

Appendix K Analysis of Traffic Flow Changes Resulting from Mitigation Strategy

TECHNICAL NOTE

Job Name: Chichester Transport Study
Job No: 43682
Note No: Appendix K for Chichester Transport Study
Date: 29/11/2018
Prepared By: Norbert Moyo
Subject: Analysis of Traffic Flow Changes Resulting From Mitigation Strategy

Item	Traffic Flow Changes Resulting From Mitigation Strategy
1.	<p>It is evident that there are complex but in most cases entirely logical flow changes as a result of the proposed mitigation. The model in most cases accentuates these flow changes, whereas it may be expected that in real life, the magnitude of some of the flow changes, such as rat-running through residential or traffic calmed roads will be less pronounced than the model suggests.</p> <ul style="list-style-type: none"> ▪ <u>Birdham Road, south of Dell Quay Road</u>: southbound PM peak +152, northbound PM peak + 188: ▪ <u>Birdham Road, south of Wophams Lane</u>: southbound PM peak +206, northbound PM peak + 147: <p>The flow changes for the above two are related and are due to localised impacts where some traffic is unable to enter the model network, due to a congested entry link or node, without mitigation. This means that not all traffic that wishes to use a certain link or turn (demand flows) is able to because of congestion. That traffic that is able to do so, in line with link and or junction capacity is termed actual flows. The flow changes are best explained using the screenline flows shown in Tables 1 to 4 below. Table 1 shows Actual screenline flows taken south of Dell Quay Road while Table 2 shows the Actual flows taken on a screenline south of Wophams Lane. In both Tables, it can be seen that in the northbound direction, the total screenline flows are quite consistent between Scenario 1 without mitigation (Sc1_No_Mtgn) and Scenario 1 with mitigation (Sc1_With_Mtgn). The northbound flow increases noted above are thus a result of local reassignment between the three competing roads with Birdham Road showing an increase and Selsey Road a decrease.</p> <p>In the southbound direction, it is clear that in both screenlines, the with mitigation actual flows are higher than those without mitigation. However, when demand flows are compared as shown in Tables 3 and 4, the total screenline flows are comparable. This suggests that without mitigation, there is traffic that is not able to enter the network due to congestion, and this is released by the additional capacity particularly that released by the Stockbridge Link Road. The amount of this traffic is more pronounced in the PM peak. The noticeable reduction in total screenline demand flows with mitigation, can be explained by the fact that a 5% reduction was applied to the Local Plan Review strategic trips with mitigation, hence the demands in the with mitigation matrices and slightly lower than those without mitigation.</p>

TECHNICAL NOTE

Item Traffic Flow Changes Resulting From Mitigation Strategy

Table 1: Actual screenline flows taken south of Dell Quay Road

Actual Flows in PCU					
Birdham Rd PM Flow Changes South of Dell Quay Road by looking at Screenline of all three Roads/Possible Routes					
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	NB	911	1,098	187
2	B2201 Selsey Rd	NB	360	328	-32
3	B2145 Selsey Rd	NB	1,082	929	-153
4	Screenline Total	NB	2,353	2,355	2
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	SB	1,030	1,184	154
2	B2201 Selsey Rd	SB	115	504	389
3	B2145 Selsey Rd	SB	782	608	-174
4	Screenline Total	SB	1,927	2,296	369
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	2-way	1,941	2,282	341
2	B2201 Selsey Rd	2-way	475	832	357
3	B2145 Selsey Rd	2-way	1,864	1,537	-327
4	Screenline Total	2-way	4,280	4,651	371

Table 2: Actual screenline flows taken south of Wophams Lane

Actual Flows in PCU					
Birdham Rd PM Flow Changes South of Wophams Lane by looking at Screenline of all three Roads/Possible Routes					
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	NB	1,279	1,356	77
2	B2201 Selsey Rd	NB	342	312	-30
3	B2145 Selsey Rd	NB	614	575	-39
4	Screenline Total	NB	2,235	2,243	8
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	SB	990	1,196	206
2	B2201 Selsey Rd	SB	78	413	335
3	B2145 Selsey Rd	SB	748	575	-173
4	Screenline Total	SB	1,816	2,184	368
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	2-way	2,269	2,552	283
2	B2201 Selsey Rd	2-way	420	725	305
3	B2145 Selsey Rd	2-way	1,362	1,150	-212
4	Screenline Total	2-way	4,051	4,427	376

TECHNICAL NOTE

Item Traffic Flow Changes Resulting From Mitigation Strategy

Table 3: Demand screenline flows taken south of Dell Quay Road

Demand Flows in PCU					
Birdham Rd PM Flow Changes South of Dell Quay Road by looking at Screenline of all three Roads/Possible Routes					
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	NB	915	1,099	184
2	B2201 Selsey Rd	NB	375	331	-44
3	B2145 Selsey Rd	NB	1,149	955	-194
4	Screenline Total	NB	2,439	2,385	-54
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	SB	1,448	1,329	-119
2	B2201 Selsey Rd	SB	139	550	411
3	B2145 Selsey Rd	SB	961	628	-333
4	Screenline Total	SB	2,548	2,507	-41
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	2-way	2,363	2,428	65
2	B2201 Selsey Rd	2-way	514	881	367
3	B2145 Selsey Rd	2-way	2,110	1,583	-527
4	Screenline Total	2-way	4,987	4,892	-95

Table 4: Demand screenline flows taken south of Wophams Lane

Demand Flows in PCU					
Birdham Rd PM Flow Changes South of Wophams Lane by looking at Screenline of all three Roads/Possible Routes					
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	NB	1,280	1,356	76
2	B2201 Selsey Rd	NB	347	314	-33
3	B2145 Selsey Rd	NB	624	578	-46
4	Screenline Total	NB	2,251	2,248	-3
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	SB	1,372	1,337	-35
2	B2201 Selsey Rd	SB	86	438	352
3	B2145 Selsey Rd	SB	917	593	-324
4	Screenline Total	SB	2,375	2,368	-7
	Road Name	Direction	Sce1_No_Mtgn	Sce1_With_Mtgn	Diff
1	A286 Birdham Rd	2-way	2,652	2,693	41
2	B2201 Selsey Rd	2-way	433	752	319
3	B2145 Selsey Rd	2-way	1,541	1,171	-370
4	Screenline Total	2-way	4,626	4,616	-10

2. **A259 Main Road, Fishbourne:**

Eastbound AM peak over +479, PM peak +112: More eastbound traffic now uses A259 Main Road to access the A27 bypass at the Fishbourne roundabout as well as go into Chichester

TECHNICAL NOTE

Item	Traffic Flow Changes Resulting From Mitigation Strategy
	<p>with the proposed mitigation in place than in the non-mitigated scenario. This is mainly the case in the AM peak, where a large number of trips from the areas around Southbourne and zones to the south of the A259 Main Road, previously went into Chichester using the northern 'back route' via Cooks Lane/Priors Leaze Lane/Broad Road/Cheesemans Lane, before joining Common Road/B2146/B2178 through Funtingdon. In the mitigated scenario, most of these trips now use A259 Main Road to head into Chichester via the Fishbourne roundabout. In the PM peak, a significant part of this increase is a result of demand in zones to the south of the A259 Main Road, that previously was unable to reach the network because of congestion, now being released onto A259 Main Road with the mitigation in place, whereas without mitigation this traffic is not able to reach the wider network. The Stockbridge Link Road releases considerable capacity to the west of Chichester and coupled with the A27 Chichester Bypass schemes, more traffic is released from zones south of A259 culminating in increased actual flows on A259 Main Road in the mitigated scenario compared to the unmitigated scenario.</p>
3.	<p>Wophams Lane, eastbound AM peak +123:</p> <p>This road shows a decrease in the westbound direction of 329 leading to a net decrease of 206 pcu. Accident data shows that there have been 3 accidents around the junction of Wophams Lane and B2201/Selsey Road although visibility from Wophams Lane appears good in both directions. It is not clear if the accidents are due to tight bend around the junction for traffic on Selsey Road, or due to traffic emerging from or into Wophams Lane. The southbound routing strategy to Selsey given the right turn bans at Stockbridge and Whyke roundabouts could be to use the proposed Stockbridge Link Road to the new junction with Birdham Road, turn left to head northwards, before turn right at the B2201 mini-roundabout, to head southwards. If all the additional 123 pcu were to follow this routing, this would increase the flow on the A286 Birdham approach to the B2201 mini-roundabout from 765 to 888 pcu, a 16% increase.</p>
4.	<p>Westgate, west of Parklands:</p> <p>Westbound AM peak + 391: The proposed signalisation of the A259 eastbound arm at the A259 Via Ravenna/A259 Cathedral Way roundabout (Mitigation Jct. 8), means that more gaps are available for southbound traffic from Westgate approaching this roundabout at its northern arm. Southbound traffic on the A286 Orchard Street that would normally travel to the A259 Via Ravenna/A259 Cathedral Way roundabout using the A286 Avenue De Chartres before heading west using A259 Via Ravenna, are predicted to use Westgate with the mitigation in place. Westgate is traffic calmed along this section and is therefore a slow road (20mph or less). This rat run while understandable, could be overstated in the model given the traffic calmed nature and standard of Westgate. Options that could be explored to minimise or reduce the rat running include severing Westgate so it becomes access only, or undertaking additional calming of Westgate.</p>
5.	<p>Kingsham Road, western section: westbound AM peak +119, eastbound PM peak +101:</p> <p>There is rat running by local and A27 traffic from the east that seems to be associated with the removal of right turns at the Stockbridge and Whyke roundabouts, in this case the right turns into Chichester. This road is traffic calmed and is 20 mph and while the rat running is logical, its magnitude maybe overstated in the model. A sensitivity test in which the right turn ban at Terminus Road/Stockbridge Road junction is removed and the speed on Kingsham Road coded at 20mph (32kph) throughout, shows that the eastbound flow on Kingsham Road in the PM peak, is similar to that in the without mitigation scenario, as is the westbound flow i.e. the right turn should be retained instead of banned. The speed reduction, however, does not appear to reduce the high westbound flow in the AM peak until the northbound right turn movement into Chichester (westbound) at Stockbridge roundabout is also permitted.</p>

TECHNICAL NOTE

Item	Traffic Flow Changes Resulting From Mitigation Strategy
6.	<p>A key observation at the Bognor Road roundabout (and which has a significant bearing on the model flows), is that delays at the roundabout on the westbound approach from Bognor Road are already high and of the order of 460 seconds in the AM peak in the Reference Case. With Scenario 1 and without mitigation, these increases to over 860 seconds. This causes some westbound traffic that would otherwise use Bognor Road into Chichester from the east, to instead use the A29 northwards to join the A27 before heading back westwards towards Chichester. With the proposed mitigation, the delays on Bognor Road approach arm at Bognor Roundabout, reduce to 76 seconds causing traffic to now use Bognor Road via Bognor Roundabout into Chichester. This explains the increases on for example Bognor Road, over rail bridge. Some of this traffic especially that headed for areas to the west of Chichester such as Terminus Road and associated employment zones, also appears to rat run such as via Kingsham Road. These observations, to a large extent explain the general increase in rat-running from the east to the west of Chichester in the AM peak and vice versa in the PM peak. The above largely explains the observations for flow changes on the roads below:</p> <ul style="list-style-type: none"> ▪ <u>Avenue De Chartres, east of Via Ravenna: westbound AM peak +391</u>: Select Link Analysis shows that most of there is considerably more traffic using this link coming from the east via Bognor Road in particular, and to an extent traffic from the A27 Westhampnett Bypass which comes into Chichester through the Portfield Roundabout using the A285 Westhampnett Road into Chichester. Most of this traffic is bound for the West of Chichester in the Terminus Road/Westgate Leisure Centre. ▪ <u>Market Avenue, west of Caledonian Road: westbound AM peak + 297, eastbound PM peak +383</u>: This again seems to be related to capacity release at Bognor Roundabout with more traffic coming into Chichester through Bognor Road and to a lesser extent, also an increase in traffic coming into Chichester through Portfield Roundabout using the A285 Westhampnett Road. ▪ <u>The Hornet, east of Needlemakers: westbound AM peak + 273, eastbound PM peak +441</u>: This is predominantly related to capacity increase at Bognor Roundabout with more traffic coming into Chichester through Bognor Road ▪ <u>Bognor Road, over rail bridge: westbound AM peak + over254, eastbound PM peak +735</u>: - related to capacity increase at Bognor Roundabout with more traffic coming into Chichester through Bognor Road ▪ <u>Quarry Lane, west of Spur Road: westbound PM peak + 249</u>: - related to capacity increase at Bognor Roundabout with more traffic coming into Chichester through Bognor Road