



UNIVERSAL DESTINATIONS & EXPERIENCES UK PROJECT

Former Kempston Hardwick Brickworks
and adjoining land, Bedford

Appendix 5.1 Transport Assessment Annex 13 – Queue Assessment

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Universal Destinations & Experiences UK Project

Transport Assessment – Annex 13 - Queue Assessment

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Introduction

1. This note presents an assessment of queueing predicted at the key Strategic Road Network (SRN) interchanges within the network studied as part of the transport assessment supporting the Proposed Development.

Primary Opening Year Assessment

2. The impact of the Proposed Development on the operation of the main interchanges on the SRN within the Paramics model area has been assessed, with a focus on the level of queueing predicted by the model at the off slip roads at each of the following interchanges:
 - A421 Marston Moretaine Interchange (northbound and southbound off slip roads)
 - A421 Marsh Leys Interchange (northbound and southbound off slip roads)
 - A421 Elstow Interchange (eastbound and westbound off slip roads)
3. The predicted maximum queues from the Paramics model in the Primary Opening Year development Case (Scenario 4) have been compared to the predicted maximum queues in the Reference Case (Scenario 3) and compared to the estimated length of 'queue storage' available at each off slip road before a queue can be considered as blocking back into the SRN mainline. Queueing back into the mainline is identified as a safety concern and this assessment considers whether the Proposed Development would significantly affect this issue at the interchanges listed above.

A421 Marston Moretaine

4. **Figures 1 and 2** illustrate the predicted maximum queue on the northbound and southbound off slip roads at the A421 Marston Moretaine Interchange across the day, against the length of 'queue storage' available at the junction, on an Average weekday and on a Busy Saturday respectively.

Figure 1 – A421 Marston Moretaine off slip roads – Predicted maximum queues – Average Weekday

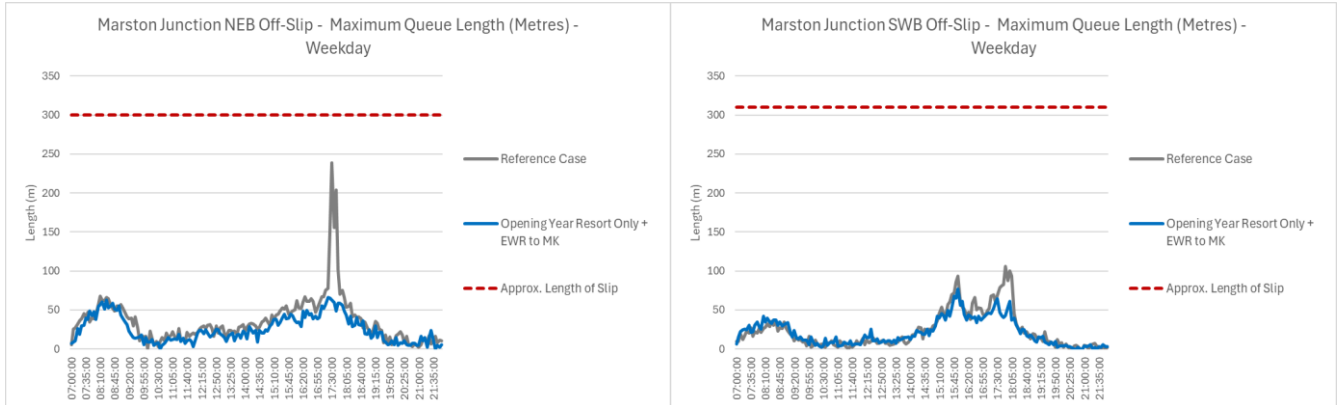
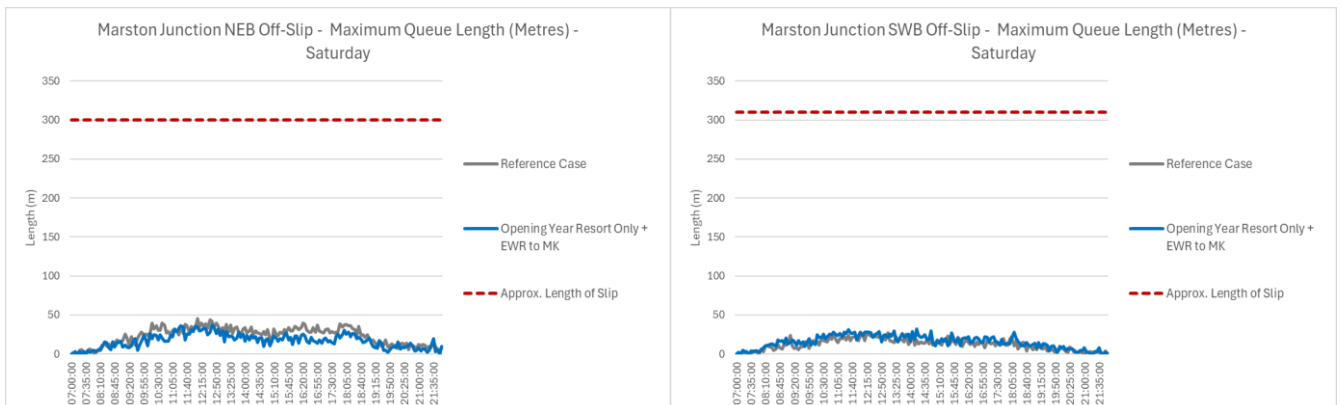


Figure 2 – A421 Marston Moretaine off slip roads – Predicted maximum queues – Busy Saturday



5. In the context of the model there is little difference in predicted maximum queues between the Reference Case and the Primary Opening Year Case. All predicted maximum queues are within the 'queue storage' available at the junction.

A421 Marsh Leys

6. **Figures 3 and 4** illustrate the predicted maximum queue on the northbound and southbound off slip roads at the A421 Marsh Leys Interchange across the day, against the length of 'queue storage' available at the junction, on an Average weekday and on a Busy Saturday respectively.

Figure 3 – A421 Marsh Leys off slip roads – Predicted maximum queues – Average Weekday

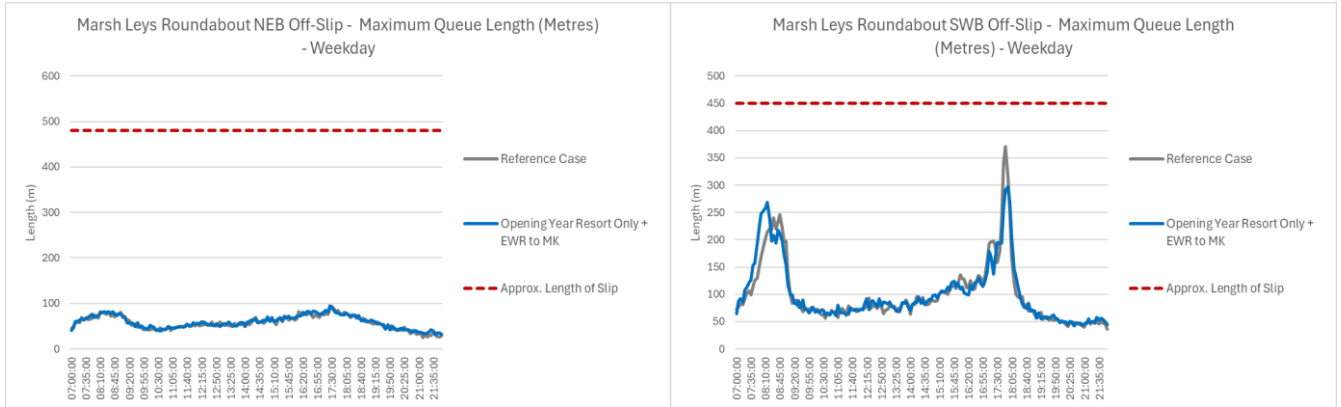
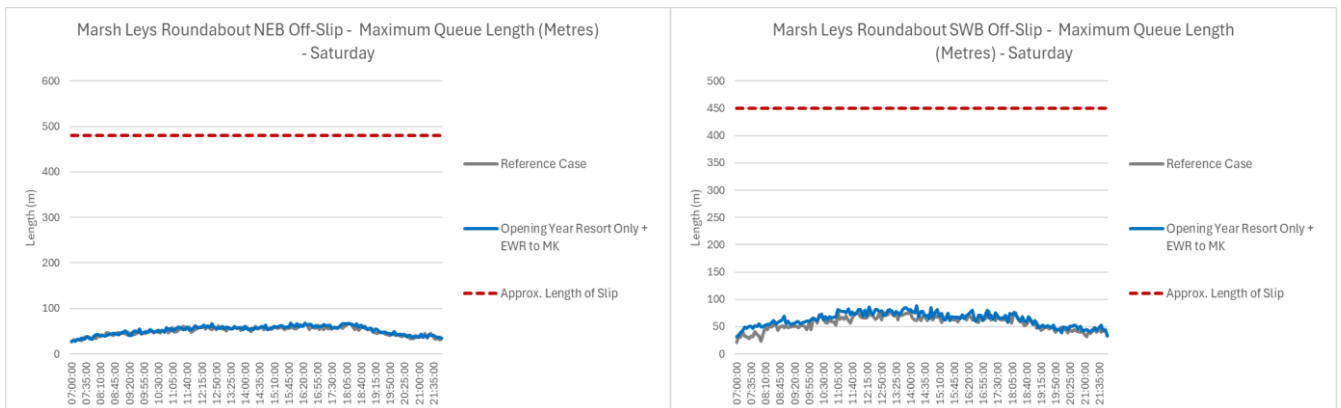


Figure 4 – A421 Marsh Leys off slip roads – Predicted maximum queues – Busy Saturday



7. There is little difference in predicted maximum queues on the off slip roads at the A421 Marsh Leys Interchange between the Reference Case and the Primary Opening Year Case, on an Average weekday or on a Busy Saturday. Predicted maximum queues remain within the 'queue storage' available on the slip roads.

A421 Elstow

8. **Figures 5 and 6** illustrate the predicted maximum queue on the northbound and southbound off slip roads at the A421 Elstow Interchange across the day, against the length of 'queue storage' available at the junction, on an Average weekday and on a Busy Saturday respectively.

Figure 5 – A421 Elstow off slip roads – Predicted maximum queues – Average Weekday

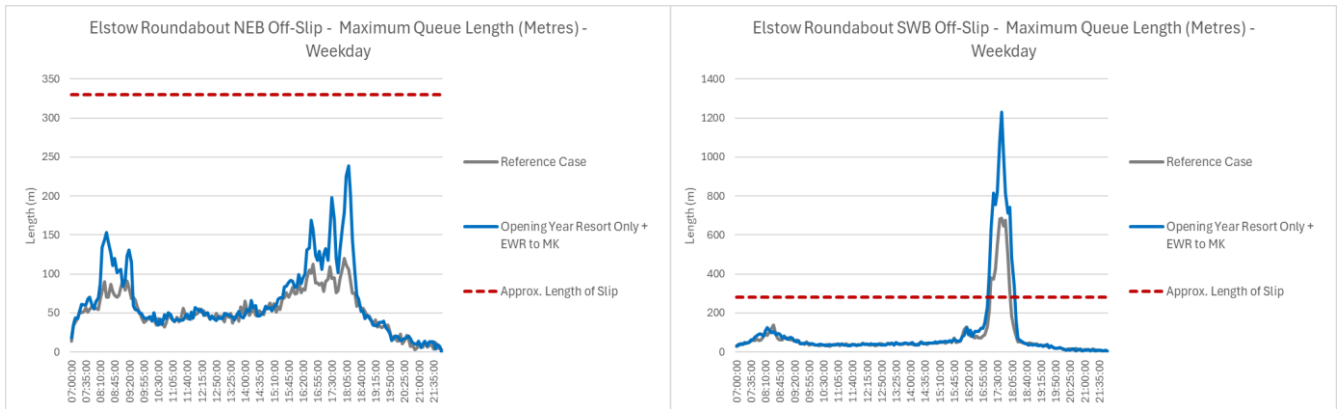
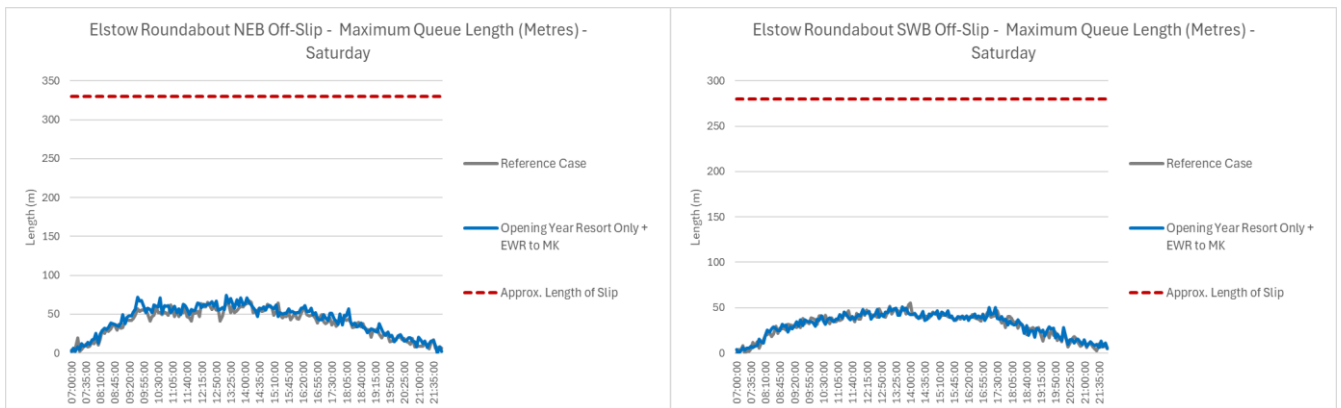


Figure 6 – A421 Elstow off slip roads – Predicted maximum queues – Busy Saturday



9. In the context of the model there is little difference in predicted maximum queues between the Reference Case and the Primary Opening Year Case.
10. In both cases, on a Saturday, predicted maximum queues remain within the 'queue storage' available on the off slip roads at the Elstow Interchange. In both cases on a weekday there is a similar period of time when queues reach back to the mainline.
11. The Planning Proposal does not change the character of performance of the junction in this respect.

Future Year Assessment

12. The impact of the Proposed Development on the operation of the main interchanges on the SRN within the Paramics model area has been assessed, with a focus on the level of queuing predicted by the model at the off slip roads at each of the following interchanges:
 - A421 Marston Moretaine Interchange (northbound and southbound off slip roads)
 - A421 Marsh Leys Interchange (northbound and southbound off slip roads)
 - A421 Elstow Interchange (eastbound and westbound off slip roads)

13. The predicted maximum queues from the Paramics model in the Future Year development Case (Scenario 5) have been compared to the predicted maximum queues in the Reference Case (Scenario 3) and compared to the estimated length of 'queue storage' available at each off slip road before a queue can be considered as blocking back into the SRN mainline. Queuing back into the mainline is identified as a safety concern and this assessment considers whether the proposed development would significantly affect this issue at the interchanges listed above.

A421 Marston Moretaine

14. **Figures 7 and 8** illustrate the predicted maximum queue on the northbound and southbound off slip roads at the A421 Marston Moretaine Interchange across the day, against the length of 'queue storage' available at the junction, on an Average weekday and on a Busy Saturday respectively.

Figure 7 – A421 Marston Moretaine off slip roads – Predicted maximum queues – Average Weekday

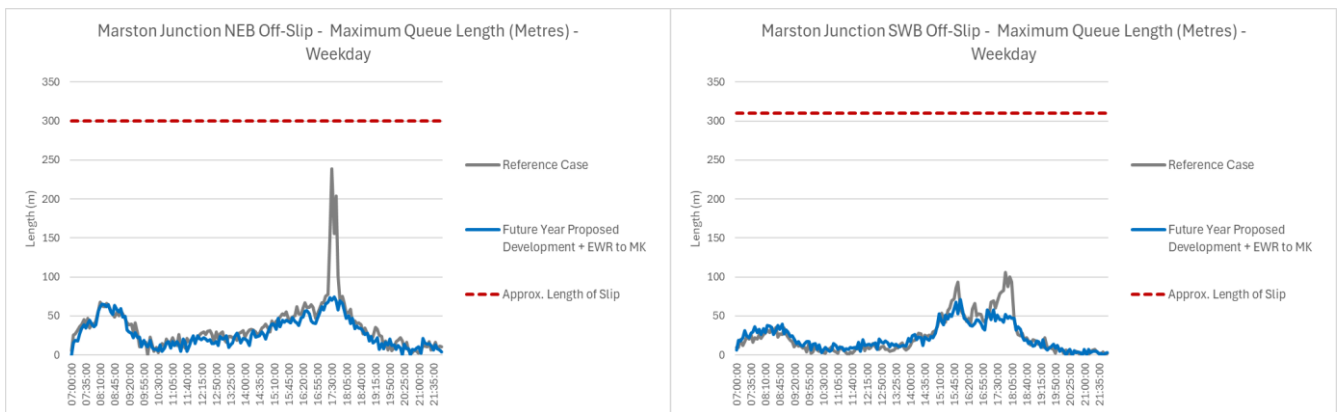
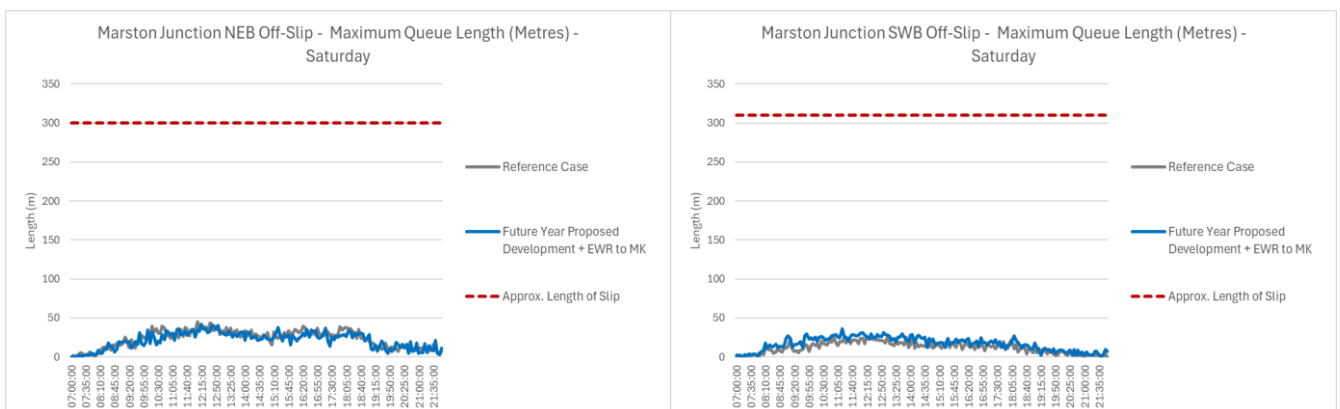


Figure 8 – A421 Marston Moretaine off slip roads – Predicted maximum queues – Busy Saturday



15. In the context of the model there is little difference in predicted maximum queues between the Reference Case and the Future Year Case. All predicted maximum queues are within the 'queue storage' available at the junction.

A421 Marsh Leys

16. **Figures 9 and 10** illustrate the predicted maximum queue on the northbound and southbound off slip roads at the A421 Marsh Leys Interchange across the day, against the length of 'queue storage' available at the junction, on an Average weekday and on a Busy Saturday respectively.

Figure 9 – A421 Marsh Leys off slip roads – Predicted maximum queues – Average Weekday

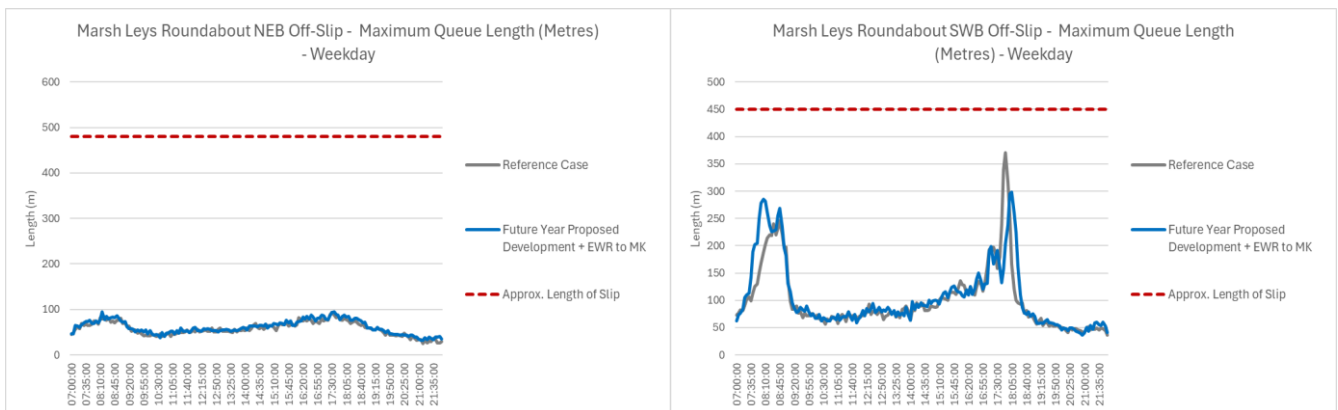
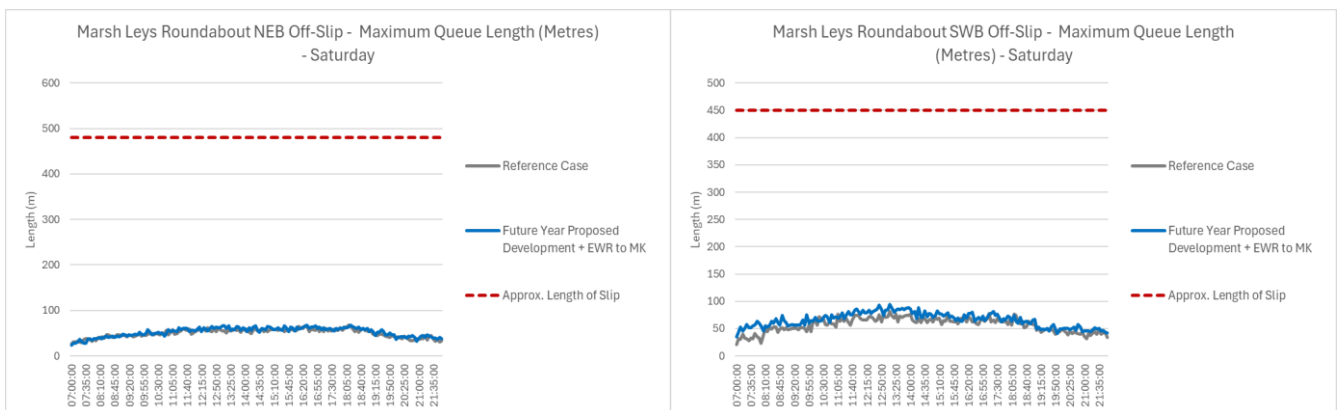


Figure 10 – A421 Marsh Leys off slip roads – Predicted maximum queues – Busy Saturday



17. There is little difference in predicted maximum queues on the off slip roads at the A421 Marsh Leys Interchange between the Reference Case and the Future Year Case, on an Average weekday or on a Busy Saturday. Predicted maximum queues remain within the 'queue storage' available on the slip roads.

A421 Elstow

18. **Figures 11 and 12** illustrate the predicted maximum queue on the northbound and southbound off slip roads at the A421 Elstow Interchange across the day, against the length of 'queue storage' available at the junction, on an Average weekday and on a Busy Saturday respectively.

Figure 11 – A421 Elstow off slip roads – Predicted maximum queues – Average Weekday

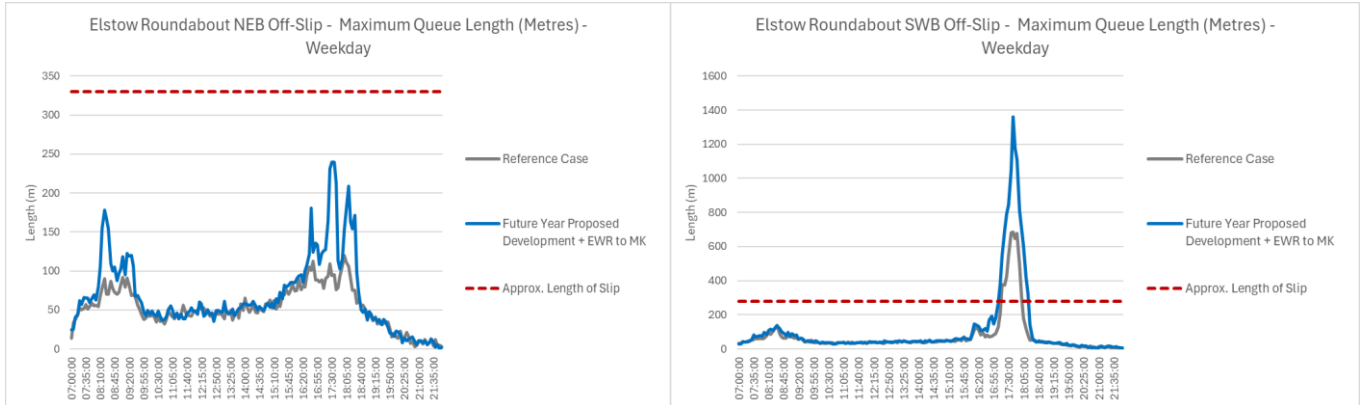
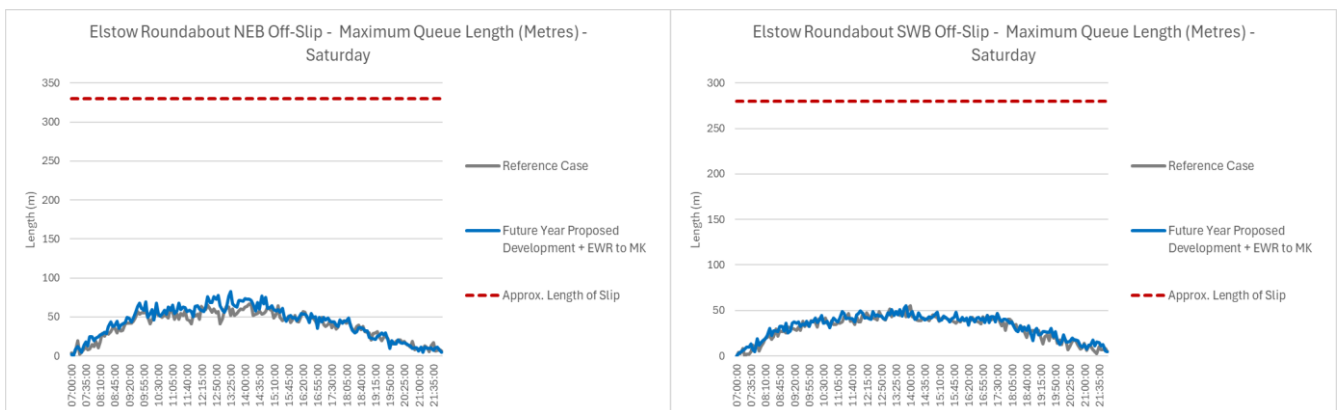


Figure 12 – A421 Elstow off slip roads – Predicted maximum queues – Busy Saturday



19. In the context of the model there is little difference in predicted maximum queues between the Reference Case and the Future Year Case.
20. In both cases, on a Saturday, predicted maximum queues remain within the 'queue storage' available on the off slip roads at the Elstow Interchange. In both cases on a weekday there is a similar period of time when queues reach back to the mainline.
21. The Planning Proposal does not change the character of performance of the junction in this respect.

Summary

22. In summary, the assessment of maximum queues predicted on off slip roads at the key SRN interchanges in the vicinity of the Proposed Development demonstrates that the Proposed Development in the Primary Opening Year Case and the Future Year Case would not change the overall character of the operation of the slip roads.