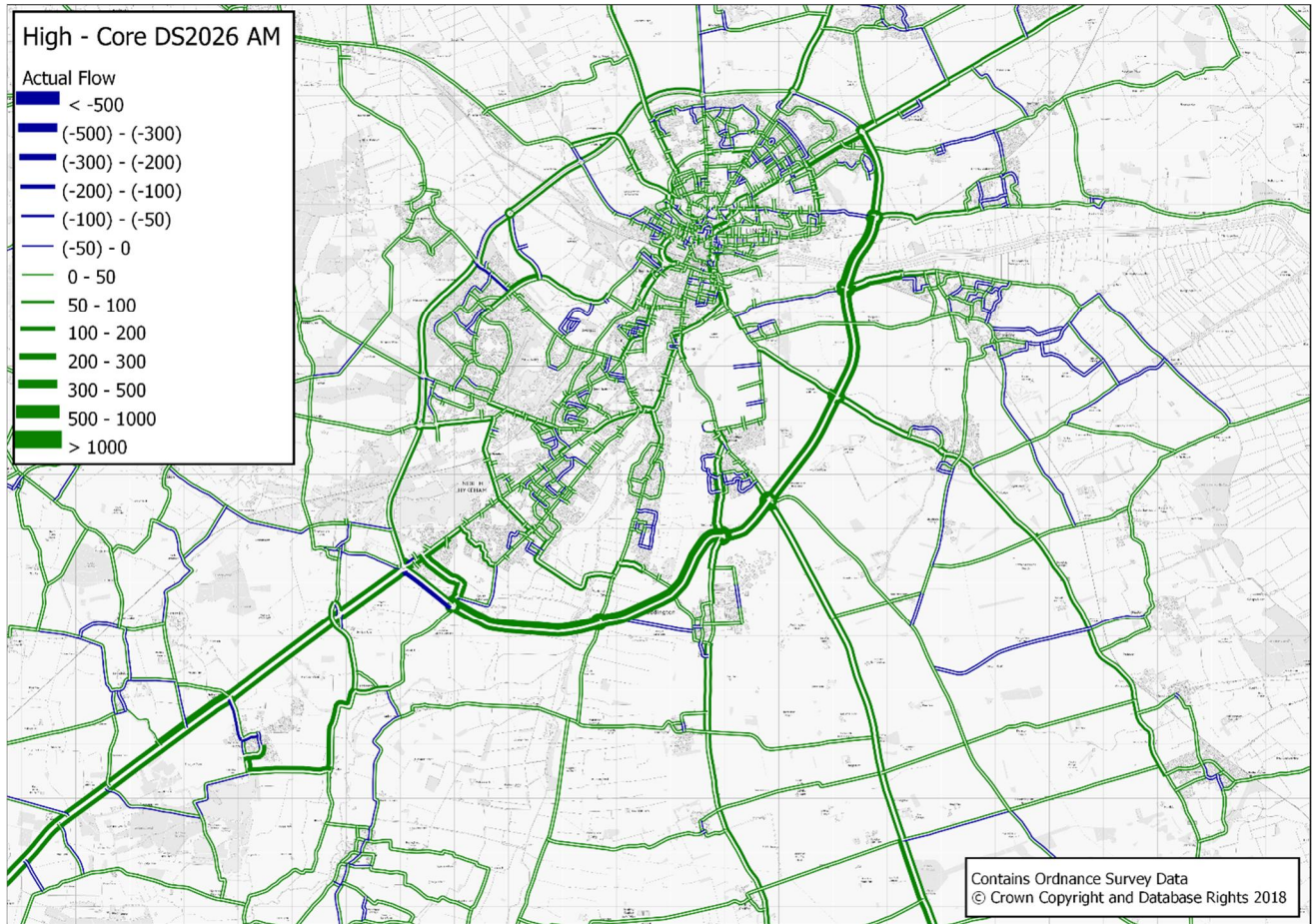


Figure 9-8 Flow Difference – High Growth DS minus Core DS



10 SUMMARY AND CONCLUSIONS

10.1 SUMMARY

This Traffic Forecasting Report has described the methods and assumptions used in preparing the future year traffic forecasts in line with Department for Transport's WebTAG guidance.

The Greater Lincoln Transport Model with a 2016 base year has been used to forecast travel demand and network configurations in various scenarios in the North Hykeham Relief Road scheme opening year (2026) and design year (2041).

The core scenario was constructed to forecast the impacts of the preferred NHRR scheme. The assumptions are documented in an uncertainty log and based on the best information available at the time, and agreed in liaison with Lincolnshire County Council. In particular this includes Lincoln Eastern Bypass in the 'without scheme' networks which is under construction and expected to significantly impact on traffic patterns in and around the Lincoln urban area. This adds additional uncertainty to the forecasting of the scheme since they are based on the impacts given the forecast impacts of Lincoln Eastern Bypass.

Variable demand modelling to develop the forecast models and the model converges to a high level for each forecast forming a robust basis for the assignment.

The forecast highway assignments converge to a higher standard than the WebTAG criteria forming a robust basis for analysis of forecast model outputs and to be taken forward and used for economic appraisal which is beyond the scope of this report.

Forecast models have also been prepared for four alternative scenarios. This includes two alternative scheme options and the preferred scheme with low and high growth assumptions.

10.2 CONCLUSIONS

Traffic forecasting has been undertaken on the preferred NHRR scheme. Analysis of the core scenario forecast model outputs has shown that some of the key impacts are scheme are to:

- Increase east-west trip making in the south of the Lincoln urban area through improving accessibility between areas such as North Hykeham and Bracebridge Heath / Canwick;
- Provide overall positive impact on traffic conditions overall across the wider Lincoln network with increased average speeds and reduced levels of queueing (as an indicator of congestion);
- Increase overall travel distance but reduce overall travel time by providing a longer but faster route for users;
- Reduce traffic flow and delay on the A46 in the inter peak period but with a lesser or neutral impact in the peak hours given the level of congestion;
- Increase traffic flow on LEB attributed to providing an alternative route around the urban area and the impact of completing the ring road;
- Reduce traffic flow on majority of links in the south of the Lincoln urban area: noticeably A1434 Newark Road, the A15 (in the city centre) and the Mill Lane / Meadow Lane / Station Road corridor through the Hykeham and Waddington areas; and
- Reduce traffic flow on the majority of rural routes; specifically the route through the villages of Harmston and Aubourn.

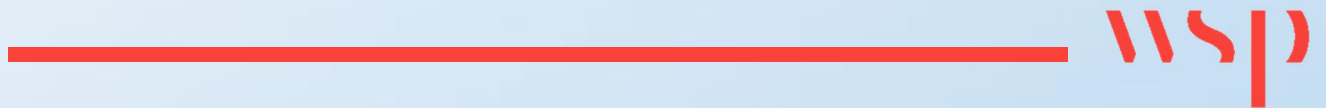
Analysis of the alternative scheme options has shown that:

- Average speeds are highest and the total queues are lowest with the preferred option which are indicators that the preferred option has a greater impact improving the overall network performance and reducing congestion; and
- The capacity at A46 Pennell's Roundabout is important for scheme performance. This is indicated by flow difference comparisons between the Next Best Alternative and Low Cost Option and evidence by network statistics – a key example is the PM in 2041 where forecast overcapacity queues across the network are higher in the Low Cost than Do Minimum attributed to the increased demand and congestion at Pennell's Roundabout.

The assessment of these impacts, linked to the scheme objectives, is considered in the Economic Appraisal Report.

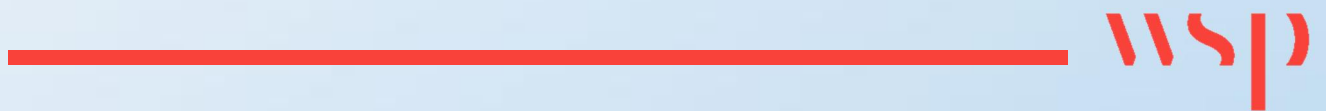
Appendix A

DEVELOPMENT UNCERTAINTY AND TRIP GENERATION



Appendix B

SUE MASTERPLAN DRAWINGS



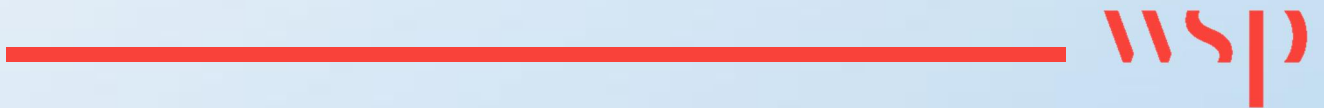
Appendix C

NTM GOODS VEHICLE GROWTH



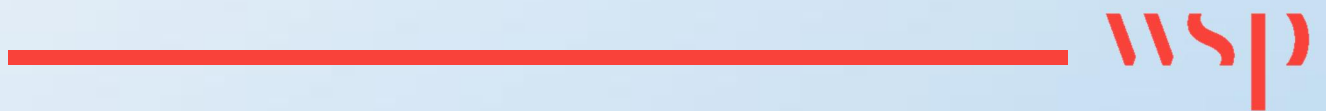
Appendix D

DEVELOPMENT TRIP DISTRIBUTION GRAVITY MODEL



Appendix E

FIXED SPEED FORECAST FACTORS



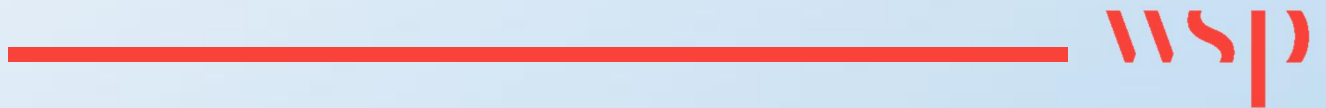
Appendix F

VDM SECTOR IMPACTS



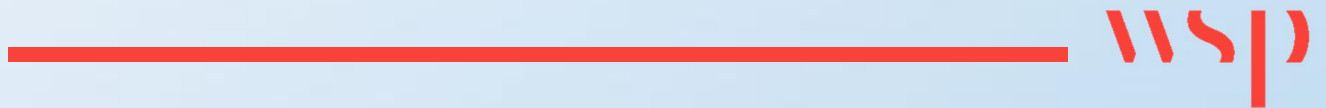
Appendix G

HIGHWAY MODEL CONVERGENCE STATISTICS (ALL FORECASTS)



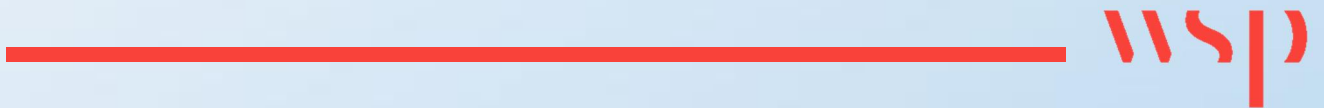
Appendix H

CORE SCENARIO FLOW DIFFERENCE PLOTS



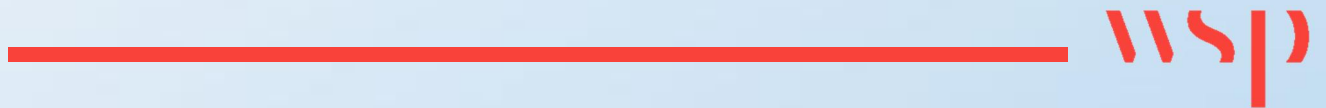
Appendix I

CORE SCENARIO DELAY DIFFERENCE PLOTS



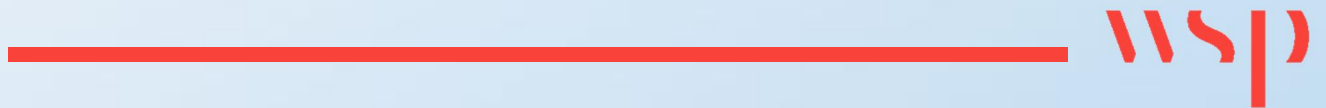
Appendix J

VDM CONVERGENCE STATISTICS (ALL FORECASTS)



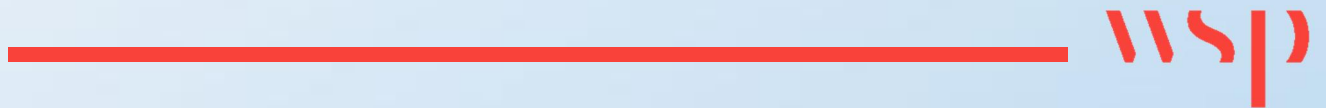
Appendix K

ALTERNATIVE SCHEME OPTION FLOW DIFFERENCE PLOTS



Appendix L

ALTERNATIVE GROWTH SCENARIO FLOW DIFFERENCE PLOTS





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