Epsom Plan E – Supplementary Information for Task Group Members

Introduction

The purpose of the Epsom Plan E highway improvements scheme is to shorten vehicle journeys, improve traffic flow within the town and reroute some of the gyratory traffic away from the busy Spread Eagle junction.

To assess the scheme a computer traffic model has been built using extensive traffic surveys undertaken in and around the town.

As part of this work key routes through the town have been assessed. These routes are shown on the plan below.

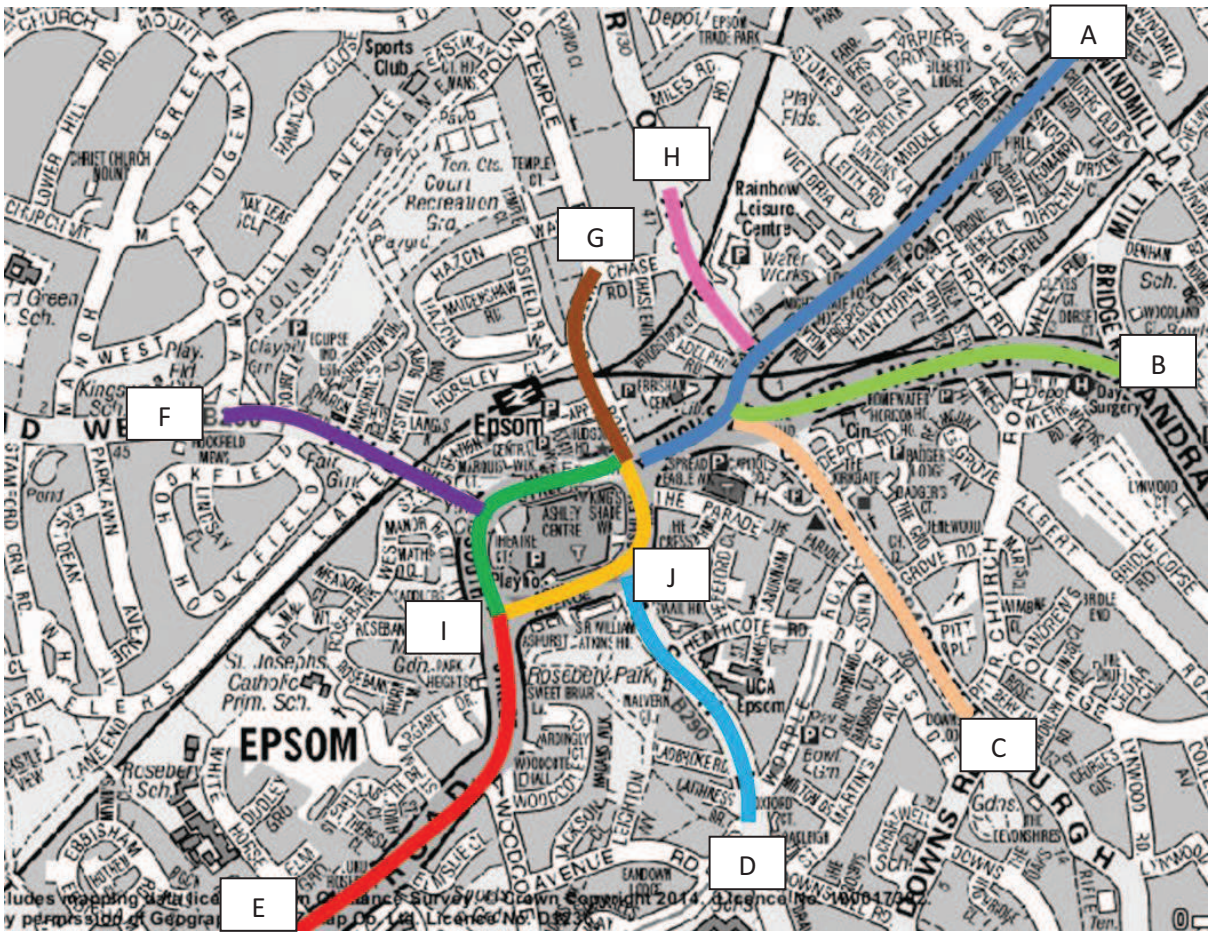

Fig 1: Journey Time Route Sections

Assessment

An assessment has been undertaken of the current ('base') journey times against the ('Do-Something') or Option 1 proposed scheme to allow the scheme options to be defined that provides the best journey time savings through the town.

The result of this work has shown that there are journey time benefits/savings for all the key routes through town.

These savings are illustrated in the accompanying table and graphs set out below.

The evidence from the modelling has shown that there will be journey time savings on each of the key routes through the town centre. These are shown in Table 1 below. For example, the modelling has shown that road users travelling from Dorking Road (E) towards Ewell (A) will benefit from a 1 minute 3 second or (63 secs) journey time saving in the morning peak hour and nearly 2 minutes (113 secs) in the evening peak hour. Similarly, travelling in the opposite direction from Ewell to Dorking Road, road users will benefit from a 1 minute 36 second or (96 secs) journey time saving.

The graph below illustrates these expected journey time savings on each of the key routes given in Table 1 for the following time periods:

- a weekday am (08:00-09:00) peak hr;
- a weekday pm (17:00-18:00) peak hour and
- a Saturday peak hour from (12:00-13:00).

The journey times presented are the 'average journey times' for all vehicles completing a trip along the specified routes within each peak hour modelled. The model is run multiple times with a random distribution to reflect daily variations in traffic flow, for example some days you arrive at a junction when the traffic lights are on red and have to stop and the next day you arrive at the same traffic lights that are on green and therefore don't stop, which reflects some variation in journey time reliability.

It should be noted that the 'base' model is calibrated to accurately reflect observed journey times.

	MODELLED AVERAGE JOURNEY TIMES (secs)								
	Weekday 08:00 – 09:00			Weekday 17:00 – 18:00			Sat 12:00 – 13:00		
Routes (map locations)	AM Base	AM Opt 1	Route JTime savings(s)	PM Base	PM Opt 1	Route JTime savings(s)	Sat Base	Sat Opt 1	Route JTime savings(s)
Ewell - Stamford Green (A – F)	570	485	**84**	477	442	**34**	507	507	**0**
Stamford Green – Ewell (F – A)	546	503	**43**	575	413	**162**	523	345	**179**
Dorking Rd – Stamford Green (E – F)	325	262	**63**	304	245	**59**	216	186	**29**
Stamford Green – Dorking Rd (F – E)	581	475	**106**	510	350	**161**	485	251	**234**
Ewell – Dorking Rd (A – E)	583	487	**96**	462	429	**33**	498	494	**4**
Dorking Rd – Ewell (E – A)	553	490	**63**	586	473	**113**	492	436	**56**
Playhouse to Ashley Ave/Ashley Rd (I – J)	209	172	**37**	193	169	**24**	199	158	**41**
Hook Rd – Dorking Rd (H – E)	532	356	**177**	472	398	**74**	404	350	**54**
Church St – Hook Rd (C – H)	268	254	**14**	225	202	**22**	169	180	**-11**
Hook Rd – Church St (H – C)	208	177	**31**	252	193	**59**	185	190	**-5**
Total (for comparison only)	**4375**	**3661**	**714**	**4056**	**3315**	**741**	**3678**	**3097**	**581**

Table 1: Journey time comparisons between key routes between modelled Base and Do-Something scenario

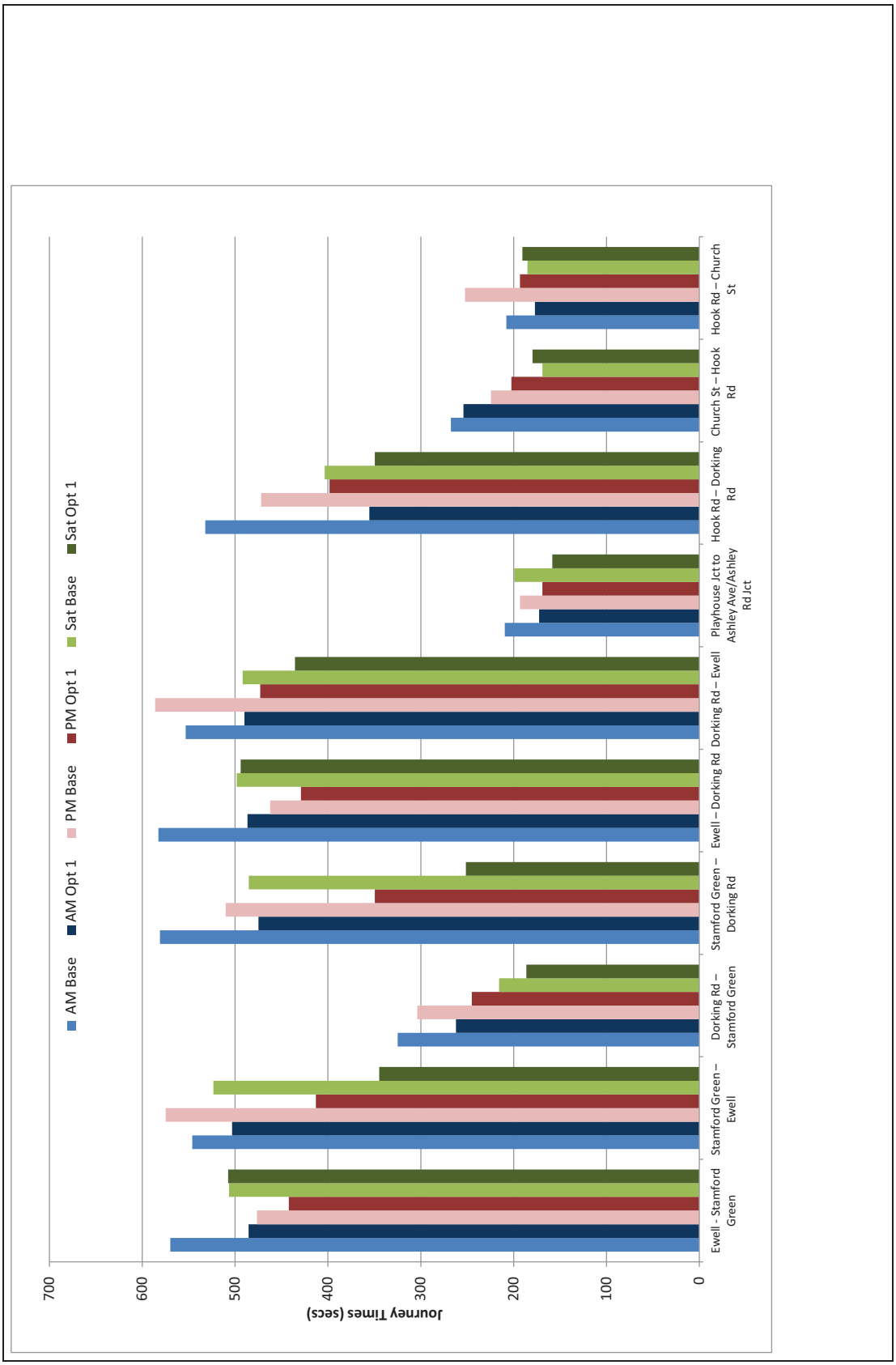

Figure 2: Journey time comparisons between key routes between modelled Base and Do-Something scenario

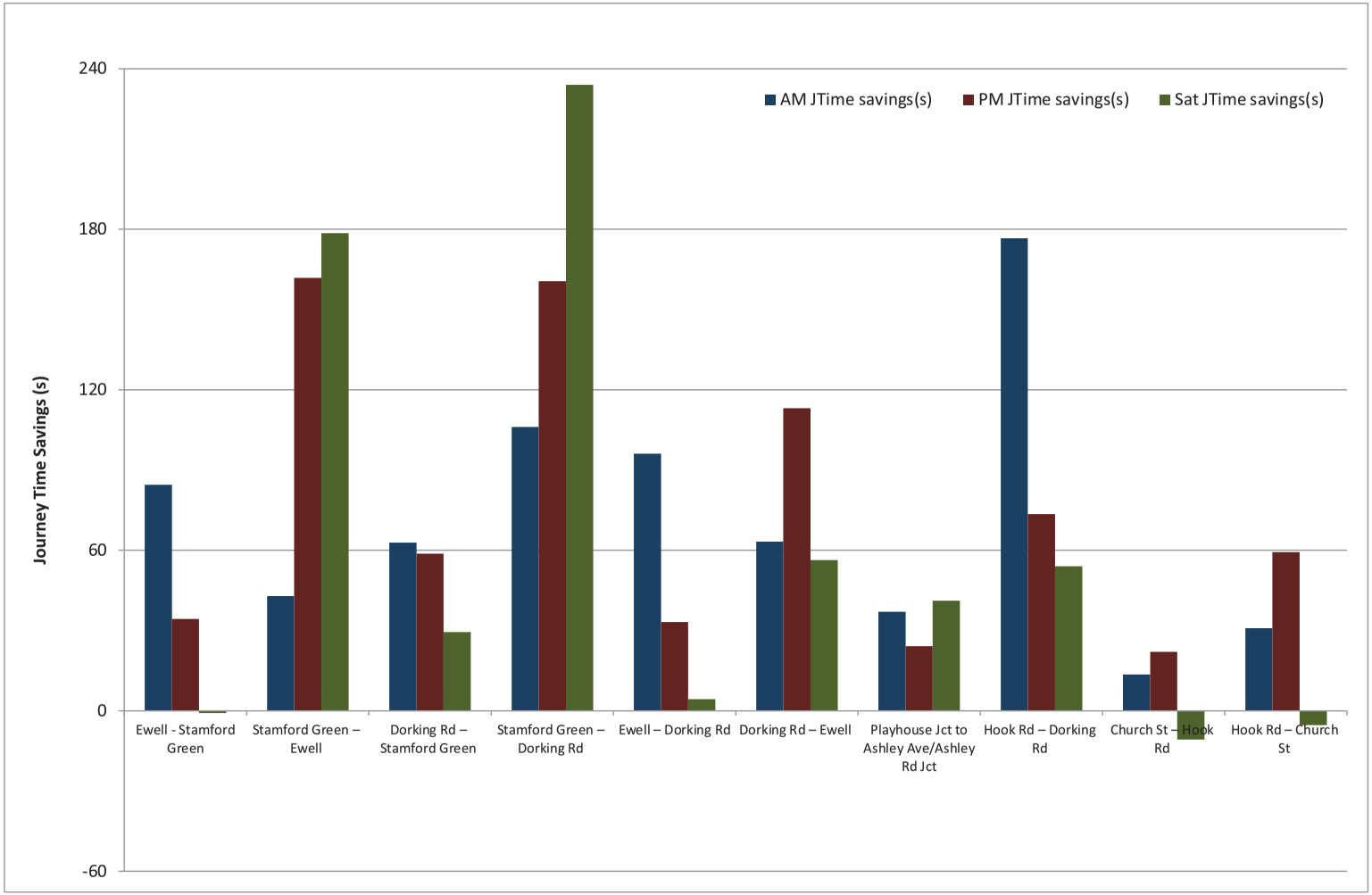

Figure 3: Journey time savings (secs) between key routes between modelled Base and Do-Something scenario

Traffic Flows

Table 2 below summarises the modelled traffic flows for AM and PM peak hours, for traffic entering and exiting the town centre for both the base and Option 1 South St two way. The (A) letters refer to the routes in Figure 1 above.

In general terms the traffic flows remain reasonable consistent between the base and Option 1 for both the am and pm peak hours, which is to be expected. When considering the total inbound and outbound flows the figures show approximately 4,300 vehicles arrive in the AM peak and 4,000 leave, where the difference shows where vehicles enter the town centre car parks. The PM peak is the reverse situation where approximately 4,300 vehicles leave the town centre and 4,000 arrive to travel through.

Again as expected the A24 Dorking Rd and East St carries the highest volumes of traffic in both the AM and PM peaks.

Town Centre Cordon Modelled Traffic Flows Inbound & Outbound				
AM Peak Hr	**Inbound Flow**		**Outbound Flow**	
	AM Base	**AM Option 1**	**AM Base**	**AM Option 1**
South St (E)	934	939	923	919
East St (A)	784	772	826	851
West St (F)	631	594	554	559
Hook Rd (H)	507	527	625	628
Church St (C)	392	401	327	334
Waterloo Rd (G)	361	420	229	204
Upper High St (B)	358	365	256	252
Ashley Rd (D)	350	351	251	255
Total	**4317**	**4369**	**3991**	**4002**
PM Peak Hr	**Inbound Flow**		**Outbound Flow**	
	PM Base	**PM Option 1**	**PM Base**	**PM Option 1**
South St (E)	863	874	798814	787
East St (A)	736	748	960	909
Hook Rd (H)	656	644	618	627
West St (F)	529	539	590	590
Church St (C)	441	466	419	430
Waterloo Rd (G)	348	383	369	332
Upper High St (B)	274	263	277	268
Ashley Rd (D)	264	266	306	301
Total	**4101**	**4183**	**4337**	**4244**

Table 2: Inbound and Outbound town centre modelled traffic flows comparison between Base and Do-Something scenario

Summary

To date the assessment has considered both increasing permeability in the town through making parts of the existing one way sections of the gyratory two way along with optimising the traffic flow at traffic signals through the number of approach lanes and signal timings.

It should also be noted that the traffic signal system in Epsom that detects vehicles and alters signal timings will also be improved to react dynamically to traffic flows and queues 'on the ground' to minimise queues across the network. This will also include a review of current car park guidance system and repositioning of signs.

As previously explained during task group meetings, extensive data collection and rigorous traffic modelling have been undertaken and has been used to inform the feasibility design of the Plan E highway scheme. The results from this work demonstrate that returning South Street to two-way working improves the 'operational performance' of the town centre and provides journey time benefits through Epsom town centre for most if not all vehicular journeys and helps to improve traffic flow, by reducing the congestion in High Street (Clocktower). By removing some vehicles making the right turn at the 'Spread-eagle' also provides the opportunity to reduce vehicle/pedestrian conflict to improve safety and help boost the economic vitality of the town.

Transport Policy
27 November 2014

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