowledge of the market. The data set out in the TA and considered in more detail here is therefore contextual in nature with the purpose of demonstrating macro trends.

2.2 In particular, it should be noted that past performance of the existing port or future predictions of the UK cannot be used as scaling factors for Tilbury2, as each port has its own site specific concerns.

2.3 For example, at the existing Port of Tilbury, space constraints and changing sectoral patterns as different markets have required different demands mean that its historical data would not be useful for RoRo or CMAT movements.

2.4 Furthermore, planned strategic growth across the greater region will impose different demands on ports over time, meaning that it is not possible to model with any certainty precise traffic movements from historic trends.

SECTION 3 EXISTING PORT TRIP RATE

3.1 In order to contextualise the traffic generation estimates for Tilbury2, the TA details a trip rate for the existing Port (TA, section 6.9). This is referred to as a 'Pro-rata trip rate'. This has been calculated by dividing surveyed traffic flows at the existing Port by the operational area of the existing Port (13,792 total movements, of which 44.7% were HGVs, for a 240HA site).

3.2 The existing Port includes CMAT, RoRo and vehicle storage operations along with other port related uses.

3.3 Thus, estimates of traffic at Tilbury2 based on the existing port 'Pro-rata trip rate' provide a reasonable estimate of traffic arising from Tilbury2 and demonstrate that the estimates used for assessment in the TA are robust.

3.4 Applying this existing 'Pro-rata trip rate' to Tilbury2 provides an estimate of traffic generation at Tilbury2 (i.e. with an expanded operational site area of 42.5Ha). This pro-rata trip rate estimate is lower than the estimates of traffic generation used to assess the impact of the development in the Transport Assessment.

3.5 This is the case in respect of both the summary of daily traffic generation ('Tilbury2 Operation Specific'' in the table below) and when a sensitivity test is applied ('Tilbury2 Sensitivity'). The sensitivity test assumes that all of the exports from the CMAT will be undertaken by road. This is a sensitivity test given the existence of the rail link which will be utilised for exports from the CMAT.

3.6 A comparison of the relevant figures is provided below (as set out in the Transport Assessment in paragraphs 6.9.3, table 6.12 and paragraph 6.8.3 respectively):

Table 1: Daily Traffic Generation Comparison at Tilbury2

	Tilbury 2 'Pro-rata Trip Rate'	Tilbury2 Operation Specific	Tilbury2 Operation Specific (Sensitivity)
Total Vehicles	2,442	3,040	3,566
HGV's	1,092	2,143	2,519

3.7 The estimates of traffic used to assess the impact of the proposals ('Tilbury2 Operation Specific' and 'Tilbury2 Sensitivity') are considerably greater. There are approximately 25% more total vehicles and 100% more HGV's than those calculated using the 'Pro-rata trip rate'.

3.8 The 'Pro-rata trip rate' was included in the Scoping Note agreed with Highways England (Appendix A to the Transport Assessment).

SECTION 4 CONSTRUCTION MATERIALS AND AGGREGATES TERMINAL (CMAT)

Aggregates Distribution Yard

4.1 The proposed throughput of the CMAT is 1.6million tonnes per annum.

4.2 The operational rationale for the throughput is set out in Chapter 5 of the ES (paragraphs 5.67 to 5.75) as was noted in the TA. Specifically, it is noted:

"based on the size of the CMAT areas of the Tilbury2 site and the marine infrastructure, it is assumed that the CMAT Facility will handle 1,600,000 tonnes of aggregates per year."

4.3 The area allocated within Tilbury2 was sized accordingly to accommodate the maximum throughput, following discussions with potential customers. Thus, for the CMAT throughput to increase beyond the 1.6m tonnes per annum would require additional land area with consequent reductions to other operational areas in Tilbury2 and associated reductions in their throughput and hence traffic generation. It should also be noted that the terminals are limited by their limits of deviation within the DCO, so the production facilities could not be located elsewhere (and so expanding the CMAT area), unless through the screening process for the use of permitted development rights, it was shown to be not environmentally significant (including from a traffic point of view) to do so

4.4 The figure of 1.6m tonnes per annum is therefore a worst case throughput for assessment purposes based on a maximum capacity of the size of the CMAT.

4.5 The average payload for HGVs distributing aggregate was assumed to be 16 tonnes and this is a worst-case scenario (TA, paragraph 6.5.6). Vehicles distributing aggregate vary in size from 16 tonne payloads to 33 tonne payloads. The Mineral Product Association data for 2015 (TA, paragraph 6.5.6; Mineral Products Association – Summary Sustainable Development Data 2016) shows that the average aggregate vehicle payload in the UK was 22.3 tonnes. Clearly, the assumption that all exports by road will be carried out by vehicles with 16 tonne payloads is significantly below the average payload for aggregates and therefore very conservative.

4.6 To assist in understanding the throughput and associated size of the Tilbury2 CMAT information on similar existing riverside aggregate facilities (aggregate wharfs) has been researched.

4.7 Dagenham and Cliffe are individual wharves along the Thames estuary and are the second and third largest by throughput in England respectively. The annual tonnages at Cliffe (1.53 million tonnes of aggregate per year) and Dagenham (1.69 million tonnes of aggregate per year) are comparable to Tilbury2. They are similarly comparable in site area (Dagenham - c14.4 Ha; Cliffe – c15.8 Ha) to Tilbury2 at 16.3 Ha. These comparable facilities demonstrate that the estimate of aggregate throughput at Tilbury2 (1.6m tonnes of aggregate per year) is reasonable.

4.8 Each processing facility would use a proportion of the 1.6m tonnes of aggregate per year. Thus, the total export of raw aggregate would be lower than 1.6m tonnes per year as a substantial proportion would be used on site to produce asphalt, concrete and other products. No discount was applied to the annual amount of raw aggregate exported by road when calculating traffic generation.

4.9 To explain further, the throughput of the processing facilities (explained further below) has been estimated to total 0.7m tonnes per year:

- Asphalt Batching Plant (260,000 tonnes)
- Concrete Batching Plant; (120,000 tonnes / 50,000m^3)
- Construction Blocks; and (150,000 tonnes)
- Cementitious Products (150,000 tonnes)

4.10 As an example, asphalt comprises circa 90% raw aggregate and thus 234,000 tonnes per annum of raw aggregate would be used in its production. The raw aggregate used in the asphalt production would therefore not be exported as raw aggregate but rather as asphalt. However, the assessment of traffic generation has assumed the 234,000 tonnes is exported both as raw aggregate and also as asphalt. This means there has been 'double counting' in the assessment of the export of the raw aggregate.

4.11 For this reason, it is considered that traffic generation for aggregates distribution has been over-estimated in the assessment.

<u>Asphalt Batching Plant</u>

4.12 The estimated throughput of 260,000 tonnes per annum was taken from operator information for a facility at Bow East in London.

4.13 Asphalt is produced through a mixture of sand/gravel (aggregate) and 'asphalt products' (bitumen, limestone filler and reclaimed asphalt pavement). Typically around 5% of the total mixture is 'asphalt product'. The expectation to import 29,500 tonnes of materials per annum was taken from the Bow East site.

4.14 The ‘asphalt product’ is expected to arrive by boat (APP-031 paragraph 5.66). However, as a worst-case assumption in the TA it has been assumed to arrive by road.

4.15 Comparable existing asphalt batching plant facilities range in size between 125,000 and 200,000 tonnes.

4.16 MPA publication “The Mineral Products Industry at a Glance” (Appendix 2 to the CMAT Position Paper (Appendix 3 to PoTLL's Response to First Written Questions (REP1-016))) provides details of annual national throughput (24million tonnes) and number of asphalt plants (275) giving an average of 87,000 tonnes for each plant.

4.17 The estimate of throughput at 260,000 tonnes is clearly robust in the context of the above information. It is three times the average throughput of Asphalt plants across the country and greater than other known examples.

4.18 The vehicle payloads of the imported ‘asphalt product’ was taken from the Bow East site with an average of 22 tonnes per vehicle. This is comparable with the 2015 UK average. The exported Asphalt mix was assumed to be an average of 9.7 tonnes per vehicle based on Bow East information.

Concrete Batching Plant

4.19 The proposed throughput of the Concrete Batching Plant is 50,000m^3 per annum (equivalent to circa 120,000 tonnes per annum), which was taken from information provided by an operator for a site at Southall Lane, Hayes.

4.20 MPA publication “The Mineral Products Industry at a Glance” provides details of annual national throughput (54 million tonnes) and number of concrete batching plants (864) giving an average of 62,500 tonnes for each plant.

4.21 The estimates are based on a large operation. There is a natural limit to the size of concrete batching plants as the product has a short ‘shelf’ life and cannot be transported large distances.

4.22 The estimate of throughput at 120,000 tonnes is clearly robust in the context of the above information. It is twice the average throughput of concrete batching plants across the country and greater than other known examples

4.23 All materials would be exported by road in this worst-case scenario.

4.24 The expected average payload for exports is 7.8m^3. Concrete Mixers generally range in size between 6m^3 and 8m^3, although larger vehicles are available.

Construction Blocks

4.25 PoTLL has stated (TA, paragraph 6.5.14) that the proposed throughput of the Construction Blocks element is 150,000 tonnes per year. This is based on discussions between PoTLL, existing and prospective operators.

4.26 All materials would be exported by road in this worst-case scenario.

4.27 PoTLL has outlined (see paragraph 3.4 above) that the vehicles used in the existing Port operations range between 16 and 33 tonne vehicles. A payload of 16 tonnes has been assumed as a worst case assessment.

Cementitious Products

4.28 PoTLL has stated (TA, paragraph 6.5.17) that the proposed throughput of the Cementitious Products element is 150,000 tonnes. This is based on discussions between PoTLL, existing and prospective operators.

4.29 All materials would be exported by road in this worst-case assessment.

4.30 PoTLL has outlined (see paragraph 3.4 above) that the vehicles used in the existing Port operations range between 16 and 33 tonne vehicles. A payload of 16 tonnes has been assumed as a worst case.

SECTION 5 RO-RO TERMINAL

5.1 In determining the requirements for Tilbury2, PoTLL identified demand at opening of between 275,000 and 300,000 units per annum growing to 360,000 units per annum by 2023 (Masterplanning Statement, paragraph 5.10 (APP-034)). To allow for future growth a maximum capacity of 500,000 units per annum was identified, which was used to determine the operational land requirements on Tilbury2.

5.2 The design of the landside RoRo terminal has been modelled in order to define the area of land required as noted in the Masterplanning Statement (Document Reference 6.2.5A, paragraph 5.8). The modelling parameters embrace vessel (boat) sizes and 'dwell times' of trailers/containers inflated by a peaking factor to account for variations in cargo flows. The area of land required to achieve an annual throughput of 500,000 units is 20Ha as identified in the Masterplanning Statement (paragraph 5.10). Achieving a greater throughput would require an increase in the size of the landside terminal, with consequent reductions to other operational areas in Tilbury2 and associated reductions in their throughput and hence traffic generation. As noted above in paragraph 3.3, there are also controls through the limits of deviation that would prevent this from occurring, unless through the screening process for the use of permitted development rights, it was shown to be not environmentally significant (including from a traffic point of view) to do so

5.3 The assumption of 2% of vehicle trips being single purpose trips (i.e. a vehicle only has a trailer or container for one leg of its journey, arrival or departure) is informed by experience of existing Ro-Ro operators and PoTLL.

5.4 All units are assumed to be exported by road in this worst-case scenario, although the RoRo would have its own rail siding.

SECTION 6 VEHICLE STORAGE

6.1 The vehicle storage area within Tilbury2 comprises an area of 6.2 acres (2.51ha). The estimates of vehicle movements have been based on an area of 20 acres (8.09ha) (TA, paragraph 6.5.23). The Port currently achieves storage of circa 250 vehicles per acre[1] and experiences between 5 and 6 stock turns each year. As a worst-case scenario, 260 vehicles per acre and 6 stock turns each year were assumed which equates to 31,200 vehicles per annum (TA, paragraph 6.5.23).

6.2 The inbound light vehicle movements associated with the storage (TA, Table 6.8) would route between Tilbury2 and Gate 2 of the existing Port (TA, paragraph 6.5.25) during the inspection process, thus not affecting Highways England's road network.

6.3 For exporting vehicles an average of 8 vehicles per car transporter is assumed (TA, paragraph 6.5.28). Transporters can carry up to 10 vehicles.

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[1] Tilbury Port Handbook 2016

6.4 In the worst-case scenario, all vehicles will be exported by road.

SECTION 7 STAFF TRIPS

7.1 For assessment purposes it is assumed all staff travel to Tilbury2 by car i.e. a 100% mode share. This compares with a 77% mode share of those who currently travel to work in Tilbury, which includes local residents (2011 Census; TA Table 6.11). Therefore, the assessment overestimates the number of vehicle trips for staff.

7.2 The Port has estimated that there would be 309 staff on site at Tilbury2 during a typical day.

7.3 The working hours of staff vary across the different uses and are set out in the TA (paragraph 6.10.4).