Three Rivers and Watford LDF

Technical Note 4: Secondary Schools Test

Technical note

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1 Task 4: Secondary Schools Test

Introduction

1.1 The purpose of this Technical Note is to describe the potential impact on the local highway network of proposals for two new secondary schools in Three Rivers. Each will have 6-8 forms of entry and accommodate approximately 1200 pupils. It is currently expected that these will be located in the following areas:

- Mill End/Maple Cross – land adjacent to the A404/A412 roundabout; and
- Croxley Green – land north-west of Baldwins Lane

1.2 A preliminary highways and access feasibility study[1] has been completed by Stomor Civil Engineering Consultants. In this report the sites are referred to as Site S(a)/S(b) and Site S(d) respectively.

1.3 The report provides forecasts of AM peak (8-9am) trips to each school as follows:

- Site S(a)/S(b) 256 car trips
- Site S(d) 207 car trips

1.4 In addition, Stomor provides an estimate of the numbers of those trips related to staff on any given day. This is calculated as 70% of total staff trips (134) equal to 94 staff trips to each site.

1.5 The report also provides forecasts of the likely origins of staff/pupil trips. These vary by site and are summarised in Table 1.1.

TABLE 1.1 SCHOOL TRAFFIC DISTRIBUTION (%)

Origin	Site S(a)/S(b) Mill End/ Maple Cross	Site S(d) Croxley Green
Rickmansworth	17%	9%
Croxley Green	19%	7%
North Watford	20%	17%
West Watford	18%	41%
Chorleywood	3%	2%
Maple Cross	2%	3%
Northwood & Oxhey	11%	12%
“Further afield”	10%	10%

[1] Highways and Access Feasibility Study for South West Herts Secondary Schools, August 2011

Modelling Assumptions

1.6 Each school has been added to the model as a new zone: Zones 500 for Site S(a)/S(b) and 501 for Site S(d). It is assumed that *both* new schools will be delivered.

1.7 Zone 500 has been connected directly onto the A404/A412 roundabout, to reflect the possibility of the school actually being developed on one of two potential sites. For the Croxley Green site, zone 501 has been connected to the network via a new link introduced off Baldwins Lane.

1.8 All trips to each school are assumed to arrive between 8am and 9am in the morning. The analysis has only been undertaken for the morning peak, on the basis that the end of the school day precedes the evening peak.

1.9 As well as trips to the school in the morning peak, we must also assume that all non-staff trips involve the drop-off of one or more pupil to the school.

1.10 Given the lack of information available to more accurately model the onward trip, it has been assumed that 75% of those trips return to their home origin, the rest not setting off until after 9am. The calculation of the number of trips that also depart from the school in the morning peak is provided below.

TABLE 1.2 CALCULATION OF TRIPS LEAVING EACH SITE (8-9AM)

	Site S(a)/S(b) Mill End/ Maple Cross	Site S(d) Croxley Green
Total Trips	256	207
Staff Trips	94	94
Drop-off	162	113
AM departures (75% drop-off)	112	85

1.11 An alternative assumption might be that the pupil drop-off is part of a longer trip, say from home to work. However, our working assumption is based on a lack of more detailed information at this stage and it is assumed that a more detailed assessment will be included with any future planning application.

Assignment of Trips

1.12 The Stomor report provides additional information with regards to the distribution assumptions summarised in Table 1.1. As well as the origin of the trip, forecasts of routes expected to be used are also provided.

1.13 The SATURN model does not allocate trips to routes, but instead allocates trips from one zone to another. As such, within the model we make our best attempt to match the Stomor distributions, but must rely on model to assign these trips to the network and be advised by the model in terms of final routings.

1.14 The modelled routes offer a good representation of the Stomor forecasts, with the main differences outlined below for each site.

- Site S(a)/S(b) – the West Watford origins are routed via Tolpits Lane rather than Rickmansworth Road, and all the North Watford trips are assigned to the M25, rather than some (40%) routing via the town centre as Stomor predicts.
- Site S(d) – all arrivals from the west assign via Winton Drive, rather than split between Winton Drive, Green Lane and Baldwins. This potentially underestimates impacts at the Baldwins Lane roundabout, however:

1.15 In each case the model influences seem reasonable.

1.16 Trip departing from each site are modelled to reflect a mirror of arrival patterns.

Impact Assessment

1.17 The impact of the school trips are assessed against results from the 'Base+Committed_Potential+Growth' (LDF) scenario as defined in Technical Note No3. The main areas of difference assessed are delays and queues at junctions.

1.18 The findings indicate that we are able to separate the results by the location of the new school.

1.19 Differences in model delay are provided in Figure 1.1, and model queues in Figure 1.2. These can be summarised as follows:

- Site S(a)/S(b) – here we show further increases in delay at the A404/A412 roundabout, to the west of Rickmansworth centre. We see additional queues (+15 vehicles) and longer delays (+43 seconds) from the south-east, along with smaller impacts from the west. However, this is a location already highlighted for future improvements as part of the work detailed in Technical Note No3, hence any future work here should consider additional impacts from the school.
- Site S(d) – the impacts are not shown for Baldwins Lane, or other routes in close proximity to the school, but instead we indicate additional queues and delays (approximately 60 seconds) on both Rickmansworth Road and Whippendell Road, to the east of the Ascot Road junction. These delays are indicated in each direction, both to and from the school site

Conclusion

1.20 The modelling does not show any major increases in stress on the network.

1.21 Any future analysis of the A412/A404 roundabout should consider additional impacts of school trips.

1.22 It is predicted that Site S(d) will generate relatively small increases in queues and delay on both Rickmansworth Road and Whippendell Road.

FIGURE 1.1 DIFFERENCES IN MODEL DELAY (SECONDS)

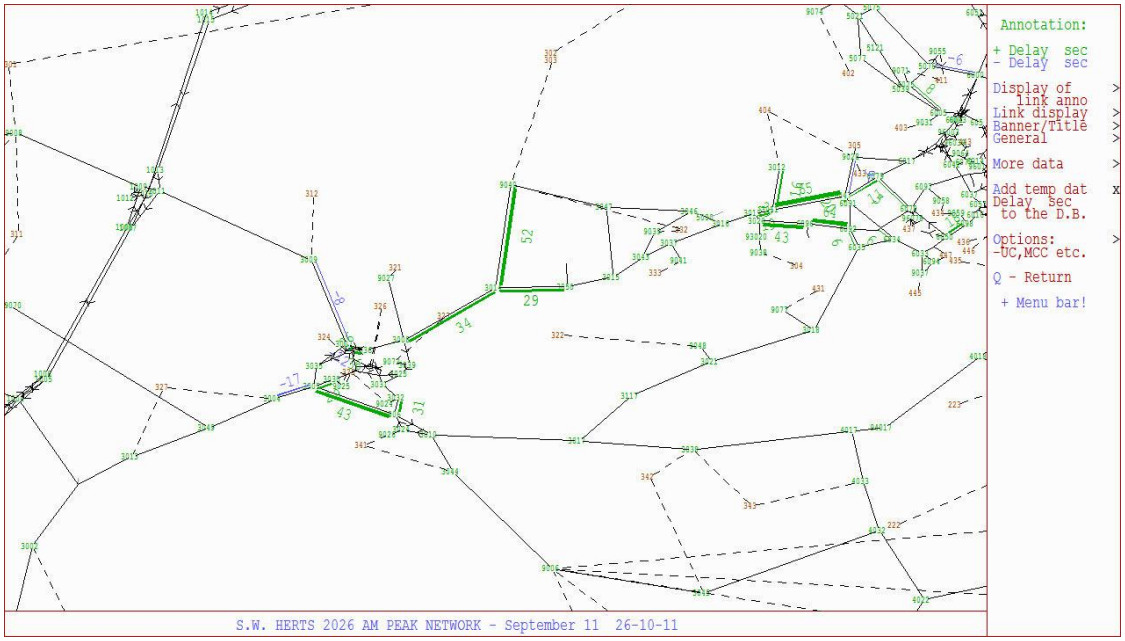
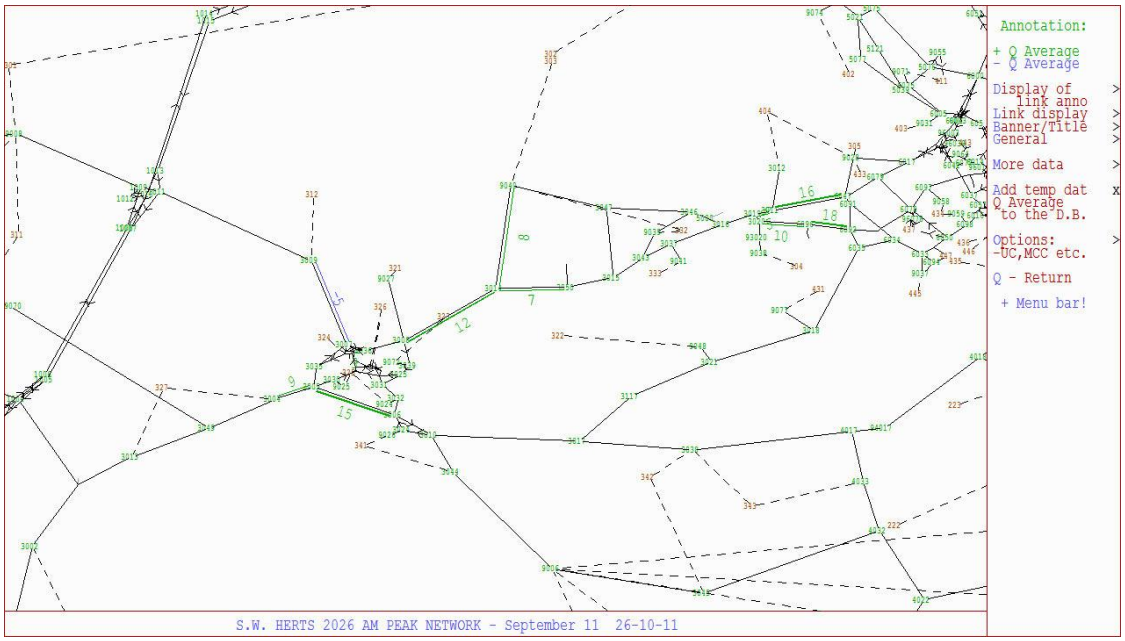


FIGURE 1.2 DIFFERENCE IN MODEL QUEUES (VEHICLES)



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