

Appendix 7.2

TRANSPORT EIA TECHNICAL APPENDIX

APPENDIX 7.2: TRANSPORT EIA TECHNICAL APPENDIX

INTRODUCTION

Company

Mott MacDonald Limited

Authors

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Appendix Purpose

This appendix provides the following detail to Chapter 7 Transport, of Volume 2 of the ES:

- Identification of receptors and sensitivity;
- Determination of Impact magnitude; and
- Likely Significant Impact Assessments.

IDENTIFICATION OF SENSITIVE RECEPTORS

IEMA's Guidelines for the Environmental Assessment of Road Traffic set groups or locations which may be sensitive to changes in traffic conditions. This includes:

- People at home
- People at work places
- Sensitive groups including children and the disabled
- Sensitive locations e.g. hospitals, churches, schools, historical buildings
- People walking
- People cycling
- Open spaces & recreational sites
- Sites of ecological / nature conservation value
- Sites of tourism attraction

The study area which surrounds the application site contains many of the uses set out here: people at home, people at work, schools, churches, pedestrians, cyclists and recreational sites.

DETERMINATION OF IMPACT MAGNITUDE

The IEMA's Guidelines for the Environmental Assessment of Road Traffic set out the broad principles of how to assess the magnitude of effect for each category identified for assessment. Where appropriate

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this is summarised in this section. For some effects the IEMA’s guidelines suggest that professional judgement should be used where there are no thresholds defined.

Environmental effects will be assessed in the context of two ‘rules of thumb’ which are taken from the IEMA Guidelines and informed by the Design Manual for Roads and Bridges (DMRB), which help to define which roads need to be considered within the assessment:

Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%).

Rule 2: Include any other specifically sensitive areas where traffic flows will increase by 10% or more.

Severance

The Guidance states that “severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery”. Further, “Changes in traffic flow of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ changes in severance respectively”. However, the guidance acknowledges that the measurement and prediction of severance is extremely difficult. The assessment of severance pays full regard to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether or not crossing facilities are provided.

The DMRB Volume 11, Section 3, Part 8, Chapter 6 states that for severance two-way daily traffic flows of 8,000 vehicles or below may be classed as ‘slight’. Severance can be ‘moderate’ with traffic flows between 8,000 and 16,000 and severe with flows of 16,000 or more.

Based on the above, a threshold of 4,000 vehicles Annual Average Daily Traffic flow (AADT) is a useful starting position above which assessment of severance could begin. This is comfortably below the 8,000 threshold that DMRB states to be the limit where severance is of a slight magnitude and is therefore considered a robust approach. Following that, the magnitude criteria have been developed using professional judgement based on the aforementioned ‘slight, moderate, and substantial’ criteria. Table 7.1 illustrates the severance magnitude criteria to be used:

Table 7.1
Scale of magnitude for severance impacts used in the assessment

| MAGNITUDE | DESCRIPTION |
|------------|---|
| High | Increase in AADT traffic flows of above 90% |
| Medium | Increase in AADT traffic flows of 61– 90% |
| Low | Increase in AADT traffic flows of 31% to 60% |
| Very Low | Increase in AADT traffic flows 11% -30% |
| Negligible | Threshold for assessment total AADT below 4,000 vehicles. Increase in traffic flow 10% or under |

Driver Delay

The IEMA guidance states that – such delays “...are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system”.

For this topic, driver delay will be assessed on a case by case basis using professional judgement subject to the sensitivity of the receptor and informed by the delay results from traffic modelling undertaken as part of the Transport Assessment (TA). In this way junctions which are predicted to operate at less than 0% PRC on account of development are analysed in terms of change to driver delay. Table 7.2 shows the impact magnitude criteria.

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Table 7.2

Scale of magnitude for driver delay impacts used in the assessment

| MAGNITUDE | DESCRIPTION |
|------------|--|
| Very High | Average vehicle delay changes of more than 1 minute as a result of the proposed development during the peak hour periods |
| High | Average vehicle delay changes are between 31 and 60 seconds as a result of the proposed development during the peak hour periods |
| Medium | Average vehicle delay changes are between 21 and 30 seconds as a result of the proposed development during the peak hour periods |
| Low | Average vehicle delay changes are 20 seconds or less as a result of the proposed development during the peak hour periods |
| Negligible | Threshold for assessment junctions operating over design capacity at less than 0% PRC |

Pedestrian Delay

The IEMA guidance states that “Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads”. The guidance suggests that assessors “...use their judgement to determine whether pedestrian delay is a significant impact”. Accordingly, this issue will be assessed on a case by case basis using professional judgement subject to the sensitivity of the receptor.

The Guidance notes that delays will depend not only on the increase in traffic but the likely level of pedestrian demand. The note states that flows of around 1,400 per hour can generate delay of up to 10 – 40 seconds. However, given the vast array of local conditions which can affect delay, the Guidance states professional judgement should be used rather than specific thresholds. Taking due cognisance of the 4,000-vehicle threshold for severance this threshold is also applied to pedestrian delay analysis, as severance includes an element of delay. Table 7.3 illustrates the magnitude criteria to be used.

Table 7.3

Scale of magnitude for pedestrian delay impacts used in the assessment

| MAGNITUDE | DESCRIPTION |
|------------|--|
| High | Increase in AADT traffic flows of above 90% |
| Medium | Increase in AADT traffic flows of 61– 90% |
| Low | Increase in AADT traffic flows of 31% - 60% |
| Very Low | Increase in AADT traffic flows 11% -30% |
| Negligible | Threshold for assessment total AADT below 4,000 vehicles. Increase in traffic flow 10% or under. Road links with no or inadequate pedestrian facilities. |

Pedestrian Amenity

The IEMA guidance broadly defines this as the relative pleasantness of a journey - it is affected by traffic flow, traffic composition and pavement width/separation from traffic. The guidance suggests a tentative threshold for judging the significance of changes in pedestrian amenity of where traffic flow (or its lorry/HGV component) is halved or doubled. This threshold will be adhered to when assessing this issue based on professional judgement. Table 7.4 illustrates the impact magnitude criteria for this assessment.

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Table 7.4
Scale of magnitude for pedestrian amenity impacts used in the assessment

| MAGNITUDE | DESCRIPTION |
|------------|---|
| High | Increase in AADT traffic flows or lorry component above 200% |
| Medium | Increase in AADT traffic flows or lorry component— 101 - 200% |
| Low | Increase in AADT traffic flows or lorry component of 51% to 100% |
| Very Low | Increase in AADT traffic flows or lorry component 31 -50% |
| Negligible | Threshold for assessment total AADT below 4,000 vehicles. Increase in traffic flow or lorry component 30% or under. |

Road Safety

The guidance suggests that “Professional judgement will be needed to assess the implications of local circumstances, or factors, which may elevate or lessen risks of accidents, e.g. junction conflicts”.

The TA produced a thorough review of Road Traffic Collisions (Section 3.8 Appendix 7.2). This analysis will form the basis of the impact magnitude assessment. The criteria used in this assessment is illustrated in Table 7.5 below:

Table 7.5
Scale of magnitude for road safety impacts used in the assessment

| MAGNITUDE | DESCRIPTION |
|-----------|--|
| High | Area identified as an accident cluster site. Increase in traffic of 30% or more. Area not identified by LCC as an accident cluster site. Increase in traffic of 50% or more. |
| Medium | Area identified by LCC as an accident cluster site, increase in traffic 15% or more. Area not identified as an accident cluster site, increase in traffic of 30% or more |
| Low | Threshold for assessment total AADT of 4,000 or above. Area identified by LCC as an accident cluster site increase in traffic below 15%. Area not identified as an accident cluster site, increase in traffic below 30%. |

TRAFFIC DATA USED IN ASSESSMENTS

The traffic data used as the basis for the impact assessment on severance, pedestrian delay and pedestrian amenity is included in tables 7.6 for construction traffic, 7.7 for 2028 operational traffic and 7.8 for 2032 operational traffic.

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Table 7.6
2028 Construction Traffic Analysis

| RECEPTOR LOCATION | 2028 BASE | | 2028BASE + DEVELOPMENT | | % DIFFERENCE | |
|----------------------------------|-----------|-------|------------------------|-------|--------------|-------|
| | AADT | # HGV | AADT | # HGV | AADT | # HGV |
| Walton Lane North of Priory Road | 27710 | 873 | 27824 | 987 | 0.4% | 13% |
| Walton Lane South of Priory Road | 32284 | 1075 | 32341 | 1132 | 0.2% | 5% |
| Spellow Lane East | 11875 | 236 | 11932 | 283 | 0.5% | 24% |
| Bullens Road | 811 | 30 | 868 | 87 | 7.0% | 190% |

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Table 7.7

2028 base and base plus development traffic flows

| RECEPTOR LOCATION | 2028 BASE | | 2028 BASE + DEVELOPMENT | | % DIFFERENCE | |
|---------------------------------------|-----------|-------|-------------------------|-------|--------------|------|
| | AADT | # HGV | AADT | # HGV | AADT | HGV |
| Walton Lane North of Priory Road | 27774 | 827 | 29270 | 871 | 5% | 5% |
| Walton Lane South of Priory Road | 33002 | 986 | 34686 | 1037 | 5% | 5% |
| Gwladys Street East of Bullens Road | 1269 | 6 | 2501 | 12 | 100% | 100% |
| Gwladys Street West of Bullens Road | 1954 | 0 | 3091 | 0 | 58% | 0% |
| Goodison Road North of Gwladys Street | 1016 | 3 | 1125 | 3 | 11% | 0% |
| Goodison Road South of Gwladys Street | 4627 | 13 | 6285 | 17 | 36% | 36% |
| Bullens Road North of site access | 976 | 7 | 2204 | 15 | 126% | 126% |
| Bullens Road South of site access | 976 | 7 | 2204 | 15 | 126% | 126% |
| Spellow Lane West of Goodison Road | 9397 | 225 | 9772 | 234 | 4% | 4% |
| Spellow Lane East of Goodison Road | 11919 | 237 | 14118 | 281 | 18% | 18% |
| Priory Road | 10142 | 200 | 10330 | 204 | 2% | 2% |
| City Road | 3186 | 13 | 3376 | 13 | 6% | 6% |
| Nimrod Street | 663 | 6 | 1064 | 10 | 61% | 61% |

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Table 7.8

2032 base and base plus development traffic flows

| RECEPTOR LOCATION | 2032BASE | | 2032 BASE + DEVELOPMENT | | % DIFFERENCE | |
|---------------------------------------|----------|-------|-------------------------|-------|--------------|------|
| | AADT | # HGV | AADT | # HGV | AADT | HGV |
| Walton Lane North of Priory Road | 28861 | 859 | 30357 | 903 | 5% | 5% |
| Walton Lane South of Priory Road | 34294 | 1025 | 35978 | 1075 | 5% | 5% |
| Gwladys Street East of Bullens Road | 1319 | 7 | 2551 | 13 | 93% | 96% |
| Gwladys Street West of Bullens Road | 2028 | 0 | 3166 | 0 | 56% | 0% |
| Goodison Road North of Gwladys Street | 1056 | 3 | 1165 | 3 | 10% | 0% |
| Goodison Road South of Gwladys Street | 4799 | 13 | 6466 | 18 | 35% | 35% |
| Bullens Road North of site access | 1007 | 7 | 2236 | 15 | 122% | 122% |
| Bullens Road South of site access | 1007 | 7 | 2236 | 15 | 122% | 122% |
| Spellow Lane West of Goodison Road | 9762 | 234 | 10137 | 243 | 4% | 4% |
| Spellow Lane East of Goodison Road | 12834 | 247 | 14118 | 290 | 18% | 18% |
| Priory Road | 10541 | 208 | 10728 | 212 | 2% | 2% |
| City Road | 3311 | 13 | 3501 | 14 | 6% | 6% |
| Nimrod Street | 688 | 6 | 1089 | 10 | 58% | 58% |