A12 Chelmsford to A120 widening scheme

TR010060

6.3 ENVIRONMENTAL STATEMENT

APPENDIX 6.2 TRAFFIC DATA FOR THE AFFECTED ROUTE NETWORK

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ENVIRONMENTAL STATEMENT
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1 Traffic data

1.1 Introduction

1.1.1 This appendix presents an overview of the traffic data, assumptions and limitations for the construction and operational scenarios.

1.1.2 Further details of the traffic model and how traffic data has been compiled for the air quality assessment are described within Appendix C: Transport Forecasting Package Report, of the Combined Modelling and Appraisal Report [TR010060/APP/7.3]. Supporting information related to the construction traffic is included in Section 1.2 of this appendix. A summary of the assumptions applied and limitations of the traffic data are provided in Section 1.4 of this appendix.

Traffic scenarios

1.1.3 Traffic data for the modelling scenarios were obtained from the A120 Braintree to Marks Tey A12 PCF Stage 3 DCO model, developed by Jacobs. More detail is provided within Appendix C: Transport Forecasting Package Report, of the Combined Modelling and Appraisal Report [TR010060/APP/7.3].

1.1.4 Traffic data were provided for the following scenarios:

- Base year (2019): the existing conditions in 2019
- Opening Year (2027) Do-Minimum:
  - Represents the future baseline conditions in 2027 i.e. without the proposed scheme in place
  - Accounts for known planning commitments and developments in 2027, including the modified A12 junction 19, which is to be redeveloped prior to the start of construction (2024), and the proposed Chelmsford North East Bypass and other minor redevelopments
  - Utilises 2027 transport growth factors
- Opening Year (2027) Do-Something:
  - As the opening year Do-Minimum scenario but with the proposed scheme in place
- Peak construction year (2025) Do-Minimum:
  - Represents the future baseline conditions in 2025 i.e. without the proposed scheme in place
  - Accounts for known planning commitments and developments in 2027, including the modified A12 junction 19, which is to be redeveloped prior to the start of construction (2024), and the proposed Chelmsford North East Bypass and other minor redevelopments. This is a conservative approach for 2025

- Utilises 2025 transport growth factors. The scenario was produced by back-casting the opening year 2027 Do-Minimum traffic to 2025

- Peak construction year (2025) Do-Something:
  - As the peak construction year Do-Minimum scenario but also including construction traffic associated with the proposed scheme

1.1.5 The Traffic Reliability Area (TRA) was identified by the project transport modelling team and was used to define the extent of the air quality dispersion model. More detail is outlined within Appendix C: Transport Forecasting Package Report, of the Combined Modelling and Appraisal Report [TR010060/APP/7.3].

1.1.6 Traffic data were provided for each directional road link as an Annual Average Daily Traffic (AADT24) flow and as hourly averaged periods over the course of a day (i.e. AM, PM, Inter peak and Off peak periods). A summary of the traffic modelled time periods is provided in Table 1.2 of Appendix 6.3 of the Environmental Statement [TR010060/APP/6.3]. The percentage of heavy goods vehicles (HGV) and speeds (provided as speed bands, in line with DMRB LA 105 guidance) were also provided.

Screening approach

1.1.7 The traffic data (construction and operational) were screened using the criteria and thresholds set out within DMRB LA 105 (Highways England, 2019), which determined the Affected Road Network (ARN). The screening criteria are listed in Section 6.5 of Chapter 6: Air quality, of the Environmental Statement [TR010060/APP/6.1]. Road links triggered as affected, and roads outside of the TRA, were discussed with the project transport modelling team for inclusion or exclusion within the air quality assessment.

1.1.8 Haul road traffic were screened following the same approach. None of the haul roads were predicted to exceed the screening thresholds, therefore, no further consideration was given to haul road traffic.

1.2 Construction traffic

1.2.1 The assessment of construction traffic was considered in line with DMRB LA 105. Construction is proposed to commence in 2024 and to have been completed by 2027 and therefore qualifies for a detailed air quality assessment to be undertaken. Details concerning the derivation of the construction traffic are provided in the following sub-sections of this appendix.

1.2.2 The peak year for construction traffic was 2025. The Do-Minimum (DM) (without proposed scheme) construction traffic data were derived from the forecast 2027 modelled without scheme traffic data (i.e. the opening year DM) and back-casted to 2025.

1.2.3 This included all committed developments for 2027 and growth factors to 2025 and is a conservative approach. The Do-Something (DS) traffic data were the DS construction flows plus the DM traffic data.

1.2.4 Construction vehicles would utilise the existing A12 for the movement of materials and access to compounds, work sites and borrow pits. Two main compounds are proposed, one at junction 20b and the other at junction 22, with three satellite compounds, one at junction 19, one at Easthorpe Road (east of junction 24) and one at junction 25.

1.2.5 The haul roads are located within the Order Limits for the proposed scheme. HGVs would use the A12 and divert onto the haul roads where practical to reduce the volume of construction traffic using the A12.

Construction traffic approach

1.2.6 Information and plates contained within this section have been created by the project transport team to inform the calculations[1] of the construction traffic data applied within the air quality assessment. Reference should be made to Appendix C: Transport Forecasting Package Report, of the Combined Modelling and Appraisal Report [TR010060/APP/7.3] for further detail. An overview is presented in this appendix.

1.2.7 All proposed compounds, site works and borrow pits were positioned within close proximity to the A12 to minimise disruption on local roads.

1.2.8 Construction traffic was assigned to the public road network and apportioned according to demand, delivery and destination.

1.2.9 Between junction 19 and junction 25 of the A12, light-duty vehicles (LDVs) and heavy-duty vehicles (HDVs) would commute between compounds, borrow pits and work sites, making U turns at the closest A12 junctions to facilitate access.

1.2.10 Construction traffic activity were also considered on roads beyond junction 19 and junction 25; namely, the M25, A12, A130, A14 and M11 via A120. See Plate 1.1 for assumed percentage contribution across the network.

1.2.11 Table 1.1 shows the distribution splits of the estimated construction HDV movements across the network. Lower flows to the site from external suppliers are expected on Saturdays compared to movements within junction 19 and junction 25 owing to work shift patterns. The reciprocal situation occurs on weekdays.

Table 1.1 Estimated construction HDV movements

AADT 24 – Beyond J19 - J25	AADT24 - Within J19 - J25
• Monday-Friday = 1,120 (560 in/ 560 out) • Saturday = 520 (260 in / 260 out) • Sunday = None	• Monday-Friday = 980 (490 in/ 490 out) • Saturday = 660 (330 in / 330 out) • Sunday = None

Data were provided by the project Transport Planning team and is available within the reported Transport Assessment [TR010060/APP/7.2]

[1] Traffic activity was derived from spreadsheet calculations.

1.2.12 Estimated construction workers' movements (i.e. LDVs generated by the proposed scheme) are presented in Table 1.2. Workers' origin and destination patterns were assumed to be as follows: 40% from Colchester; 35% from Chelmsford; 15% from Witham; 5% from Braintree and 5% from other (e.g. Maldon).

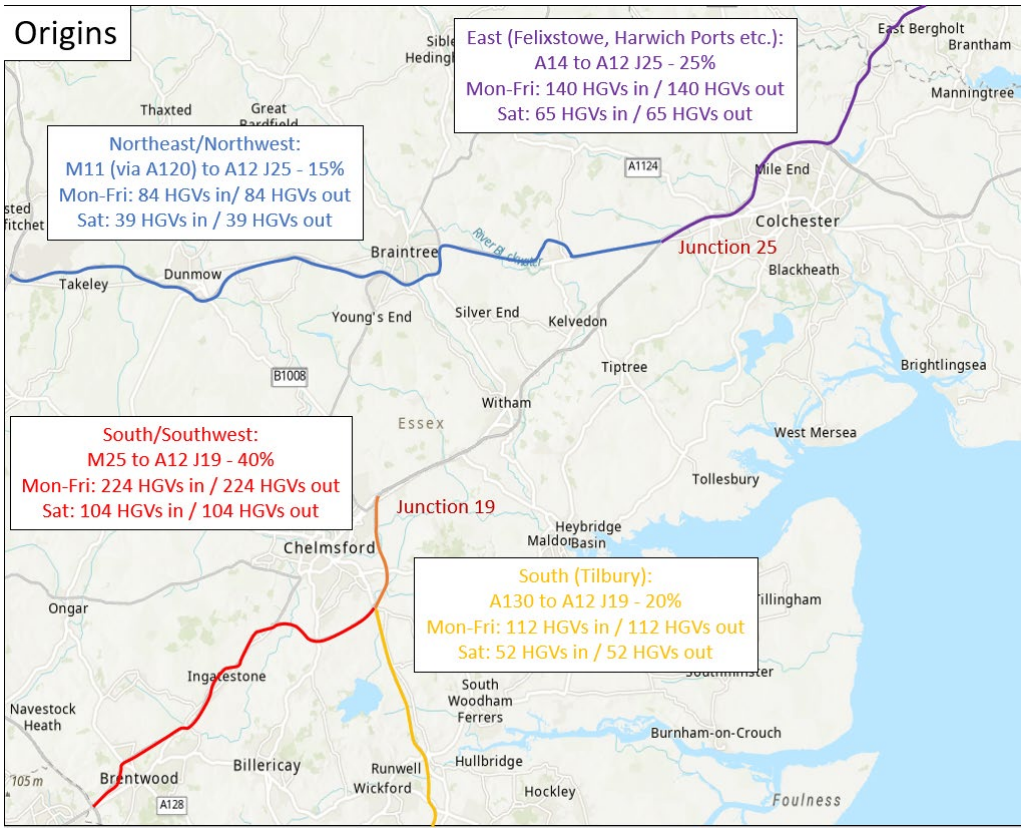
Table 1.2 Estimated construction workers movements

AADT24
• Monday-Friday = 1,550 (1,050 work sites + 400 site offices/100 home) • Saturday = 683 work sites (65% of Monday – Friday), 200 site offices (50% of Monday – Friday) • Sunday = None

Data were provided by the project Transport Planning team and is available within the reported Transport Assessment [TR010060/APP/7.2]

1.2.13 Plate 1.1 shows the estimated percentage split of construction HDV movements and their origins (beyond junction 19 and junction 25).

Plate 1.1 HDV distribution splits used to inform the construction traffic applied in the air quality assessment



The figure was provided by the project Transport Planning team and is referenced within the reported Transport Assessment [TR010060/APP/7.2].

1.3 Operational traffic

1.3.1 Further details pertaining to the traffic modelling for the opening year scenarios are provided within the Transport Assessment [TR010060/APP/7.2].

1.4 Assumptions and limitations

1.4.1 A summary of the assumptions applied to the traffic data and any limitations are outlined below:

- Construction traffic movements are worst case (i.e. some HDV traffic with junction 19 to junction 25 would likely join the haul routes instead of using the A12).
- The origin and destination of HDVs using the external network (A14, M11 via A120, M25, A130, A12) was split by percentages as the exact movements of HDVs to compounds, work sites and borrow pits was unknown.
- Compounds, borrow pits and work sites would be accessed via the shortest route. This resulted in U-turning traffic at some A12 junctions where locations were only accessible from one direction. Construction vehicle movements were increased as a result of this.
- Workers movements were assumed based on the percentage distribution of origins (i.e. commuter routes) and weighted between work sites, site offices and home. Distribution was further assumed to follow shift patterns (i.e. arrive in the AM peak and depart in the PM peak, Monday to Friday 07:30 – 19:00 and Saturday 07:30 – 18:00).
- Workers' modes of transport were assumed to be 80% by car (20% of whom would car share) and 20% of employees would travel by train.
- All office and site workers would travel to the main compounds (junction 20b and junction 22). This distribution was evenly split (50%).
- Workers would be shuttled to work sites from the compounds via minibus. Minibuses would have a 12-seat occupancy.
- Heavy and light duty vehicle distribution was assumed to be spread evenly throughout the day: beyond J19 to J25 links 08:00 - 16:00 Monday to Friday and 08:00 – 16:00 Saturday; and within junction 19 to junction 25 links 07:30 – 19:00 Monday to Friday and 07:30 - 18:00 Saturday.
- Reference should be made to Appendix C: Transport Forecasting Package Report, of the Combined Modelling and Appraisal Report [TR010060/APP/7.3] for further details of operational limitations.

References

Highways England (2019). Design Manual for Roads and Bridges LA 105 Air Quality.