

Appendix D Summary of Traffic Changes Arising from IRR CAZ C in 2020 and 2022 (v8 13/12/17)

1. This note provides a summary of the modelled forecast changes in all day (weekday 0700-1900 and estimated AADT¹) traffic flows arising with the implementation of a Clean Air Zone covering Leeds city centre and the Inner Ring Road (excluding the M621) and applying to HGVs and LGVs (taxis are not modelled separately within the Leeds Transport Model and buses are modelled as a fixed demand based on existing routes).
2. This is based on the following assumptions:
 - LGV and HGV included but not cars
 - Daily charges of £12.50 (LGV) and £100 (HGV) for non-compliant vehicles
 - No suppression of non-compliant trips
 - Assumed compliance levels (%):

Table 1

2020	Car	LGV	HGV
Within CAZ	76.4	88.2	97.4
Outside CAZ	76.4	60.7	80.3

3. The first section of the report considers the impacts on implementation in 2020, the second section examines the effect of the proposed City Centre Package (CCP) scheme which will close City Square to general traffic, reallocate highway capacity within the South Bank and provide additional capacity at Armley Gyratory and on the M621. (The latter scheme is being delivered by Highways England.)
4. Throughout this report the analysis is presented in various ways. Tables and graphs either contain direct outputs from the transport model or adjusted outputs that reflect existing traffic levels and how well the model reproduces them. The former are all labelled as Modelled the latter as Forecast. When it comes to understanding the percentage changes in traffic levels the Forecast data is regarded as being more robust. Both the Modelled and Forecast data are based on AADT estimates, with local factors applied to both traffic counts and model outputs to generate these. In addition, network plots of changes in modelled flows are also included – these are based on modelled 12 hour weekday flows.

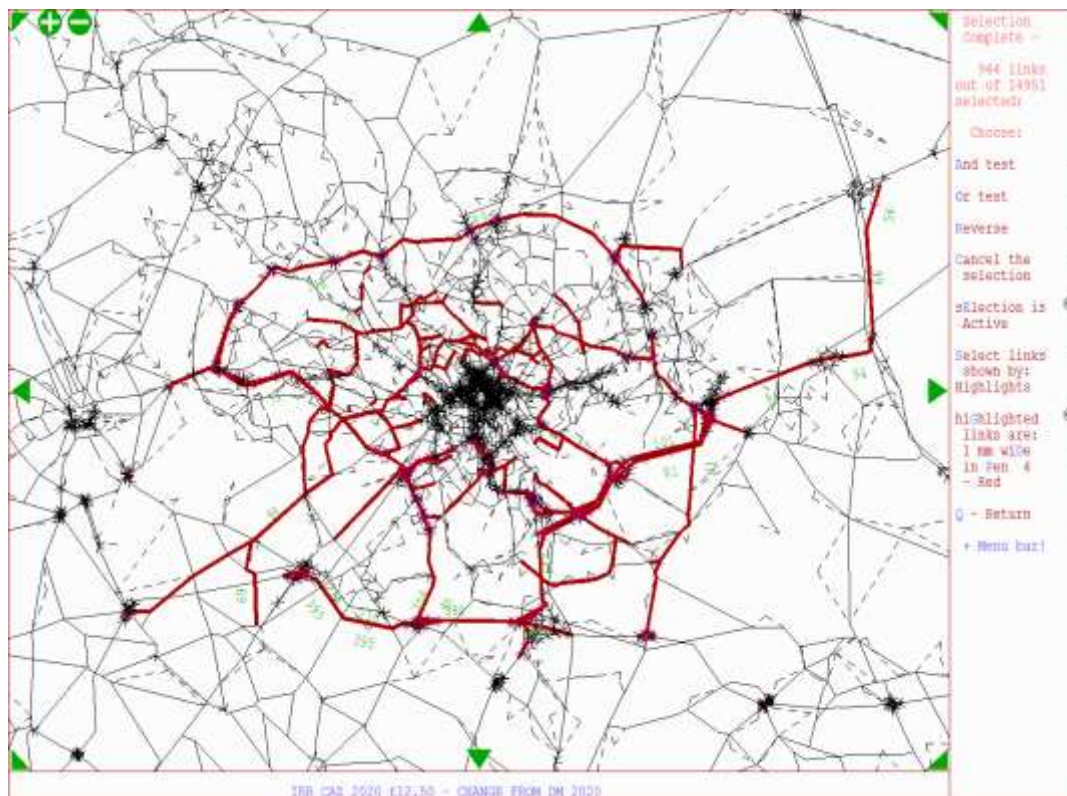
Section 1 – Impact in 2020 On Implementation of CAZ**Review of roads with increased traffic**

5. The following plots show the modelled changes in flows from a 2020 Do Minimum situation. All changes in LGV and HGV are in vehicles.

¹ Annual Average Daily Traffic
Leeds City Council

6. The impact of the CAZ has a widespread effect upon LGV traffic across Leeds. Figure 1 shows the roads where an increase of 50 or more LGV's is forecast in either direction of travel over the 12 hour weekday.
7. To provide a context, DfT count data indicates that across the A road network in Leeds, the average road carried almost 3,200 LGVs (2 way) per 12 hour weekday in 2013-2015. This compares with almost 900 HGVs and 19,800 cars².
8. Roads affected by a greater increase of 300 LGVs are shown in Figure 2. This is concentrated around the minor road network to the north and west of the city centre, A63 East Leeds Link Road, the M1 and M62 and the A658/A6110 to the southwest.
9. Figures 3-5 provide more detail of these forecasts.
10. The scale of increase on some of these roads is substantial, with the greatest detrimental impact occurring on the minor roads to the west and north of the city centre. For example the 2 way increase forecast for Canal Rd (linking the A65 to the A647) is over 1800 LGVs per 12 hour weekday. A classified count here in 2017 recorded a 2 way 12 hr flow of 1132 LGVs alongside 350 HGVs³.

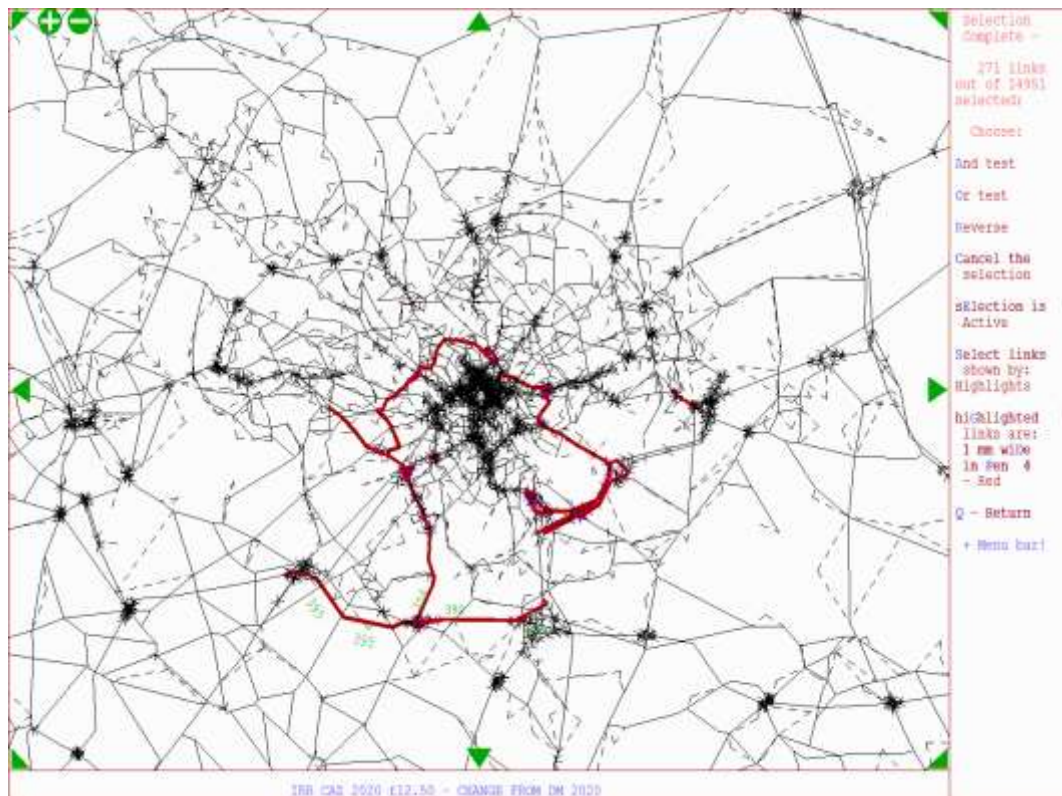
Figure 1 - LGV – increase of 50 or more vehicles (12 hour)



² Data from 159 12 hour manual counts

³ Job7866 site 11

Figure 2 - LGV – increase of 300 or more vehicles (12 hour)



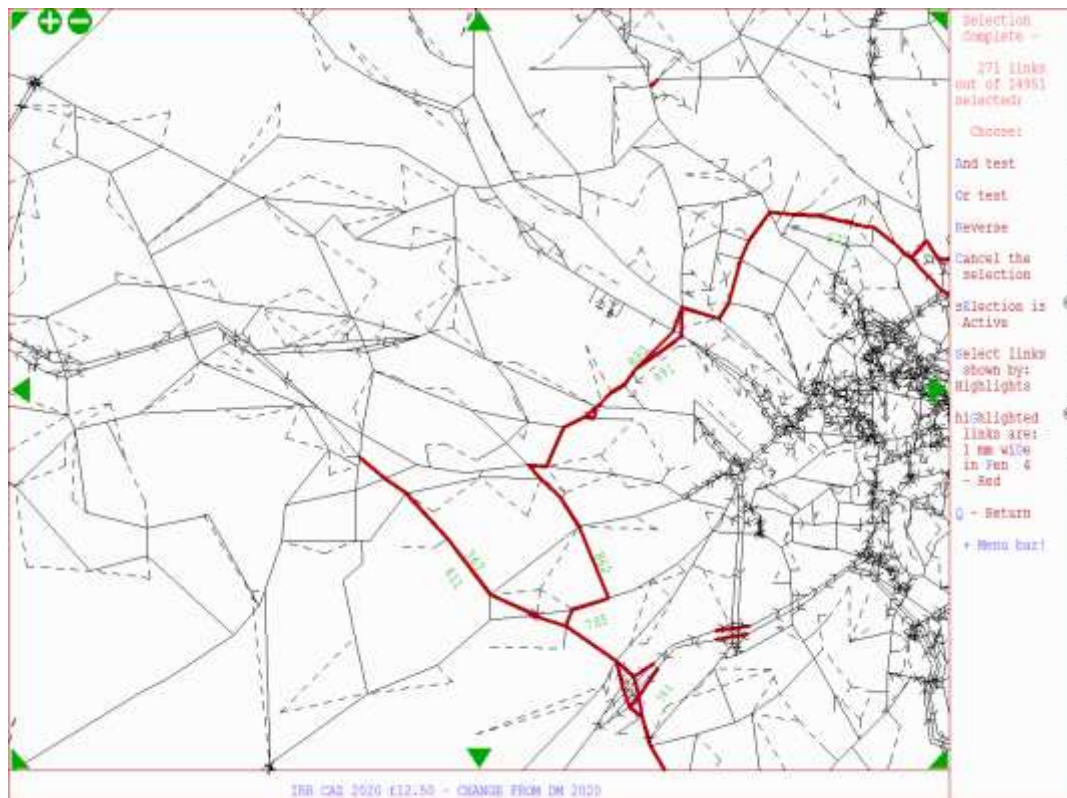
11. To the north of the city centre, the forecast increase on Torre Rd/Lincoln Green Rd is 800-1000 LGV (2 way) rising to 1200 on Woodhouse St. Hyde Park Rd is forecast to attract an additional 1,000 LGVs and Woodsley Rd 1,200. 1,800 additional LGVs are forecast to pass through the centre of Armley on Town Street, rising to over 1,900 on Upper Wortley Rd/Dixon La.
12. Classified counts in 2017 on Torre Rd recorded just under 700 LGVs over a 12 hr weekday⁴ on Woodhouse St around 950 LGVs⁵, and on Dixon La 1,150 LGV⁶.

⁴ Job7866 site 2

⁵ Job7866 site 7

⁶ Job7866 site 14

Figure 3 - LGV – increase of 300 or more vehicles (12 hour) – west of city centre



13. When this flow is combined with the forecast additional LGV usage on the A6110 west of A58 Whitehall Rd, the increase on the A6110 through the A62 Gelderd Rd (Wheafsheaf) junction rises to almost 3,000 vehicles per 12 hr weekday.
14. Southeast of the M621 the increase in LGV traffic is forecast to be much lower, from just under 900 additional vehicles immediately beyond the junction, down to just over 300 on the A653 Dewsbury Rd and 450 north of the M62 at Tingley.
15. East of the city centre, Ivy St is forecast to attract an additional 1,200 LGV per 12 hr weekday with the usage of the A63 East Leeds Link Rd rising by up to 1,600.

Figure 4 - LGV – increase of 300 or more vehicles (12 hour) – east of city centre

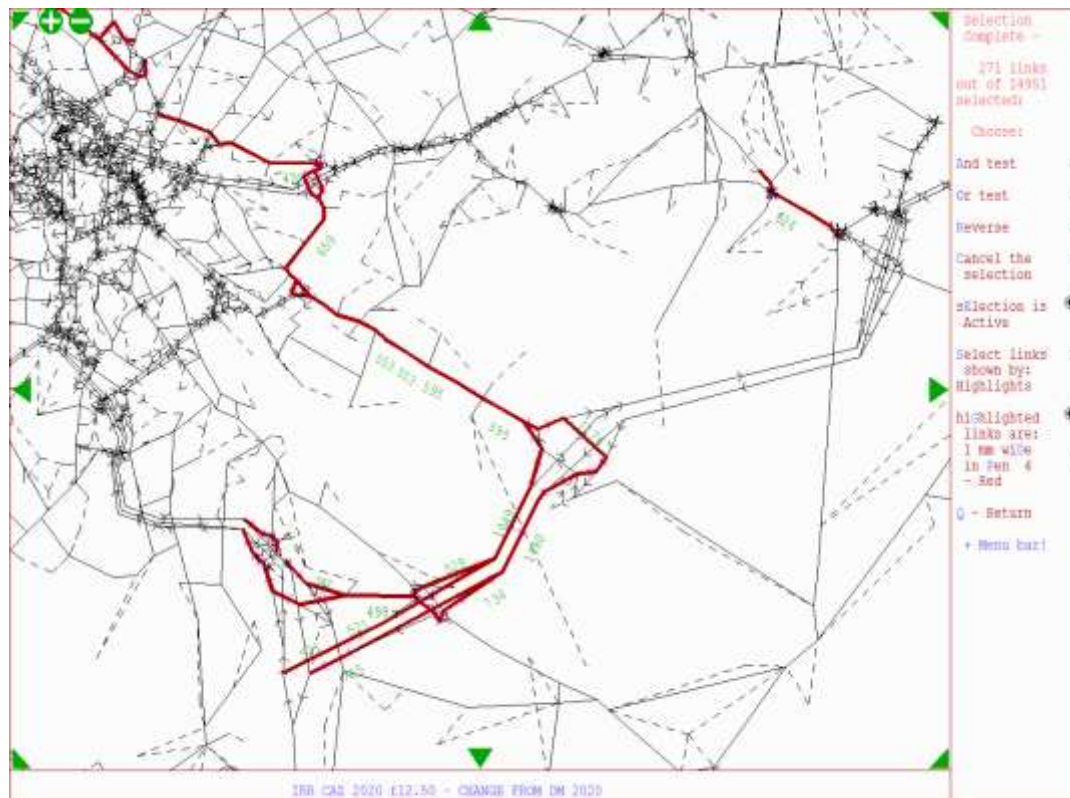
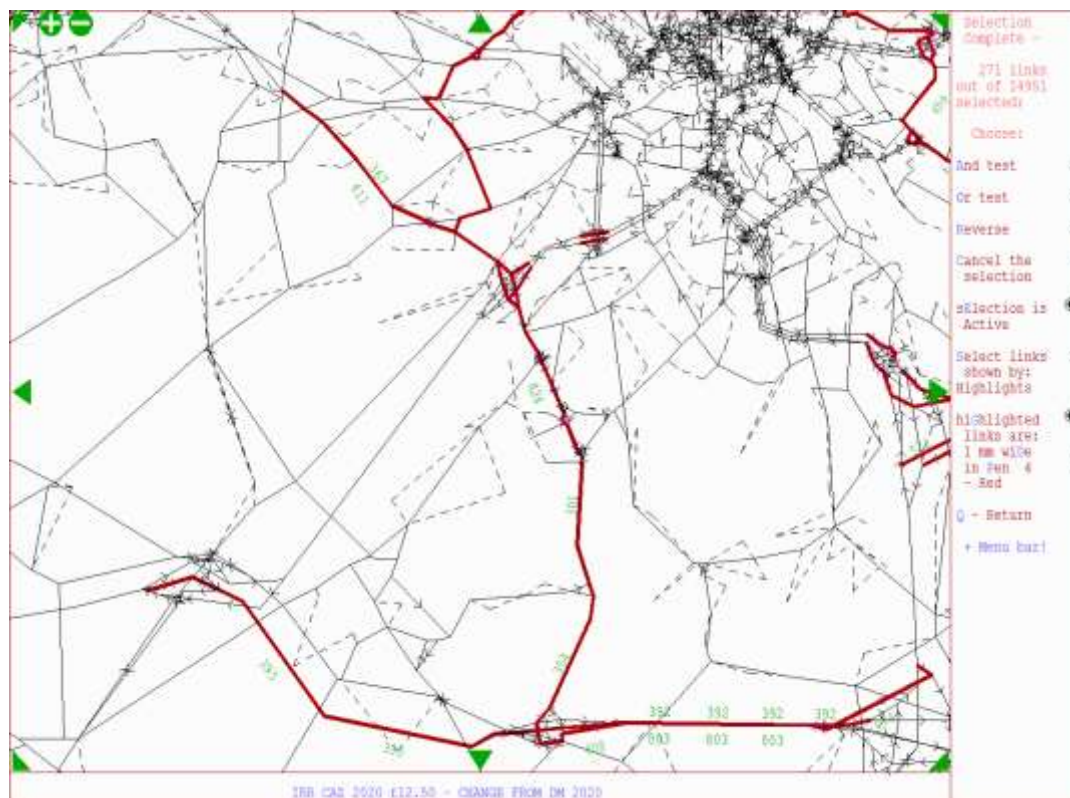
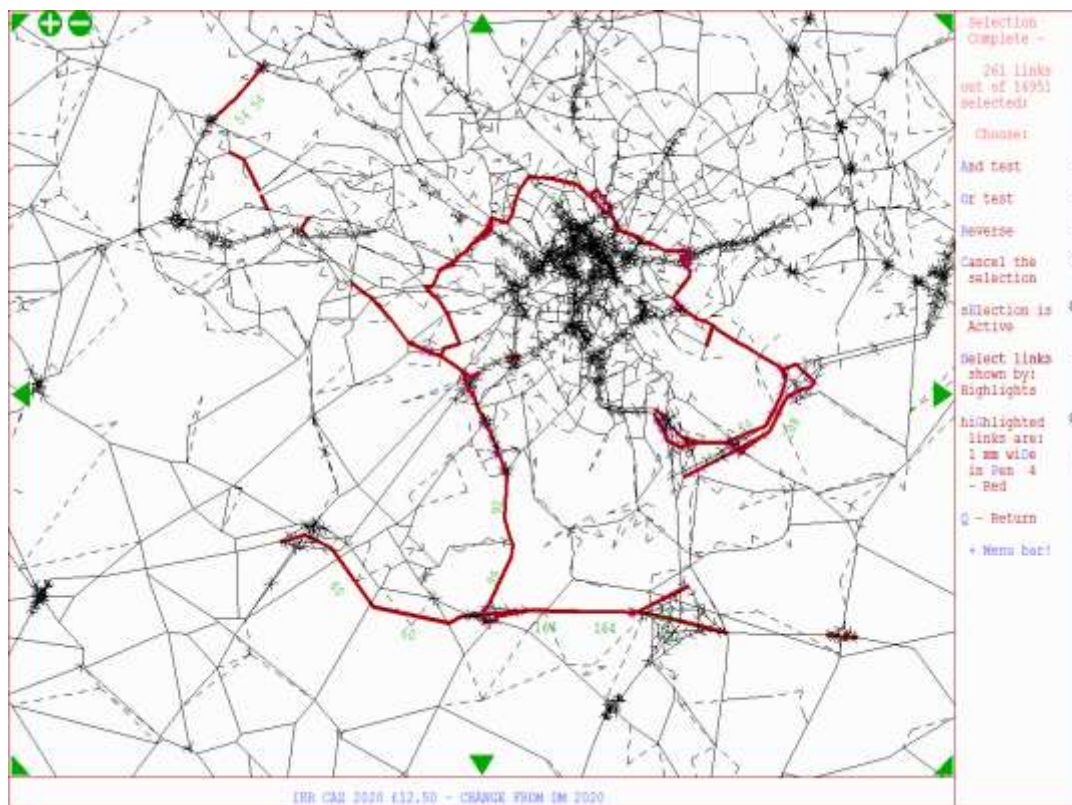


Figure 5 - LGV – increase of 300 or more vehicles (12 hour) – southwest of city centre



16. The net change in LGVs shown above is less than the change in non-compliant LGVs, however, as the compliant vehicles migrate to the areas of the network within the CAZ. The differences are not large, but this emphasises the point that the diversion routes used by displaced vehicles are not only attracting additional traffic, but are forecast to become a magnet for high volumes of non-compliant vehicles, with the associated air quality impacts.
17. Thus for Canal Rd, referred to in para 8, the net two way increase in LGVs is forecast at 1,775 vehicles (12 hr weekday) but the net change in non-compliant LGVs is forecast at 1,872 vehicles, some 5% higher.
18. When it comes to HGVs, the proportion of these vehicles in the overall traffic mix is markedly lower than LGVs, and the forecast level of compliance by 2020 higher (Table 1). Consequently, the flow changes arising from the IRR CAZ C test are lower. Figure 6 shows the parts of the Leeds network where a forecast increase of 50 or more vehicles in either direction of travel is forecast.

Figure 6 - HGV – increase of 50 or more vehicles (12 hour)



19. Again, the routes attracting the bulk of displaced traffic are the same roads affected by additional LGVs. Torre Rd and Woodhouse St are forecast to both attract around 150 HGVs per 12 hr weekday; Hyde Park Rd 110 and Woodsley Rd 140. 200 additional HGVs are forecast to use Viaduct Rd, 210 on Town Street, Armley, and 230 on Upper Wortley Rd/Dixon La.

Figure 7 - HGV – increase of 50 or more vehicles (12 hour) (city centre southwest)

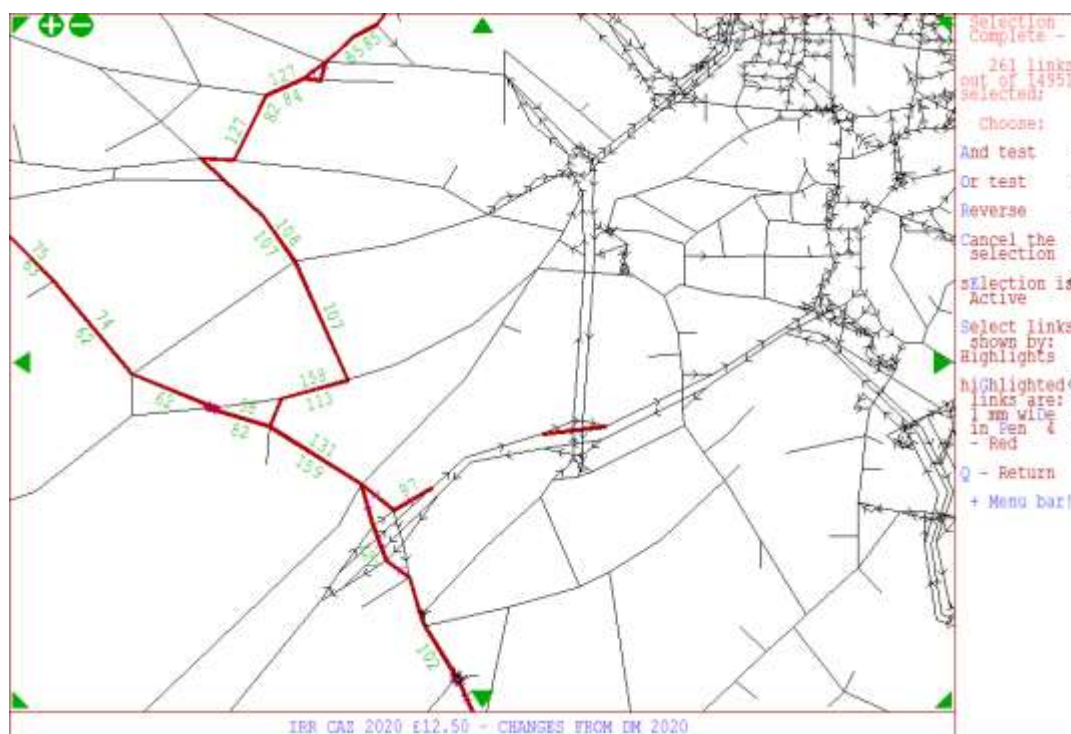


Figure 8 - HGV – increase of 50 or more vehicles (12 hour) (city centre north)

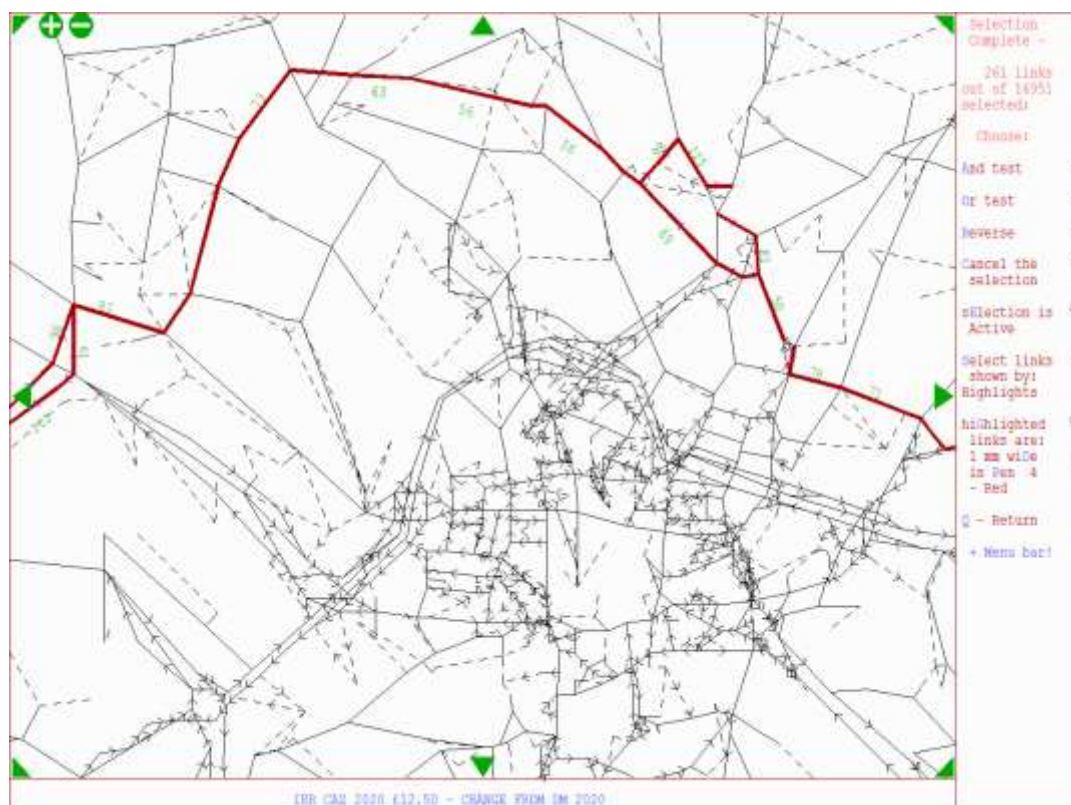
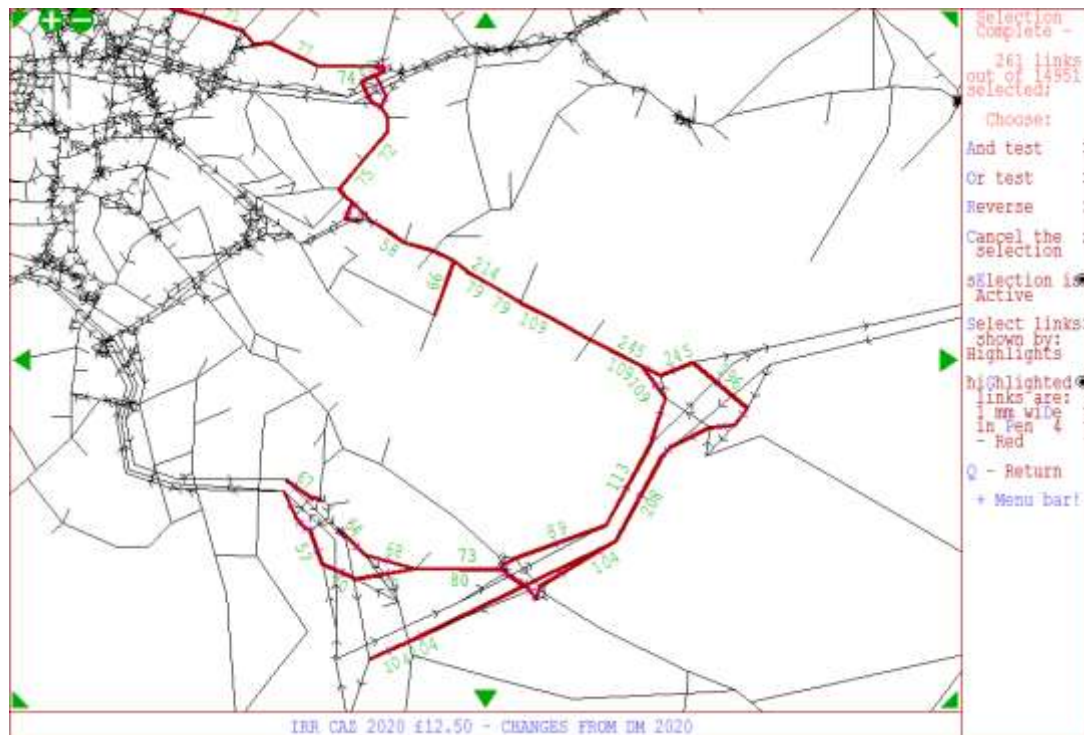


Figure 9 - HGV – increase of 50 or more vehicles (12 hour) (city centre east)



20. An assessment of the overall impact on traffic levels for these diversion routes has been undertaken. This has utilised observed traffic levels together with the forecasts changes in the model to arrive at an estimated change in overall traffic arising from the IRR CAZ. Table 2 shows the results of this analysis.
21. It should be noted, that although in some cases there are quite big differences between the observed and modelled flows in 2015, the overall match between the two datasets is very good, with an R^2 value of 0.988 – in line with the overall model performance – and implying that overall traffic levels are in the right order of magnitude across the network.
22. Nevertheless, it is recognised that poor performance on individual links may mean that further work is required to better understand the air quality impacts at these locations.
23. As shown in Table 2, there is a forecast significant increase in overall traffic levels upon the minor road network to the north and west of the city centre, with flows rising by 10% in many cases and by around 20% on Torre Rd and Woodsley Rd.
24. The impact upon the main road network is much less pronounced with flows only rising by a few percentage points in the main, the exception being A63 Pontefract La where an 8% increase is forecast.

Table 2 – Forecast Change in Traffic Levels on Routes with Diverted Traffic

Road	Observed	Modelled AADT			Estimated 2020 AADT			
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020	Change	%age change
Torre Rd	7000	3370	3570	4777	7200	8407	1207	17%
Lincoln Green Rd	9900	6909	7551	8548	10542	11539	997	9%
Woodhouse St	8400	8872	9119	10144	8647	9672	1025	12%
Hyde Park Rd	5800	9240	9349	10185	5909	6745	836	14%
Woodsley Rd	5800	6713	6785	7957	5872	7044	1172	20%
Canal Rd	13100	16831	17533	18399	13802	14668	866	6%
Town St	10300	12641	13015	14048	10674	11707	1033	10%
Upper Wortley Rd	10700	11310	11859	12972	11249	12362	1113	10%
A6110 Ring Rd W A62	35400	42107	43388	43499	36681	36792	111	0%
A6110 Ring Rd E M621	35800	41674	42208	42270	36334	36396	62	0%
A653 Dewsbury Rd	35700	39225	40392	40419	36867	36894	27	0%
East Park Parade	18200	17165	18282	18847	19317	19882	565	3%
A63 Pontefract La	16800	20862	24324	25944	20262	21882	1620	8%
A6120 Selby Rd	42200	36593	35194	35750	40801	41357	556	1%
M1 Jn 44-45	82000	79887	88129	90009	90242	92122	1880	2%
M62 Jn 28-29	125500	133929	154782	155894	146353	147465	1112	1%

25. This analysis, however, masks the fact that across all these routes the increases are primarily linked to significant increases in non-compliant vehicles accompanied by small falls in cars and compliant LGVs/HGVs.
26. Comprehensive up to date classified counts have been carried out to assess the current levels of LGVs and HGVs on these minor routes, enabling an assessment of the forecast changes to be made. This indicates that on the minor roads to the north and west of the city centre overall LGV levels are forecast to rise by between 90 and 270% and HGV levels by 60-160% - see Tables 3 and 4. The increase in non-compliant vehicles is forecast to be several times greater than this – see Appendix A.

Table 3 – Forecast Change in LGVs on Minor Routes with Diverted Traffic

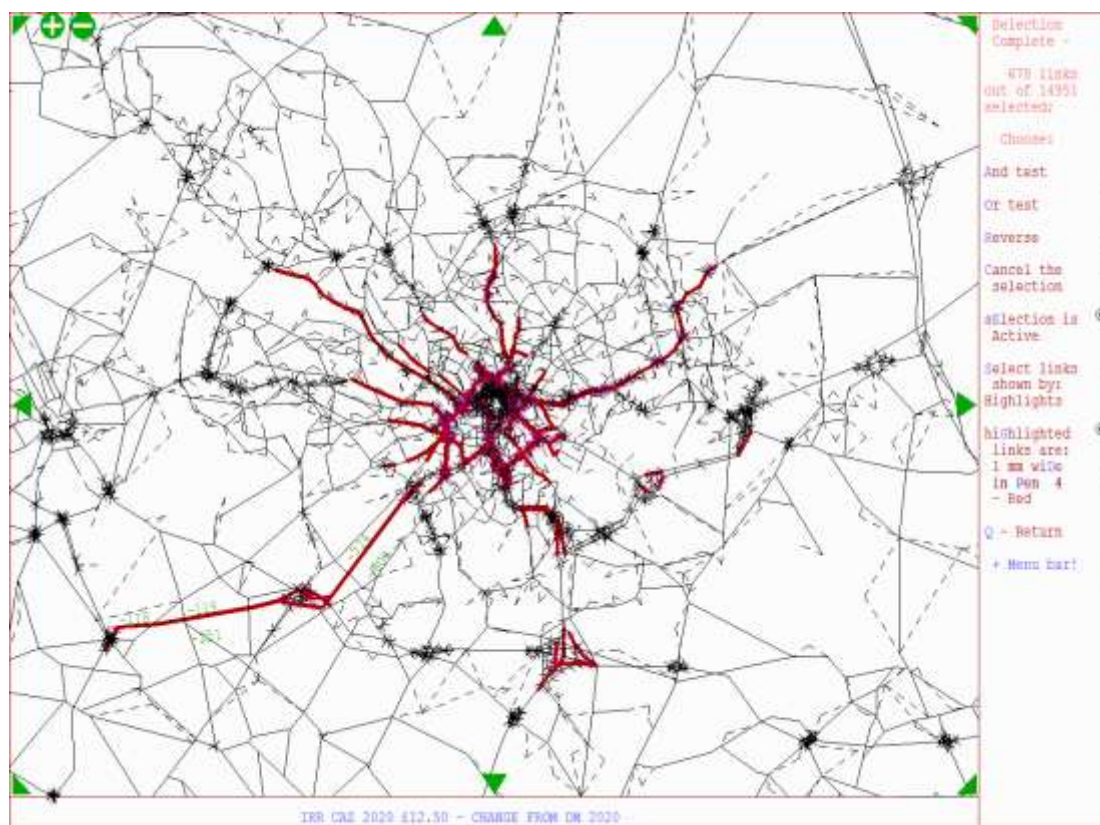
Road	Observed	Modelled AADT			Estimated 2020 AADT			
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020	Change	%age change
Torre Rd	590	233	265	1136	622	1493	871	140%
Lincoln Green Rd	770	393	470	1238	847	1615	768	91%
Woodhouse St	820	731	797	1857	886	1946	1060	120%
Hyde Park Rd	500	571	623	1529	552	1458	906	164%
Woodsley Rd	370	471	512	1620	411	1519	1108	270%
Canal Rd	980	1134	1297	2907	1143	2753	1610	141%
Town St	890	978	1098	2716	1010	2628	1618	160%
Upper Wortley Rd	1030	1216	1357	3030	1171	2844	1673	143%
East Park Parade	2020	1873	2181	3239	2328	3386	1058	45%

Table 4 – Forecast Change in HGVs on Minor Routes with Diverted Traffic

Road	Observed	Modelled AADT			Estimated 2020 AADT		Change	%age change
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020		
Torre Rd	170	29	35	175	176	316	140	80%
Lincoln Green Rd	170	56	64	194	178	308	130	73%
Woodhouse St	140	99	103	236	144	277	133	92%
Hyde Park Rd	100	90	93	200	103	210	107	104%
Woodsley Rd	80	78	79	207	81	209	128	158%
Canal Rd	310	312	323	506	321	504	183	57%
Town St	220	263	276	471	233	428	195	84%
Upper Wortley Rd	290	301	314	513	303	502	199	66%
East Park Parade	420	347	357	504	430	577	147	34%

Review of roads with reduced traffic

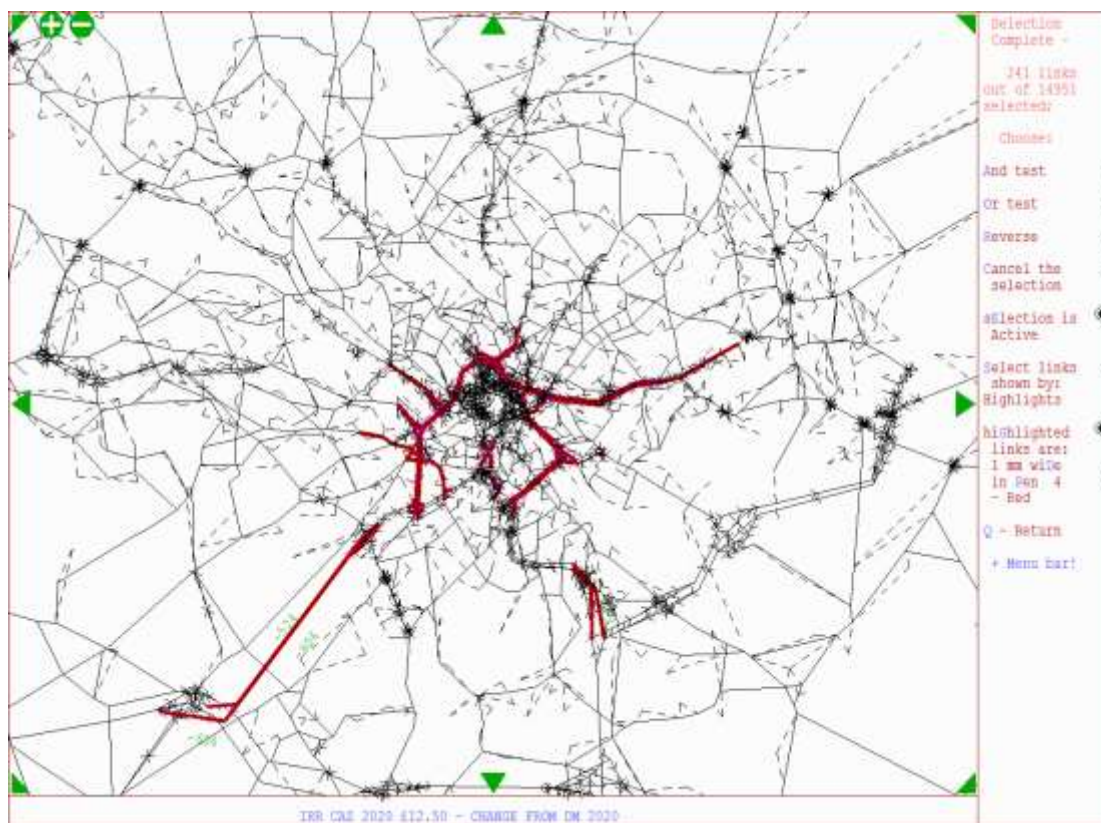
27. Figure 10 shows the parts of the highway network where the overall volume of LGVs is forecast to fall by 100 or more vehicles per 12 hour weekday with an IRR CAZ. The effect is concentrated upon the area of the CAZ, but with impacts upon a number of radial routes including the M621.

Figure 10 - LGV – decrease of 100 or more vehicles (12 hour)

28. This concentration is further highlighted in Figure 11, which shows links with a decrease of 300 or more LGVs.

29. Figures 12-14 show in more details the changes around the city centre. LGV flows are forecast to fall by approaching 1,800 vehicles on the northern Inner Ring Road (2 way 12 hr) 2,800-3,000 LGV on the western section and just under 2,500 on A643 Ingram Distributor.
30. Flows on the M621 are forecast to fall slightly between Jn 2A and 3 (down 300) but rise marginally between Jn 2 and 2A (up 140).
31. To the east of the City Centre the reduction in LGV flows on East St (down 850) and John Smeaton viaduct (down 1,350) is less than other areas, though this reflects the lower levels of traffic on these roads.
32. Changes in LGV levels within the City Centre itself are far lower than on the Inner Ring Road. This is down to the high level of cross city traffic that uses the IRR and consequently finds new routes to avoid the CAZ – as highlighted earlier – whereas most traffic within the city centre has an origin or destination there.

Figure 11- LGV – decrease of 300 or more vehicles (12 hour)



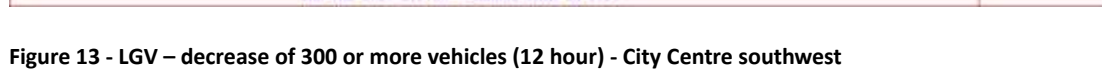
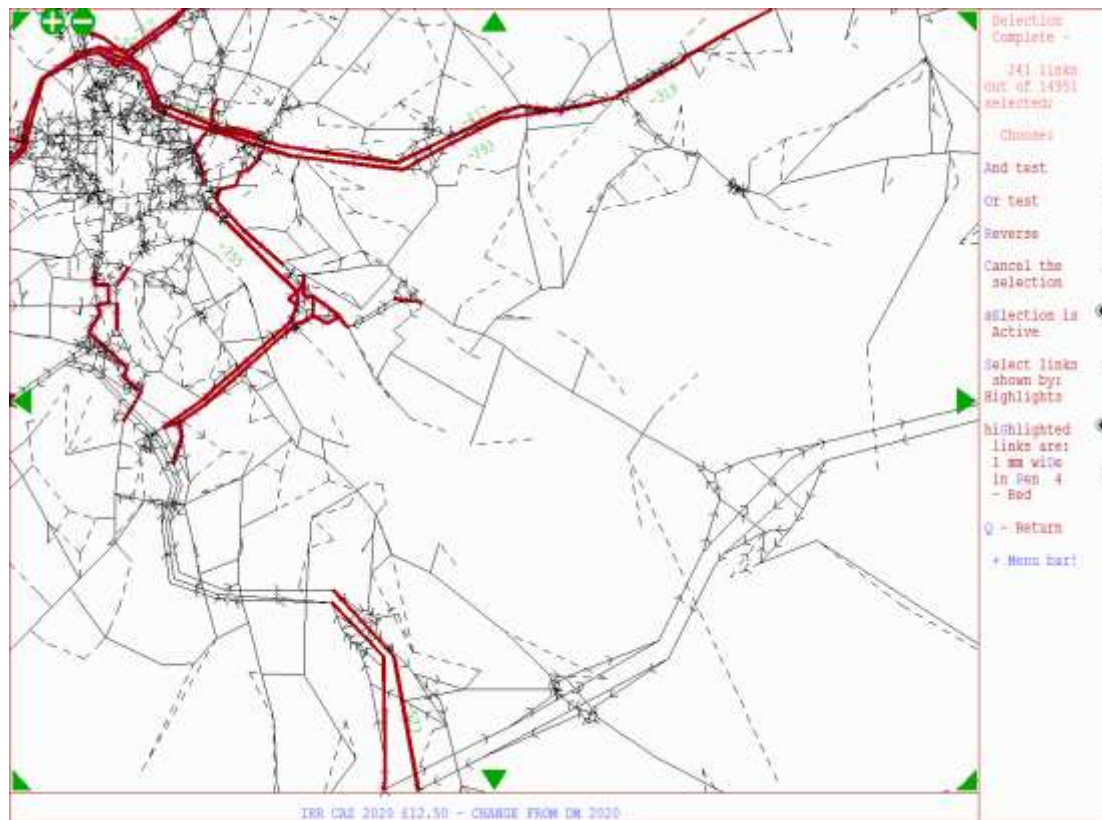
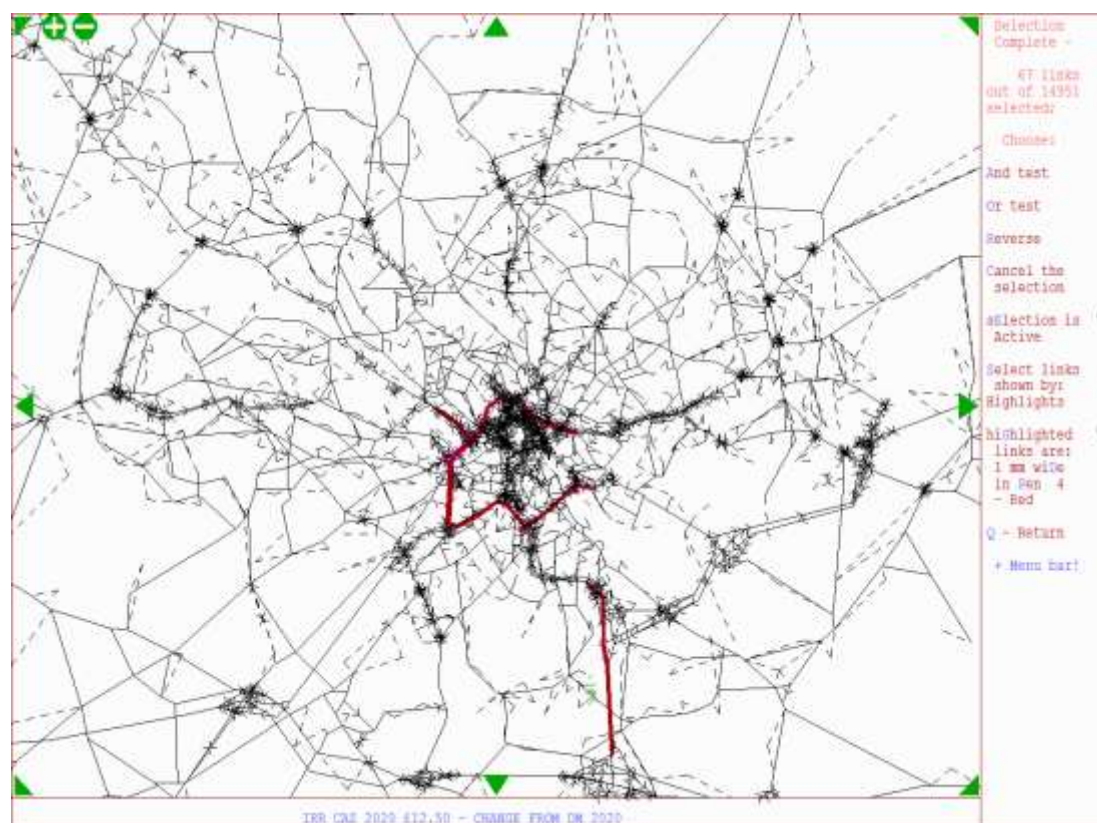


Figure 14 - LGV – decrease of 300 or more vehicles (12 hour) - City Centre southeast



33. Nevertheless, LGV flows on Crown Point Bridge are forecast to fall by around 400 vehicles per 12 hr weekday (2 way) and in City Square by 250.
34. A similar situation occurs with HGV flows – see Figure 15 – although here the changes are markedly less – down 350 vehicles (2 way 12 hr) on the IRR to the west of the City Centre and 200 on John Smeaton Viaduct, for example.

Figure 15 - HGV – decrease of 100 or more vehicles (12 hour)

35. An assessment on the impact on overall traffic levels, in line with that carried out for routes where traffic is forecast to increase, indicates that the net reduction in traffic on these roads is relatively modest.

Table 5 – Forecast Change in Traffic Levels on Routes with Reduced Traffic

Road	Observed	Modelled AADT			Estimated 2020 AADT		Change	%age change
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020		
IRR Lovell Park Br	44200	55092	59524	58039	48632	47147	-1485	-3%
IRR Woodhouse tunnel	71000	73191	76956	75212	74765	73021	-1744	-2%
IRR Wellington Br	86700	85539	89118	87785	90279	88946	-1333	-1%
A643 Ingram	53300	55483	58584	57830	56401	55647	-754	-1%
IRR East Street	28700	27817	31378	30893	32261	31776	-485	-2%
John Smeaton Viaduct	30100	30910	34088	33149	33278	32339	-939	-3%
Crown Point Br	31700	27459	29116	28546	33357	32787	-570	-2%
Bishopgate St	24000	20106	21137	20891	25031	24785	-246	-1%

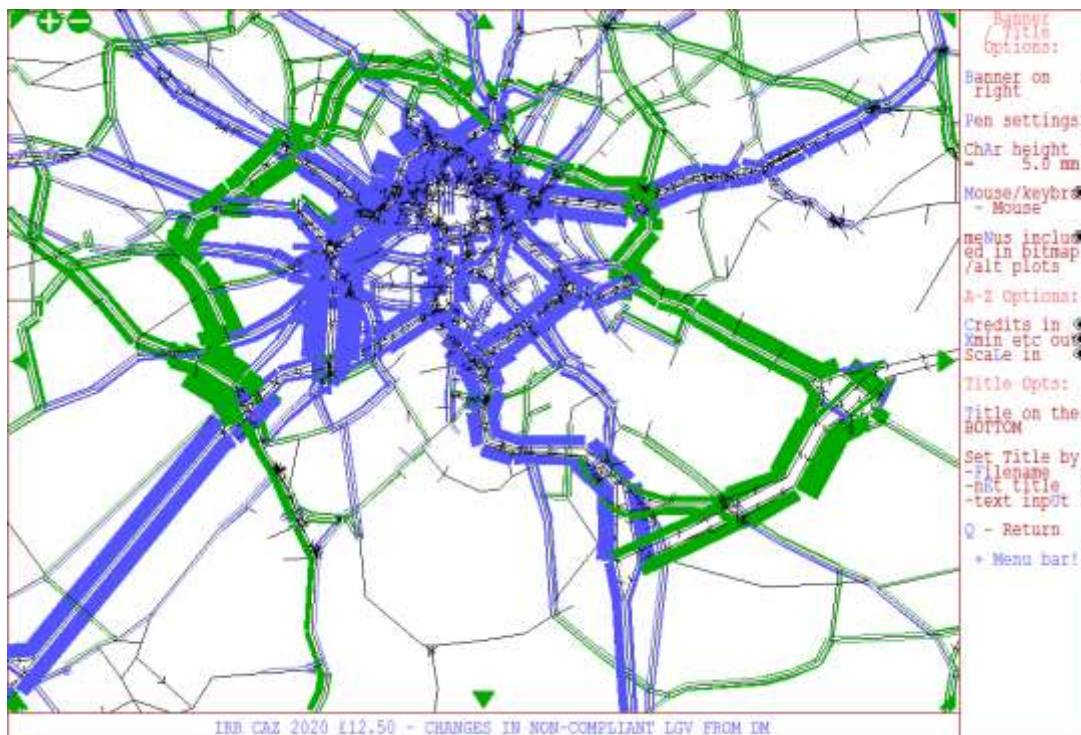
36. As with the minor roads, these changes mask the overall change in the vehicle mix on these routes. An assessment of traffic composition indicates that LGV volumes are forecast to fall by 20-30% on the IRR and 10% on Crown Point Bridge and Bishopgate St; HGV volumes by 8-17% across all these routes – see Appendix A.

37. However, the modelled forecast changes suggest a very substantial fall in non-compliant LGVs and HGVs of over 90% on the IRR, a bit less within the City Centre, accompanied by increases in compliant vehicles and cars.

Conclusions

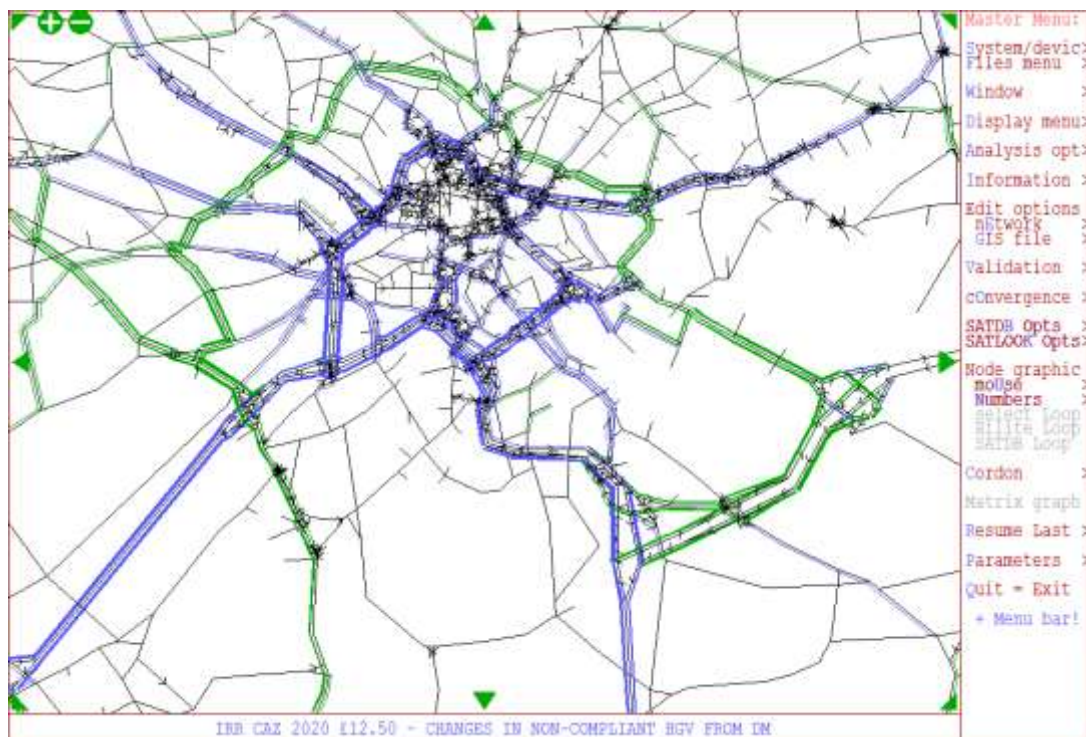
38. In summary, as Figures 16 and 17 illustrate, much of the impact of the IRR CAZ is to divert non-compliant vehicles away from the IRR onto the minor road network.
39. Overall traffic levels on the roads to the north and west of the city centre are forecast to increase by 10-20%, however, the rise in LGVs is forecast at 90-270% and HGVs by 60-160%. The change in non-compliant vehicles is forecast to be several times greater than this.
40. Within the CAZ, overall traffic volumes are forecast to fall only modestly (1-3%) on the IRR, but the reduction in LGVs is forecast at 20-30% and HGVs by 8-17%. Non-compliant LGVs and HGVs are forecast to fall by over 90%.

Figure 16 – non-compliant LGV changes (12 hour)



Note: Green = increase, blue = decrease

Figure 17 – non-compliant HGV changes (12 hour)



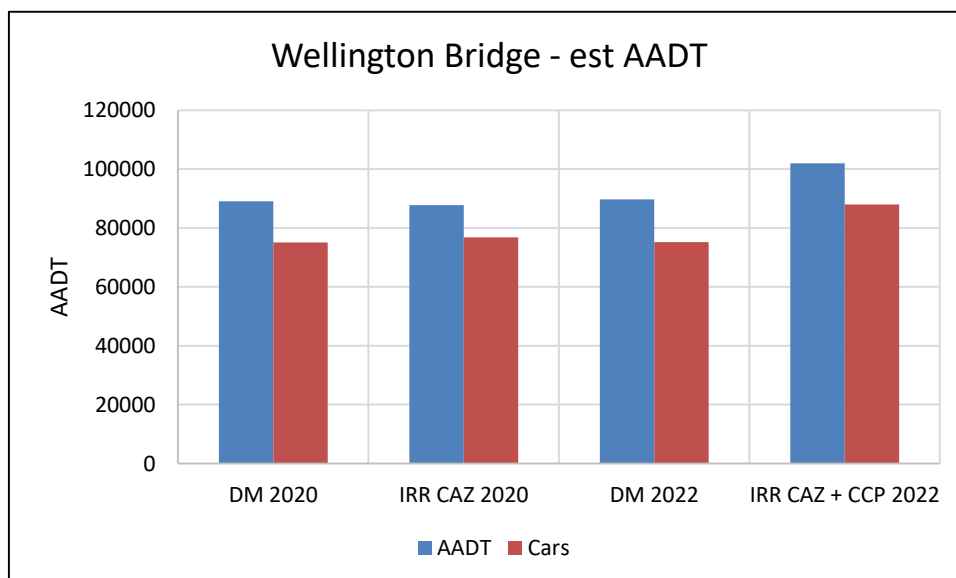
Note: Green = increase, blue = decrease

Section 2 – Impact in 2022 On Completion of City Centre Package

Review of roads with increased traffic

41. The CCP is designed to reduce the level of through traffic within the city centre. This is achieved through a combination of road closures and roadspace reallocation and the provision of additional circulatory capacity on the IRR and M621.
42. In particular the CCP increases traffic levels on the western IRR, the section where air quality is of most concern. Figure 18 shows the modelled changes in overall traffic on A58 Wellington Bridge in 2020 and 2022.
43. The introduction of the CAZ in 2020 results in a small 1% modelled fall in traffic overall together with an equally modest 2% increase in cars. The combination of the CAZ with the CCP, however, increases all traffic by 14% and cars by 17% compared with the 2020 DM.

Figure 18 – Wellington Bridge Modelled Traffic Changes 2020 and 2022 (AADT)



44. The impact upon non-compliant LGV/HGV remains significant with levels falling by over 90% from the 2020 DM situation and displacement onto the minor road network north and west of the city centre still occurring.
45. The overall levels of non-compliant LGVs and HGVs on Wellington Bridge are forecast to be 29% and 53% lower in 2022 (with the IRR CAZ C and CCP) than with the IRR CAZ C in 2020 – see Figures 19 and 20.

Figure 19 – Wellington Bridge Modelled LGV/HGV Traffic Changes 2020 and 2022 (AADT)

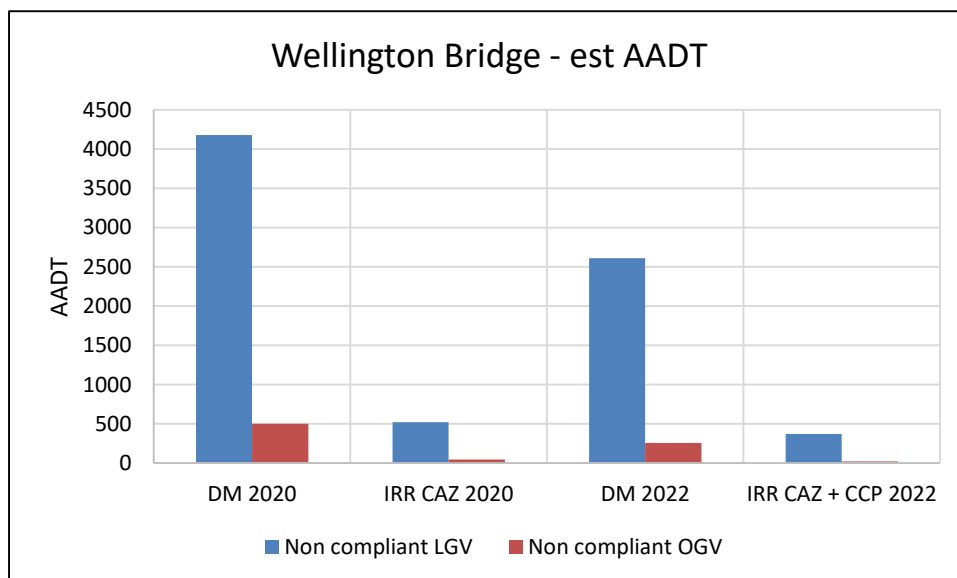
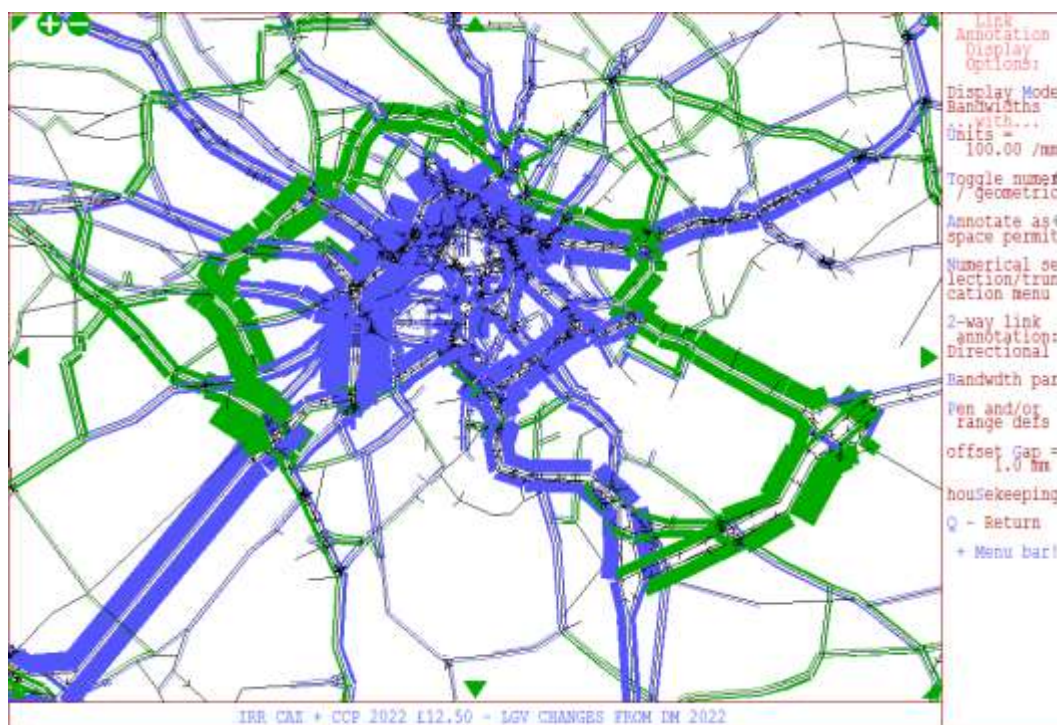


Figure 20 – non-compliant LGV changes (12 hour) 2022



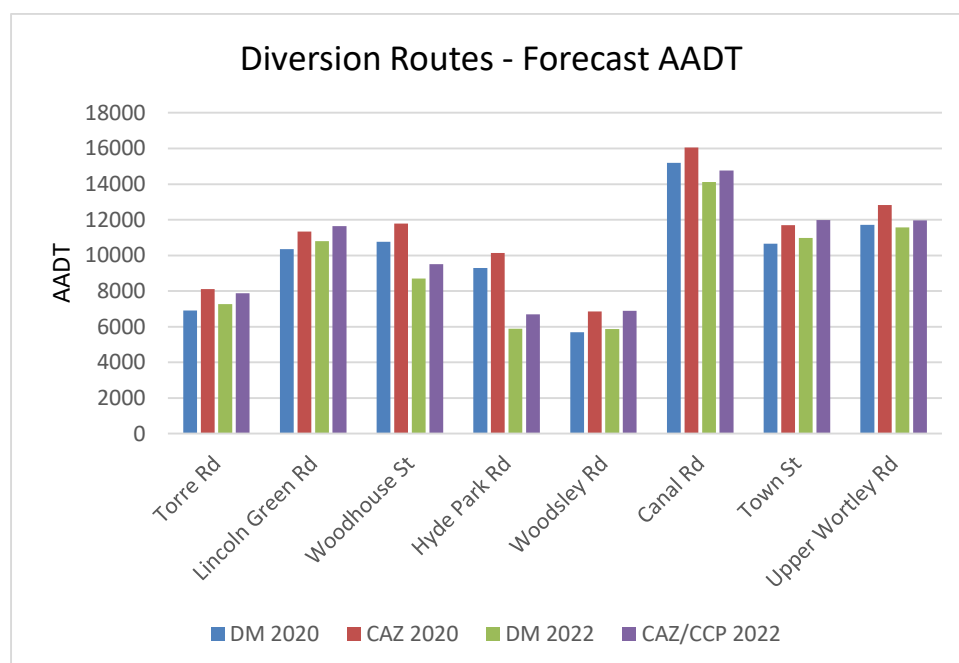
Note: Green = increase, blue = decrease

46. The section of the IRR most affected by additional traffic is A643 Ingram Distributor, where volumes are forecast to increase by 38% compared with the 2022 DM – see Table 6.

Table 6 – Forecast Change in Traffic Levels on Leeds IRR/M621 (2022)

Road	Observed	Modelled AADT			Estimated 2022 AADT		Change	%age change
	Est AADT 2015	Base 2015	DM 2022	CAZ/CCP 2022	DM 2022	CAZ/CCP 2022		
IRR Lovell Park Br	44200	55092	60420	63450	49528	52558	3030	6%
IRR Woodhouse tunnel	71000	73191	77687	83387	75496	81196	5700	8%
IRR Wellington Br	86700	85539	89778	101963	90939	103124	12185	13%
A643 Ingram	53300	55483	59498	81332	57315	79149	21834	38%
M621 Jn 2-2a	70000	67795	74247	86653	76452	88858	12406	16%
M621 Jn 2a-3	n/a	82397	90774	95410	90774	95410	4636	5%
M621 Jn 3-4	69100	66025	73605	70380	76680	73455	-3225	-4%
John Smeaton Viaduct	30100	30910	34329	35920	33519	35110	1591	5%
IRR East Street	28700	27817	31904	36942	32787	37825	5038	15%

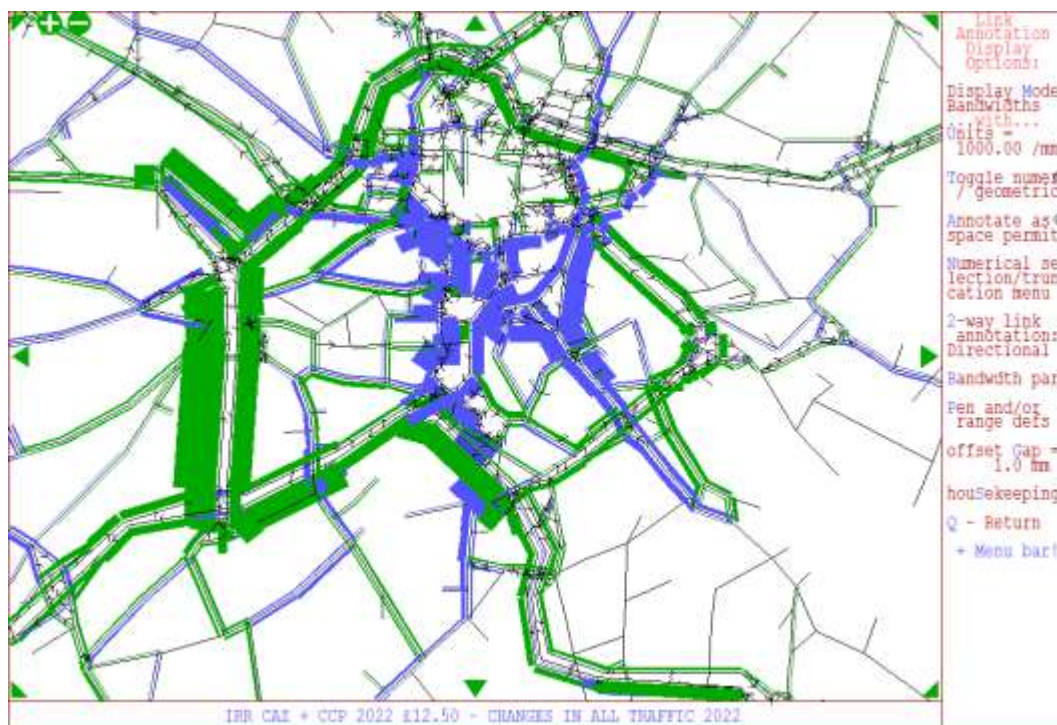
47. These increases include higher levels of LGVs and HGVs on Ingram Distributor, M621 2-2a and East Street. However, the level of non-compliant LGV/HGV is forecast to fall by around 90% on Ingram Distributor and East Street compared with the 2022 DM and by 4% (LGV) and 20% (HGV) on M621 2-2a (the M621 is not part of the IRR CAZ) – see Appendix B.
48. Similar to Wellington Bridge, when compared with the IRR CAZ C in 2020, the volume of non-compliant vehicles on Ingram Distributor is forecast to be reduced by 29% (LGV) and 43% (HGV).
49. The level of additional traffic forecast for the minor roads to the north and west of the city centre is broadly similar to that with the IRR CAZ in 2020 – see Figure 21. Although there are higher levels of traffic overall across the network in 2022, the proportion of non-compliant vehicles is lower and therefore the reassignment is proportionately less.
50. For example, the volume of modelled non-compliant LGVs on these minor roads in 2022 with the IRR CAZ and CCP is around 35-40% lower than forecast for 2020 with the IRR CAZ, and for non-compliant HGVs the level is around 45% lower – see Appendix B. Nevertheless, the volumes are still substantially above the situation without a CAZ.

Figure 21 – Minor Road Diversion Routes – Forecast Traffic Changes 2020 and 2022 (AADT)

Review of roads with reduced traffic

51. Figure 22 shows the changes in total traffic around the city centre resulting from the combination of the IRR CAZ and the CCP. The increases on the western IRR and westbound M621 are very clear, as are the significant falls in traffic within the city centre – in particular through City Square and across Crown Point Bridge.

Figure 22 – Total Traffic Changes (12 hour pcus) 2022



Note: Green = increase, blue = decrease

52. Traffic levels on Crown Point Bridge are forecast to fall by around a third compared with the 2022 DM and on Bishopgate St by over 80% - see Table 7.

Table 7 – Forecast Change in Traffic Levels on Routes with Reduced Traffic (2022)

Road	Observed	Modelled AADT			Estimated 2022 AADT			
	Est AADT 2015	Base 2015	DM 2022	CAZ/CCP 2022	DM 2022	CAZ/CCP 2022	Change	%age change
Duke Street	35790	33529	35948	32302	38209	34563	-3646	-10%
The Calls	11000	12606	13832	8530	12226	6924	-5302	-43%
Bishopgate St	24000	20106	21401	791	25295	4685	-20610	-81%
Crown Point Br	31700	27459	29403	18749	33644	22990	-10654	-32%
Great Wilson St	32300	29014	31812	18421	35098	21707	-13391	-38%

53. The volume of traffic entering the city centre (inside the IRR) is forecast to fall by 9% overall, with around a 15% reduction in LGVs/HGVs and 80-90% in non-compliant vehicles – see Table 8.
54. Overall traffic levels on the approach to the IRR, however, are only forecast to change very marginally (up 0.2%), although there is a marked fall in non-compliant LGVs and HGVs of around 63%.

Table 8 – Modelled Changes in Traffic Crossing Cordons Around Leeds City Centre (AADT 2022)

				Compliant		Non compliant			Total	
Summary		AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Cordon on approaches to IRR										
DM 2022		670664	567073	55335	18372	17477	2042	10365	72812	20414
IRR CAZ + CCP 2022		671783	574472	60677	19103	6427	742	10362	67104	19845
IRR Cordon Changes		1119	7399	5342	731	-11050	-1300	-3	-5708	-569
Percentage change		0.2%	1.3%	9.7%	4.0%	-63.2%	-63.7%	0.0%	-7.8%	-2.8%
Cordon within IRR										
DM 2022		340435	291219	24521	6652	7745	740	9558	32266	7392
IRR CAZ + CCP 2022		310348	267354	25646	6272	1461	63	9552	27107	6335
Within IRR Changes		-30087	-23865	1125	-380	-6284	-677	-6	-5159	-1057
Percentage change		-8.8%	-8.2%	4.6%	-5.7%	-81.1%	-91.5%	-0.1%	-16.0%	-14.3%

Conclusions

55. In summary, the impact of the City Centre Package (CCP) alongside the IRR CAZ is to continue divert non-compliant vehicles away from the IRR onto the minor road network. Although trends in levels of compliance are balanced against increased traffic levels and the effect of the CCP, the impact remains substantial.
56. Traffic levels within the City Centre are forecast to reduce significantly, however, this results in additional traffic on both the M621 and western IRR, in particular A643 Ingram Distributor which is forecast to attract an additional 38% traffic (compared with the 2022 DM) , together with more LGVs and HGVs. The volume of non-compliant LGVs/HGVs, however, is forecast to fall by around 90%.
57. The M621 is not part of the IRR CAZ, consequently the CCP impact here not only increases the overall volume of traffic (by 16% between Jn 2 and 2a) but the fall in non-compliant vehicles is markedly less – 4% fewer LGV and 20% fewer HGV (compared with the 2022 DM).

APPENDIX A – Leeds IRR CAZ C 2020**Table A1 – Forecast Changes in LGV volumes – routes attracting more traffic 2020**

Road	Observed	Modelled AADT			Estimated 2020 AADT			
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020	Change	%age change
Torre Rd	590	233	265	1136	622	1493	871	140%
Lincoln Green Rd	770	393	470	1238	847	1615	768	91%
Woodhouse St	820	731	797	1857	886	1946	1060	120%
Hyde Park Rd	500	571	623	1529	552	1458	906	164%
Woodsley Rd	370	471	512	1620	411	1519	1108	270%
Canal Rd	980	1134	1297	2907	1143	2753	1610	141%
Town St	890	978	1098	2716	1010	2628	1618	160%
Upper Wortley Rd	1030	1216	1357	3030	1171	2844	1673	143%
East Park Parade	2020	1873	2181	3239	2328	3386	1058	45%

Note: 2015 observed AADT estimated from 2017 MCC

Table A2 – Forecast Changes in HGV volumes – routes attracting more traffic 2020

Road	Observed	Modelled AADT			Estimated 2020 AADT			
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020	Change	%age change
Torre Rd	170	29	35	175	176	316	140	80%
Lincoln Green Rd	170	56	64	194	178	308	130	73%
Woodhouse St	140	99	103	236	144	277	133	92%
Hyde Park Rd	100	90	93	200	103	210	107	104%
Woodsley Rd	80	78	79	207	81	209	128	158%
Canal Rd	310	312	323	506	321	504	183	57%
Town St	220	263	276	471	233	428	195	84%
Upper Wortley Rd	290	301	314	513	303	502	199	66%
East Park Parade	420	347	357	504	430	577	147	34%

Note: 2015 observed AADT estimated from 2017 MCC

Table A3 – Forecast Changes in LGV volumes – routes with reduced traffic 2020

Road	Observed	Modelled AADT			Estimated 2020 AADT			
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020	Change	%age change
IRR Lovell Park Br	n/a	4955	5649	4050	5649	4050	-1599	-28%
IRR Woodhouse tunnel	9191	7500	8534	5939	10225	7630	-2595	-25%
IRR Wellington Br	9012	9291	10432	7621	10153	7342	-2811	-28%
A643 Ingram	5932	7074	7978	5732	6836	4590	-2246	-33%
IRR East Street	3638	2295	2758	1987	4101	3330	-771	-19%
John Smeaton Viaduct	4924	3187	3551	2332	5288	4069	-1219	-23%
Crown Point Br	3365	2034	2384	2034	3715	3365	-350	-9%
Bishopgate St	1650	1645	1772	1536	1777	1541	-236	-13%

Note: 2015 observed AADT estimated from 2014 and 2015 MCC

Table A4 – Forecast Changes in HGV volumes – routes with reduced traffic 2020

Road	Observed	Modelled AADT			Estimated 2020 AADT			
	Est AADT 2015	Base 2015	DM 2020	CAZ 2020	DM 2020	CAZ 2020	Change	%age change
IRR Lovell Park Br	n/a	1346	1403	1187	1403	1187	-216	-15%
IRR Woodhouse tunnel	2047	1387	1428	1206	2088	1866	-222	-11%
IRR Wellington Br	2210	2432	2495	2166	2273	1944	-329	-14%
A643 Ingram	2048	1975	2040	1764	2113	1837	-276	-13%
IRR East Street	1382	742	776	668	1416	1308	-108	-8%
John Smeaton Viaduct	1361	1522	1558	1368	1397	1207	-190	-14%
Crown Point Br	322	337	357	321	342	306	-36	-11%
Bishopgate St	220	366	390	348	244	202	-42	-17%

Note: 2015 observed AADT estimated from 2014 and 2015 MCC

Table A5 – Modelled changes in traffic volumes – routes attracting more traffic 2020

2020 estimated AADT with IRR CAZ C										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Torre Rd		4777	3466	156	25	980	150	0	1136	175
Lincoln Green Rd		8548	6924	279	48	959	146	192	1238	194
Woodhouse St		10144	8051	453	78	1404	158	0	1857	236
Hyde Park Rd		10185	8430	349	70	1180	130	26	1529	200
Woodsley Rd		7957	6130	279	58	1341	149	0	1620	207
Canal Rd		18399	14832	691	219	2216	287	154	2907	506
Town St		14048	10707	612	183	2104	288	154	2716	471
Upper Wortley Rd		12972	9378	756	226	2274	287	51	3030	513
A6110 Ring Rd W A62		43499	32830	3019	1551	5169	829	101	8188	2380
A6110 Ring Rd E M621		42270	35626	2594	937	2612	399	102	5206	1336
A653 Dewsbury Rd		40419	33958	2932	820	2373	336	0	5305	1156
East Park Parade		18847	15078	1206	283	2033	221	26	3239	504
A63 Pontefract La		25944	18753	2070	1540	2982	599	0	5052	2139
A6120 Selby Rd		35750	29940	2426	674	1986	212	512	4412	886
M1 Jn 44-45		90009	70034	6562	5043	6671	1699	0	13233	6742
M62 Jn 28-29		155894	127674	9490	8683	7564	2483	0	17054	11166
Change from 2020 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Torre Rd		1207	196	-2	-3	873	143	0	871	140
Lincoln Green Rd		997	100	-3	-3	771	133	-1	768	130
Woodhouse St		1025	-168	-25	-4	1085	137	0	1060	133
Hyde Park Rd		836	-177	-25	-5	931	112	0	906	107
Woodsley Rd		1172	-64	-28	-5	1136	133	0	1108	128
Canal Rd		866	-927	-87	-39	1697	222	0	1610	183
Town St		1033	-780	-46	-38	1664	233	0	1618	195
Upper Wortley Rd		1113	-758	-58	-26	1731	225	-1	1673	199
A6110 Ring Rd W A62		111	-2824	-298	-139	2966	406	0	2668	267
A6110 Ring Rd E M621		62	-847	-56	-36	845	156	0	789	120
A653 Dewsbury Rd		27	-504	-6	-6	414	129	0	408	123
East Park Parade		565	-640	-80	-3	1138	150	0	1058	147
A63 Pontefract La		1620	-180	31	90	1442	237	0	1473	327
A6120 Selby Rd		556	-8	78	1	442	43	0	520	44
M1 Jn 44-45		1880	-710	-115	-113	2408	410	0	2293	297
M62 Jn 28-29		1112	-142	-92	-114	1176	284	0	1084	170
Percentage change from 2020 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Torre Rd		34%	6%	-1%	-11%	816%	2043%	0%	329%	400%
Lincoln Green Rd		13%	1%	-1%	-6%	410%	1023%	-1%	163%	203%
Woodhouse St		11%	-2%	-5%	-5%	340%	652%	0%	133%	129%
Hyde Park Rd		9%	-2%	-7%	-7%	374%	622%	0%	145%	115%
Woodsley Rd		17%	-1%	-9%	-8%	554%	831%	0%	216%	162%
Canal Rd		5%	-6%	-11%	-15%	327%	342%	0%	124%	57%
Town St		8%	-7%	-7%	-17%	378%	424%	0%	147%	71%
Upper Wortley Rd		9%	-7%	-7%	-10%	319%	363%	-2%	123%	63%
A6110 Ring Rd W A62		0%	-8%	-9%	-8%	135%	96%	0%	48%	13%
A6110 Ring Rd E M621		0%	-2%	-2%	-4%	48%	64%	0%	18%	10%
A653 Dewsbury Rd		0%	-1%	0%	-1%	21%	62%	0%	8%	12%
East Park Parade		3%	-4%	-6%	-1%	127%	211%	0%	49%	41%
A63 Pontefract La		7%	-1%	2%	6%	94%	65%	0%	41%	18%
A6120 Selby Rd		2%	0%	3%	0%	29%	25%	0%	13%	5%
M1 Jn 44-45		2%	-1%	-2%	-2%	56%	32%	0%	21%	5%
M62 Jn 28-29		1%	0%	-1%	-1%	18%	13%	0%	7%	2%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only. In particular the results for Torre Rd are not regarded as fully representative.

Table A6 – Modelled changes in traffic volumes – routes with reduced traffic 2020

2020 estimated AADT with IRR CAZ C										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
IRR Lovell Park Br		58039	52802	3833	1174	217	13	0	4050	1187
IRR Woodhouse tunnel		75212	68067	5639	1192	300	14	0	5939	1206
IRR Wellington Br		87785	76875	7099	2123	522	43	1123	7621	2166
A643 Ingram		57830	50334	5401	1734	331	30	0	5732	1764
IRR East Street		30893	28136	1870	659	117	9	102	1987	668
John Smeaton Viaduct		33149	29449	2281	1359	51	9	0	2332	1368
Crown Point Br		28546	26012	1856	316	178	5	179	2034	321
Bishopgate St		20891	18265	1396	343	140	5	742	1536	348
Change from 2020 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
IRR Lovell Park Br		-1485	330	480	51	-2079	-267	0	-1599	-216
IRR Woodhouse tunnel		-1744	1073	547	50	-3142	-272	0	-2595	-222
IRR Wellington Br		-1333	1808	847	127	-3658	-456	-1	-2811	-329
A643 Ingram		-754	1768	594	102	-2840	-378	0	-2246	-276
IRR East Street		-485	394	235	38	-1006	-146	0	-771	-108
John Smeaton Viaduct		-939	470	150	113	-1369	-303	0	-1219	-190
Crown Point Br		-570	-184	414	30	-764	-66	0	-350	-36
Bishopgate St		-246	32	325	31	-561	-73	0	-236	-42
Percentage change from 2020 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
IRR Lovell Park Br		-2%	1%	14%	5%	-91%	-95%	0%	-28%	-15%
IRR Woodhouse tunnel		-2%	2%	11%	4%	-91%	-95%	0%	-30%	-16%
IRR Wellington Br		-1%	2%	14%	6%	-88%	-91%	0%	-27%	-13%
A643 Ingram		-1%	4%	12%	6%	-90%	-93%	0%	-28%	-14%
IRR East Street		-2%	1%	14%	6%	-90%	-94%	0%	-28%	-14%
John Smeaton Viaduct		-3%	2%	7%	9%	-96%	-97%	0%	-34%	-12%
Crown Point Br		-2%	-1%	29%	10%	-81%	-93%	0%	-15%	-10%
Bishopgate St		-1%	0%	30%	10%	-80%	-94%	0%	-13%	-11%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only.

Table A7 – Modelled changes in traffic volumes – Cordons around the city centre 2020

Two way flow changes from DM 2020										
				Compliant		Non compliant			Total	
Summary		AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Cordon on approaches to IRR										
DM 2020		663808	563136	42011	16230	28000	4058	10373	70011	20288
IRR CAZ C 2020		654792	567603	48450	17393	9601	1380	10365	58051	18773
IRR Cordon Changes		-9016	4467	6439	1163	-18399	-2678	-8	-11960	-1515
Percentage change		-1.4%	0.8%	15.3%	7.2%	-65.7%	-66.0%	-0.1%	-17.1%	-7.5%
Cordon within IRR										
DM 2020		336622	288318	18790	5945	12519	1487	9563	31309	7432
IRR CAZ C 2020		333472	290006	24539	6829	2399	141	9558	26938	6970
Within IRR Changes		-3150	1688	5749	884	-10120	-1346	-5	-4371	-462
Percentage change		-0.9%	0.6%	30.6%	14.9%	-80.8%	-90.5%	-0.1%	-14.0%	-6.2%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only.

APPENDIX B – Leeds IRR CAZ C plus City Centre Package 2022**Table B1 – Forecast Changes in LGV volumes – routes attracting more traffic 2022**

Road	Observed	Modelled AADT			Estimated 2022 AADT			
	Est AADT 2015	Base 2015	DM 2022	CAZ/CCP 2022	DM 2022	CAZ/CCP 2022	Change	%age change
Torre Rd	590	233	285	800	642	1157	515	80%
Lincoln Green Rd	770	393	498	944	875	1321	446	51%
Woodhouse St	820	731	834	1521	923	1610	687	74%
Hyde Park Rd	500	571	634	1256	563	1185	622	110%
Woodsley Rd	370	471	536	1292	435	1191	756	174%
Canal Rd	980	1134	1387	2432	1233	2278	1045	85%
Town St	890	978	1166	2307	1078	2219	1141	106%
Upper Wortley Rd	1030	1216	1402	2471	1216	2285	1069	88%
East Park Parade	2020	1873	2217	2843	2364	2990	626	26%

Note: 2015 observed AADT estimated from 2017 MCC

Table B2 – Forecast Changes in HGV volumes – routes attracting more traffic 2022

Road	Observed	Modelled AADT			Estimated 2022 AADT			
	Est AADT 2015	Base 2015	DM 2022	CAZ/CCP 2022	DM 2022	CAZ/CCP 2022	Change	%age change
Torre Rd	170	29	35	113	176	254	78	44%
Lincoln Green Rd	170	56	65	137	179	251	72	40%
Woodhouse St	140	99	103	183	144	224	80	56%
Hyde Park Rd	100	90	94	159	104	169	65	63%
Woodsley Rd	80	78	81	157	83	159	76	92%
Canal Rd	310	312	334	373	332	371	39	12%
Town St	220	263	285	384	242	341	99	41%
Upper Wortley Rd	290	301	318	418	307	407	100	33%
East Park Parade	420	347	363	439	436	512	76	17%

Note: 2015 observed AADT estimated from 2017 MCC

Table B3 – Forecast Changes in LGV volumes – routes with reduced traffic (with IRR CAZ) 2022

Road	Observed	Modelled AADT			Estimated 2022 AADT			
	Est AADT 2015	Base 2015	DM 2022	CAZ/CCP 2022	DM 2022	CAZ/CCP 2022	Change	
IRR Lovell Park Br	n/a	4955	5861	5459	5861	5459	-402	-7%
IRR Woodhouse tunnel	9191	7500	8873	7870	10564	9561	-1003	-9%
IRR Wellington Br	9012	9291	10878	10312	10599	10033	-566	-5%
A643 Ingram	5932	7074	8373	9010	7231	7868	637	9%
IRR East Street	3638	2295	2932	3178	4275	4521	246	6%
John Smeaton Viaduct	4924	3187	3752	3405	5489	5142	-347	-6%
Crown Point Br	3365	2034	2511	1424	3842	2755	-1087	-28%
Bishopgate St	1650	1645	1808	0	1813	5	-1808	-100%

Note: 2015 observed AADT estimated from 2014 and 2015 MCC

Table B4 – Forecast Changes in HGV volumes – routes with reduced traffic (with IRR CAZ) 2022

Road	Observed	Modelled AADT			Estimated 2022 AADT			
	Est AADT 2015	Base 2015	DM 2022	CAZ/CCP 2022	DM 2022	CAZ/CCP 2022	Change	
IRR Lovell Park Br	n/a	1346	1442	1412	1442	1412	-30	-2%
IRR Woodhouse tunnel	2047	1387	1466	1492	2126	2152	26	1%
IRR Wellington Br	2210	2432	2543	2496	2321	2274	-47	-2%
A643 Ingram	2048	1975	2075	2446	2148	2519	371	17%
IRR East Street	1382	742	781	831	1421	1471	50	4%
John Smeaton Viaduct	1361	1522	1602	1465	1441	1304	-137	-10%
Crown Point Br	322	337	346	155	331	140	-191	-58%
Bishopgate St	220	366	391	0	245	-146	-391	-160%

Note: 2015 observed AADT estimated from 2014 and 2015 MCC

Table B5 – Modelled changes in traffic volumes – routes attracting more traffic 2022

2022 estimated AADT with IRR CAZ C + CCP										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Torre Rd		4241	3328	219	32	581	81	0	800	113
Lincoln Green Rd		8658	7385	375	59	569	78	192	944	137
Woodhouse St		9979	8275	633	94	888	89	0	1521	183
Hyde Park Rd		10127	8686	494	86	762	73	26	1256	159
Woodsley Rd		7810	6361	418	73	874	84	0	1292	157
Canal Rd		18494	15535	1008	214	1424	159	154	2432	373
Town St		14326	11481	951	224	1356	160	154	2307	384
Upper Wortley Rd		12576	9635	1000	257	1471	161	52	2471	418
A6110 Ring Rd W A62		42757	33278	3889	1819	3215	455	101	7104	2274
A6110 Ring Rd E M621		44355	38417	3178	1033	1411	214	102	4589	1247
A653 Dewsbury Rd		40651	34489	3754	931	1295	182	0	5049	1113
East Park Parade		19265	15957	1623	321	1220	118	26	2843	439
A63 Pontefract La		25304	18778	2757	1662	1784	323	0	4541	1985
A6120 Selby Rd		35981	30140	3224	760	1232	114	511	4456	874
M1 Jn 44-45		92446	72463	8959	5810	4293	921	0	13252	6731
M62 Jn 28-29		157608	129260	12575	9925	4502	1346	0	17077	11271
Change from 2022 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Torre Rd		609	16	2	0	513	78	0	515	78
Lincoln Green Rd		849	332	-3	0	449	72	-1	446	72
Woodhouse St		812	45	-1	1	688	79	0	687	80
Hyde Park Rd		796	109	12	1	610	64	0	622	65
Woodsley Rd		1036	204	11	0	745	76	0	756	76
Canal Rd		646	-438	-46	-87	1091	126	0	1045	39
Town St		1008	-232	65	-32	1076	131	0	1141	99
Upper Wortley Rd		387	-782	-66	-30	1135	130	0	1069	100
A6110 Ring Rd W A62		-520	-1939	-517	-126	1823	239	0	1306	113
A6110 Ring Rd E M621		1845	1851	-307	-97	310	88	0	3	-9
A653 Dewsbury Rd		-8	50	-159	-34	60	75	0	-99	41
East Park Parade		701	-1	-62	-6	688	82	0	626	76
A63 Pontefract La		398	-637	-18	6	908	139	0	890	145
A6120 Selby Rd		349	-43	117	-5	251	29	0	368	24
M1 Jn 44-45		1989	223	97	-90	1494	265	0	1591	175
M62 Jn 28-29		-757	-1063	-219	-162	462	225	0	243	63
Percentage change from 2022 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Torre Rd		17%	0%	1%	0%	754%	2600%	0%	181%	223%
Lincoln Green Rd		11%	5%	-1%	0%	374%	1200%	-1%	90%	111%
Woodhouse St		9%	1%	0%	1%	344%	790%	0%	82%	78%
Hyde Park Rd		9%	1%	2%	1%	401%	711%	0%	98%	69%
Woodsley Rd		15%	3%	3%	0%	578%	950%	0%	141%	94%
Canal Rd		4%	-3%	-4%	-29%	328%	382%	0%	75%	12%
Town St		8%	-2%	7%	-13%	384%	452%	0%	98%	35%
Upper Wortley Rd		3%	-8%	-6%	-10%	338%	419%	0%	76%	31%
A6110 Ring Rd W A62		-1%	-6%	-12%	-6%	131%	111%	0%	23%	5%
A6110 Ring Rd E M621		4%	5%	-9%	-9%	28%	70%	0%	0%	-1%
A653 Dewsbury Rd		0%	0%	-4%	-4%	5%	70%	0%	-2%	4%
East Park Parade		4%	0%	-4%	-2%	129%	228%	0%	28%	21%
A63 Pontefract La		2%	-3%	-1%	0%	104%	76%	0%	24%	8%
A6120 Selby Rd		1%	0%	4%	-1%	26%	34%	0%	9%	3%
M1 Jn 44-45		2%	0%	1%	-2%	53%	40%	0%	14%	3%
M62 Jn 28-29		0%	-1%	-2%	-2%	11%	20%	0%	1%	1%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only. In particular the results for Torre Rd are not regarded as fully representative.

**Table B6 – Modelled changes in Non-compliant LGVs – Minor routes attracting more traffic
2022**

Road	Estimated 2020/22 AADT				%age change to CAZ/CCP		
	DM 2020	CAZ 2020	DM 2022	CAZ/CCP 2022	DM 2020	CAZ 2020	DM 2022
Torre Rd	107	980	68	581	443%	-41%	754%
Lincoln Green Rd	188	959	120	569	203%	-41%	374%
Woodhouse St	319	1404	200	888	178%	-37%	344%
Hyde Park Rd	249	1180	152	762	206%	-35%	401%
Woodsley Rd	205	1341	129	874	326%	-35%	578%
Canal Rd	519	2216	333	1424	174%	-36%	328%
Town St	440	2104	280	1356	208%	-36%	384%
Upper Wortley Rd	543	2274	336	1471	171%	-35%	338%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only. In particular the results for Torre Rd are not regarded as fully representative.

**Table B7 – Modelled changes in Non-compliant HGVs – Minor routes attracting more traffic
2022**

Road	Estimated 2020/22 AADT				%age change to CAZ/CCP		
	DM 2020	CAZ 2020	DM 2022	CAZ/CCP 2022	DM 2020	CAZ 2020	DM 2022
Torre Rd	7	150	3	81	1057%	-46%	2600%
Lincoln Green Rd	13	146	6	78	500%	-47%	1200%
Woodhouse St	21	158	10	89	324%	-44%	790%
Hyde Park Rd	18	130	9	73	306%	-44%	711%
Woodsley Rd	16	149	8	84	425%	-44%	950%
Canal Rd	65	287	33	159	145%	-45%	382%
Town St	55	288	29	160	191%	-44%	452%
Upper Wortley Rd	62	287	31	161	160%	-44%	419%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only. In particular the results for Torre Rd are not regarded as fully representative.

Table B8 – Modelled changes in traffic volumes – routes with reduced traffic (with IRR CAZ C and CCP) 2022

2022 estimated AADT with IRR CAZ C + CCP										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Duke Street		32302	28386	2141	412	94	3	1266	2235	415
The Calls		8530	7575	701	124	51	2	77	752	126
Bishopgate St		791	48	0	0	0	0	743	0	0
Crown Point Br		18749	16991	1336	153	88	2	179	1424	155
Great Wilson St		18421	16160	1376	233	101	3	548	1477	236
John Smeaton Viaduct		35920	31050	3356	1460	49	5	0	3405	1465
Change from 2022 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Duke Street		-3646	-3141	95	-4	-552	-43	-1	-457	-47
The Calls		-5302	-4841	-143	-81	-216	-21	0	-359	-102
Bishopgate St		-20610	-18412	-1374	-352	-434	-39	1	-1808	-391
Crown Point Br		-10654	-9376	-572	-158	-515	-33	0	-1087	-191
Great Wilson St		-13391	-11631	-928	-162	-627	-41	-2	-1555	-203
John Smeaton Viaduct		1591	2075	505	18	-852	-155	0	-347	-137
Percentage change from 2022 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Duke Street		-10%	-10%	5%	-1%	-85%	-93%	0%	-17%	-10%
The Calls		-38%	-39%	-17%	-40%	-81%	-91%	0%	-32%	-45%
Bishopgate St		-96%	-100%	-100%	-100%	-100%	-100%	0%	-100%	-100%
Crown Point Br		-36%	-36%	-30%	-51%	-85%	-94%	0%	-43%	-55%
Great Wilson St		-42%	-42%	-40%	-41%	-86%	-93%	0%	-51%	-46%
John Smeaton Viaduct		5%	7%	18%	1%	-95%	-97%	0%	-9%	-9%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only.

Table B9 – Modelled changes in traffic volumes – M621 and IRR (with IRR CAZ and CCP) 2022

2022 estimated AADT with IRR CAZ C + CCP										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
IRR Lovell Park Br		63450	56579	5308	1405	151	7	0	5459	1412
IRR Woodhouse tunnel		83387	74025	7670	1484	200	8	0	7870	1492
IRR Wellington Br		101963	88034	9940	2476	372	20	1121	10312	2496
A643 Ingram		81332	69876	8776	2429	234	17	0	9010	2446
M621 Jn 2-2a		86653	71374	8734	3856	2163	297	229	10897	4153
M621 Jn 2a-3		95410	78494	9954	4241	2192	300	229	12146	4541
M621 Jn 3-4		70380	56917	7773	3318	2078	294	0	9851	3612
John Smeaton Viaduct		35920	31050	3356	1460	49	5	0	3405	1465
IRR East Street		36942	32831	3084	826	94	5	102	3178	831
Change from 2022 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
IRR Lovell Park Br		3030	3462	854	107	-1256	-137	0	-402	-30
IRR Woodhouse tunnel		5700	6677	927	165	-1930	-139	0	-1003	26
IRR Wellington Br		12185	12800	1673	188	-2239	-235	-2	-566	-47
A643 Ingram		21834	20826	2413	561	-1776	-190	0	637	371
M621 Jn 2-2a		12406	10483	1593	498	-92	-76	0	1501	422
M621 Jn 2a-3		4636	4574	886	17	-672	-169	0	214	-152
M621 Jn 3-4		-3225	-2008	-302	-331	-472	-112	0	-774	-443
John Smeaton Viaduct		1591	2075	505	18	-852	-155	0	-347	-137
IRR East Street		5038	4742	856	123	-610	-73	0	246	50
Percentage change from 2022 DM										
Road				Compliant		Non compliant			Total	
	Anode Bnode	AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
IRR Lovell Park Br		5%	7%	19%	8%	-89%	-95%	0%	-7%	-2%
IRR Woodhouse tunnel		7%	10%	14%	13%	-91%	-95%	0%	-11%	2%
IRR Wellington Br		14%	17%	20%	8%	-86%	-92%	0%	-5%	-2%
A643 Ingram		37%	42%	38%	30%	-88%	-92%	0%	8%	18%
M621 Jn 2-2a		17%	17%	22%	15%	-4%	-20%	0%	16%	11%
M621 Jn 2a-3		5%	6%	10%	0%	-23%	-36%	0%	2%	-3%
M621 Jn 3-4		-4%	-3%	-4%	-9%	-19%	-28%	0%	-7%	-11%
John Smeaton Viaduct		5%	7%	18%	1%	-95%	-97%	0%	-9%	-9%
IRR East Street		16%	17%	38%	17%	-87%	-94%	0%	8%	6%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only.

Table B10 – Modelled changes in traffic volumes – Cordons around the city centre 2022

Two way flow changes from DM 2022										
				Compliant		Non compliant			Total	
Summary		AADT	Cars	LGV	OGV	LGV	OGV	PSV	LGV	OGV
Cordon on approaches to IRR										
DM 2022		670664	567073	55335	18372	17477	2042	10365	72812	20414
IRR CAZ C + CCP 2022		671783	574472	60677	19103	6427	742	10362	67104	19845
IRR Cordon Changes		1119	7399	5342	731	-11050	-1300	-3	-5708	-569
Percentage change		0.2%	1.3%	9.7%	4.0%	-63.2%	-63.7%	0.0%	-7.8%	-2.8%
Cordon within IRR										
DM 2022		340435	291219	24521	6652	7745	740	9558	32266	7392
IRR CAZ C + CCP 2022		310348	267354	25646	6272	1461	63	9552	27107	6335
Within IRR Changes		-30087	-23865	1125	-380	-6284	-677	-6	-5159	-1057
Percentage change		-8.8%	-8.2%	4.6%	-5.7%	-81.1%	-91.5%	-0.1%	-16.0%	-14.3%

Note: Model flow validation is variable across these routes and the results must be taken as indicative only.