
Appendix H – Linsig Details

This document is out of date. The latest information on the government's aviation and airports policy is available on [GOV.UK](https://www.gov.uk).

Appendix H – Linsig Note

Dyneley Arms

WSP has been tasked to model Dyneley Arms crossroads using isolated junction modelling software in order to assess the current situation and recommendation to improvements. LinSig was the obvious choice due to the flexibility of the software and my high level experience with the software package.

The current junction arrangement works current off VA with a 4 stages, east-west movement followed by a north-south movement with a separate stage for the northbound right turn and westbound right turn.

Reviewing the initial modelling results the flows provided by Saturn suggest not all the stages are required due to the lightness in right turning flows. With this said I looked at reducing the number of stages in order to give more effective green time. Using street view on google I was able to recommend the following changes:

- Northbound right turn to be included within full green with affective storage space in front of stop line.
- Alignment of the western arm so that a lane with a flare can approach the junction looking at google maps it looks like driver do this informally anyway. This flare could be around 8 vehicles long (50m). This means the exit (eastbound) will need to be tightened.

These recommendations would need to be checked and tracked with a CAD drawing which should be following the client's request. But from initial modelling work the junction performs a lot better and on a 90 second cycle time.

The overall operation of the junction would run a two stage arrangement with right turner running in the large Intergreens. Out loops could be put in place so that Intergreen extensions could be applied when traffic is heavy than average.

Compact MOVA would be another suggestion allowing a more responsive method of control with the ability to run different stages depending on real time traffic.

New line – Harrogate Road (Greengates)

The purposed crossroads scheme has been modelled using the flows provided. The stage arrangement has been iterated in order to find the optimum solution. A simple two stage arrangement works best within the model where pedestrians would run on demand dependency as an all red traffic stage due to the exit crossings.

Realistic parameters have been applied to the merging arms beyond the junction so that lane allocation is sensible. The cycle time is relatively short on a 60 seconds cycle. Operational consideration it could be run on fixed time if essential where CLF would be preferable. However VA, UTC or MOVA would work a lot more effectively. Looking at the location of the junction the pedestrian movement could be fairly high therefore the modelling work has had to provide an all red stage for the pedestrian movements to take place. This impacts the benefits to traffic and even running the pedestrian stage once every other cycle it pushes the capacity of the junction over 90%. Demand dependency would be required for this pedestrian stage and in realistic terms should not affect traffic as much as the model predicts.

The second proposed scheme with the displaced right turn movement where the movement have been separated has also been modelled and optimised for capacity. This main junction runs on a simple 3 stage arrangement with north-south movements running followed by pedestrian and then the east-west movements. The minor junction to the north runs on a separate stream using a dummy phase for conflict. This can be used to aid the right turners and also restrict the traffic entering the main junction. The minor junction to the east side has been set up with a two stage arrangement on a separate stream. PRC has been optimised however in realistic terms traffic need to be held at the outer signals to prevent exit blocking due to the limited space at the approaching arms.

Rawdon (With Roundabout)

A base model has been set up using the provided information. From this a PRC optimised model has been developed where it keep the existing roundabout. This prompted the need for a junction 8 model to be built to assess the impact of this roundabout.

Signalisation of this roundabout would not work due to the short internal arms and high conflicting movements. A concept idea has been modelled where the roundabout gets converted to a signalised crossroads with appropriate lanes and flares for each corresponding movement. This idea would be a large scheme development in terms of cost but maybe required to get the capacity out of the junction. Pedestrians have not been incorporated within the model but can be added if the concept needs to be progressed.

The junction to the south with currently is a crossroads should work fine even in future scenarios and no adjustment apart from timings if on fixed should be required.