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Catford Town Centre MRN SOBC

Forecasting Report

Transport for London

May 2021

Quality information

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1. Introduction

1.1 Background

1.1.1 Transport for London (TfL) are currently working on the preparation of a Strategic Outline Business Case (SOBC) with a view to preparing a subsequent Outline Business Case (OBC) for the Catford Town Centre Major Road Network (MRN) scheme. The Catford scheme has been identified as one of the schemes that TfL are bringing forward for application to the Department for Transport (DfT) for funding through the Major Road Network and Large Local Majors programmes investment planning. The scheme aims to transform Catford Town Centre from an area dominated by motor traffic to a place that supports pedestrians, cyclists and public transport. TfL has commissioned AECOM to undertake transport modelling and transport economic assessment for an SOBC for this scheme which requires modelling and appraisal using a bespoke model of the Catford area derived from TfL's London Highway Assignment Model (LoHAM).

1.1.2 As part of this study AECOM undertook a review of the highway model base year, the findings of which are reported in a model review report[1]. The conclusions were that the model was deemed suitable for undertaking scheme assessment for SOBC (subject to some minor network edits explained in Section 2.4) with recommendations for further work to be undertaken ahead of OBC.

1.2 Purpose of this Report

1.2.1 This report sets out the work undertaken to produce the highway assignment forecasts for 2026, 2031 and 2041, both without and with the scheme. It explains the forecasting assumptions and presents the results from the Without Scheme and With Scheme forecasts, as well as results from the TAG high and low growth sensitivity tests. The report demonstrates that the results from the scheme testing are plausible and suitable to be carried forward to economic assessment.

1.2.2 It should be noted that as this is a strategic model the analysis does not focus on the assessment of bus or cycle impacts, or local access issues. These will be covered by operational modelling which is being undertaken in parallel.

1.3 Document Structure

1.3.1 The remainder of this document comprises the following sections:

- Chapter 2 - Forecasting Assumptions;
- Chapter 3 - Without Scheme Forecast Results;
- Chapter 4 - With Scheme Forecast Results;
- Chapter 5 - TAG High/Low Growth Sensitivity Testing; and
- Chapter 6 - Summary

[1] 'Catford MRN OBC Model Review Report v1.2.pdf' – March 2021

2. Forecasting Assumptions

2.1 Introduction

2.1.1 This section sets out the key assumptions adopted in modelling the Catford Town Centre scheme. Information on the derivation of the Catford model from LoHAM and other key forecast model information can be found in the Catford model forecasting report[2].

2.2 Modelled years and user classes

2.2.1 Catford model highway assignment forecasts have been produced for 2026, 2031 and 2041, without and with the scheme. The table below sets out the user classes modelled in each forecast year. The user classes modelled in 2026 differ from those in 2031 and 2041 (and the base year) due to the modelling of ULEZ which requires splitting of the matrix into user classes which are compliant and not compliant with the emissions thresholds required by ULEZ. ULEZ is expected to be removed by 2031 and therefore for later forecast years the number of user classes is the same as the base year model.

Table 2-1: Modelled User Classes by Forecast Year

2026	2031	2041
Car In Work (Compliant)	Car In Work	Car In Work
Car In Work (Non-Compliant)	Car Out of Work	Car Out of Work
Car Out of Work (Compliant)	Private Hire Vehicles	Private Hire Vehicles
Car Out of Work (Non-Compliant)	Taxi	Taxi
Private Hire Vehicles	LGV	LGV
Taxi	OGV	OGV
LGV (Compliant)		
LGV (Non-Compliant)		
OGV		

2.3 Growth and network assumptions

2.3.1 The forecast year matrices were created using growth derived from the standard TfL London Transportation Studies (LTS) Reference Case model scenarios, applied to the calibrated base year HAM matrices. These assume growth according to London Plan 2016 and do not allow for changes in behaviour arising from the COVID-19 pandemic. Further details can be found in Section 2 of the Catford model forecasting report.

2.3.2 Forecast year network schemes assumed within the area of impact are Lewisham Gateway and Crystal Palace Parade, both of which are assumed to be present in all forecast years. Further afield, the Silvertown Tunnel is also assumed to be present in all forecast years.

[2] '415912_TfL_Task189_MRN_Catford_Forecasting_v1.2.pdf' – Catford Town Centre – Healthy Streets scheme, Do Minimum Traffic Forecasts, November 2020

2.4 Base Year Network Changes

2.4.1 As part of the work undertaken to review the model base year, a number of minor network edits were undertaken to correct link length discrepancies identified in the network audit (see Section 3.2 of the model review report). These changes were applied in the base year network and the matrices reassigned to confirm that flow and delay changes were relatively small and had little impact on base year model performance. These changes were carried forward to the forecast year networks used in this assessment.

2.5 Scheme coding assumptions

2.5.1 The Catford town centre scheme was coded according to the scheme plan provided by TfL[3]. This included signal stage information. In summary, the scheme introduces two-way traffic two all sides of the existing gyratory, as well as moving the A205 Catford Road arm of the gyratory to the south of Laurence House to create a western arm to the existing Bromley Road/Rushey Green/Sangley Road junction.

2.5.2 Junction capacity was coded in line with the TfL coding guidance. In most cases the central saturation flows were used, however in cases where the base year network featured deviations from the central values and where junction layout remained broadly similar with the scheme, these deviations were retained.

2.5.3 Appropriate green and intergreen times were coded into the model networks according to the signal stage information provided which was then refined depending on the outcome of initial assignments to ensure that unreasonable levels of delay were removed. These signal timings were reviewed and verified by the TfL Network Management team.

2.6 Variable demand modelling

2.6.1 As part of the wider study, an assessment was undertaken to determine whether variable demand modelling was required to evaluate the impacts of the scheme. This assessment showed that the variable demand impacts were minimal and would likely fall within the range of model error. The details of this assessment as set out in Appendix A. As a result, demand has been fixed and the same highway assignment matrices have been used for the Without Scheme and With Scheme scenarios in each year and time period.

[3] "PJ569C-RSM-FEA-07-SK-TE-01.pdf" 28 February 2020

3. Without Scheme Forecast Results

3.1 Introduction

3.1.1 This section sets out the key information related to the Without Scheme scenario assignments in terms of highway statistics, traffic flows, delays and routeing through the Catford gyratory. These are based on core growth assumptions, in contrast to the next section which reports on the high and low growth sensitivity scenarios.

3.2 Borough Statistics

3.2.1 Table 3-1 to Table 3-3 show the key highway assignment statistics for the Base Year and Without Scheme scenarios for 2026 and 2041 in the AM Peak, Interpeak and PM Peak, for Lewisham and the surrounding boroughs. They demonstrate the impact of traffic growth due to forecast population and employment increases. Total distance travelled in Lewisham is forecast to increase by 3-4% to 2026 and 8-11% to 2041 from 2016, and total travel time is forecast to increase by 7-9% and 17-22% to 2026 and 2041 respectively. This translates into a reduction in average speed of 3-5% to 2026, and 5-10% to 2041. The other boroughs presented show similar patterns of change, with congestion in Greenwich and Bromley generally expected to increase more than in Southwark.

Table 3-1: Borough Statistics by Modelled Year – Base Year and Without Scheme – AM Peak

Borough	Metric	2016 Base	2026 Without Scheme	Change from 2016	2041 Without Scheme	Change from 2016
Lewisham	Travel Distance (pcu-km)	100,753	104,692	4%	110,524	10%
	Travel Time (pcu-hours)	5,691	6,227	9%	6,934	22%
	Average Speed (kph)	17.7	16.8	-5%	15.9	-10%
Greenwich	Travel Distance (pcu-km)	197,794	206,861	5%	222,445	12%
	Travel Time (pcu-hours)	7,634	8,694	14%	9,662	27%
	Average Speed (kph)	25.9	23.8	-8%	23.0	-11%
Bromley	Travel Distance (pcu-km)	245,261	261,970	7%	277,612	13%
	Travel Time (pcu-hours)	9,844	11,122	13%	12,744	29%
	Average Speed (kph)	24.9	23.6	-5%	21.8	-13%
Southwark	Travel Distance (pcu-km)	86,650	90,290	4%	97,524	13%
	Travel Time (pcu-hours)	4,919	5,271	7%	5,803	18%
	Average Speed (kph)	17.6	17.1	-3%	16.8	-5%

Table 3-2: Borough Statistics by Modelled Year – Base Year and Without Scheme – Interpeak

Borough	Metric	2016 Base	2026 Without Scheme	Change from 2016	2041 Without Scheme	Change from 2016
Lewisham	Travel Distance (pcu-km)	84,663	87,745	4%	93,746	11%
	Travel Time (pcu-hours)	4,108	4,380	7%	4,812	17%
	Average Speed (kph)	20.6	20.0	-3%	19.5	-5%
Greenwich	Travel Distance (pcu-km)	165,863	171,907	4%	185,299	12%
	Travel Time (pcu-hours)	5,482	5,789	6%	6,363	16%
	Average Speed (kph)	30.3	29.7	-2%	29.1	-4%
Bromley	Travel Distance (pcu-km)	183,173	195,364	7%	213,079	16%
	Travel Time (pcu-hours)	6,497	6,963	7%	7,701	19%
	Average Speed (kph)	28.2	28.1	0%	27.7	-2%
Southwark	Travel Distance (pcu-km)	75,826	78,690	4%	83,807	11%
	Travel Time (pcu-hours)	4,012	4,251	6%	4,637	16%
	Average Speed (kph)	18.9	18.5	-2%	18.1	-4%

Table 3-3: Borough Statistics by Modelled Year – Base Year and Without Scheme – PM Peak

Borough	Metric	2016 Base	2026 Without Scheme	Change from 2016	2041 Without Scheme	Change from 2016
Lewisham	Travel Distance (pcu-km)	99,022	102,070	3%	107,237	8%
	Travel Time (pcu-hours)	5,369	5,776	8%	6,416	19%
	Average Speed (kph)	18.4	17.7	-4%	16.7	-9%
Greenwich	Travel Distance (pcu-km)	203,711	212,485	4%	225,355	11%
	Travel Time (pcu-hours)	7,732	8,592	11%	9,438	22%
	Average Speed (kph)	26.3	24.7	-6%	23.9	-9%
Bromley	Travel Distance (pcu-km)	238,877	253,560	6%	271,335	14%
	Travel Time (pcu-hours)	9,402	10,335	10%	11,713	25%
	Average Speed (kph)	25.4	24.5	-3%	23.2	-9%
Southwark	Travel Distance (pcu-km)	84,964	87,015	2%	90,294	6%
	Travel Time (pcu-hours)	4,718	4,855	3%	5,197	10%
	Average Speed (kph)	18.0	17.9	0%	17.4	-4%

3.3 Traffic Flow Forecasts

3.3.1 Figure 3-1 to Figure 3-4 show forecast traffic flows in the vicinity of the scheme in the 2026 and 2041 Without Scheme scenario for the AM and PM Peaks.

3.3.2 In the 2026 AM Peak, forecast flows around the gyratory range from between 1,000 and 1,500 pcus/hour. In terms of the approach and exit arms, the western Catford Road arm carries the most traffic at around 1,000 to 1,500 pcus/hr with generally less traffic on the other arms. Flows in the PM Peak are generally higher with forecast flows consistently around 1,400 pcus/hr on the gyratory, and a similar pattern of higher flow on the western arm.

3.3.3 As would be expected in 2041, forecast flows increase generally while retaining the pattern observed in the 2026 forecasts. The increases in flow are relatively small which suggests growth in traffic is being constrained by capacity issues around the gyratory and in the wider area.

Figure 3-1: 2026 Without Scheme Traffic Flow - AM Peak

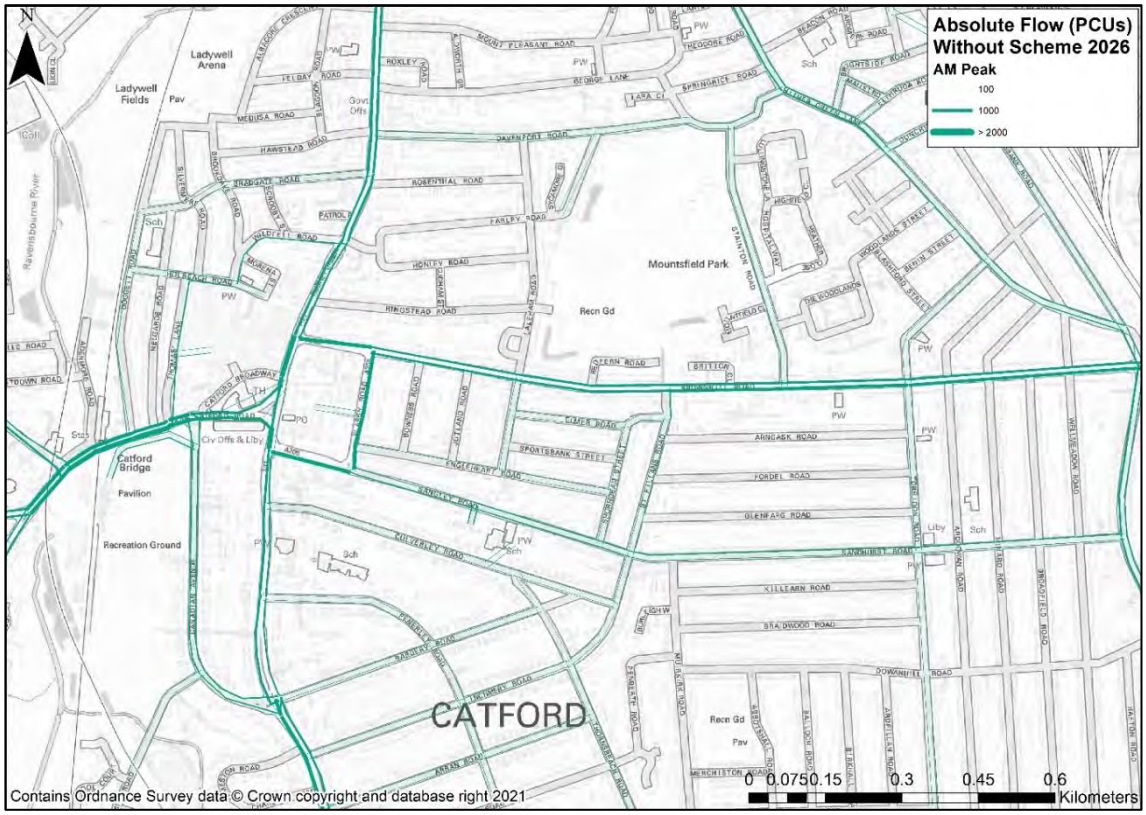


Figure 3-2: 2026 Without Scheme Traffic Flow - PM Peak

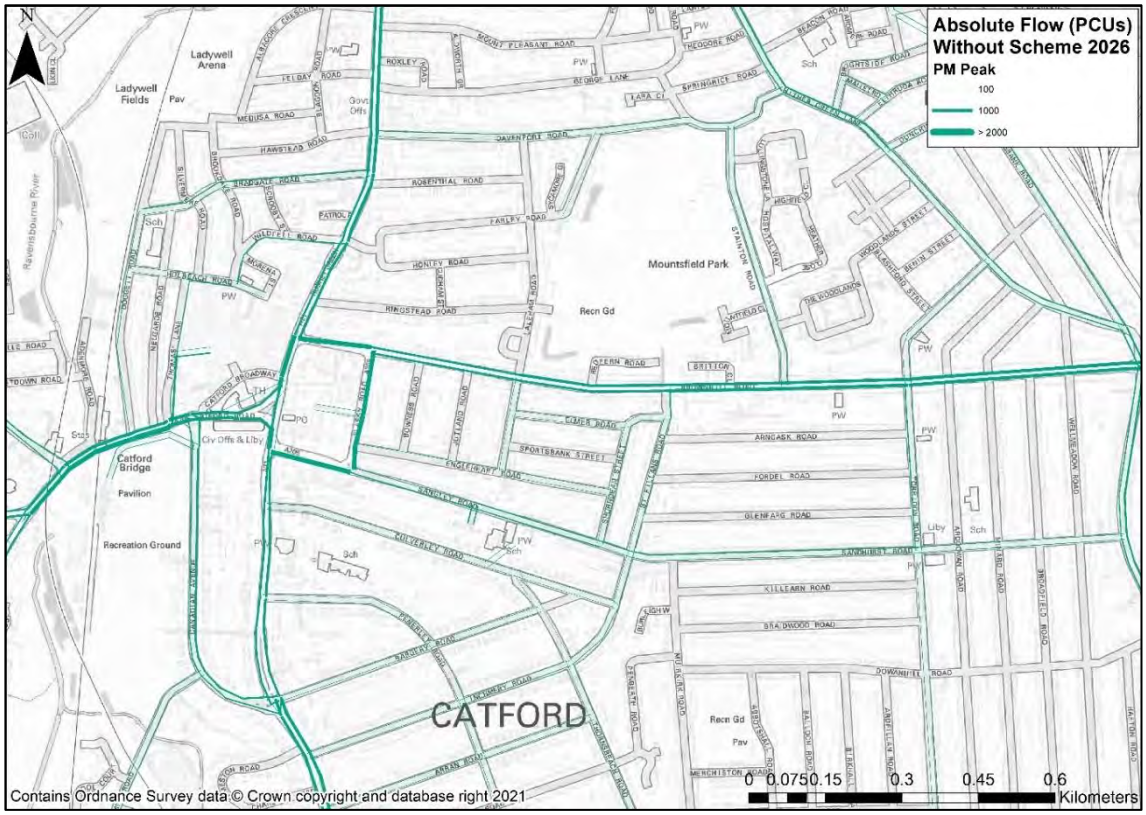


Figure 3-3: 2041 Without Scheme Traffic Flow - AM Peak

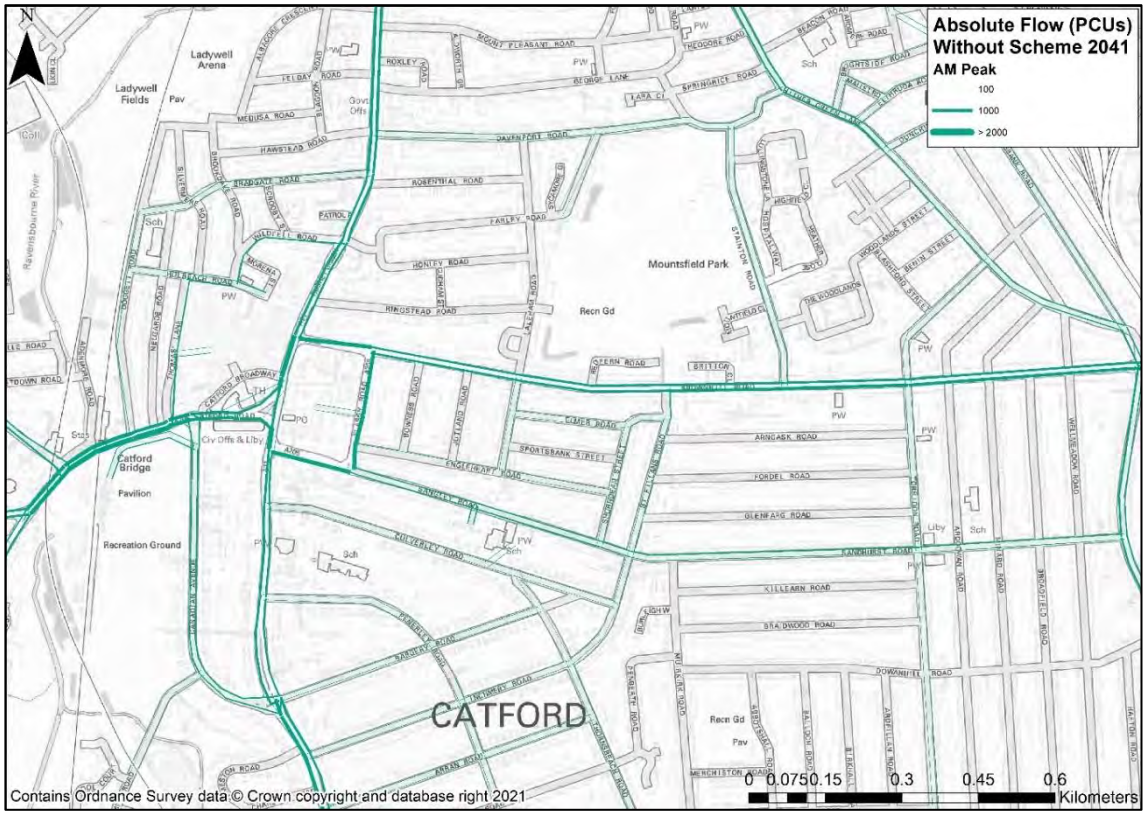
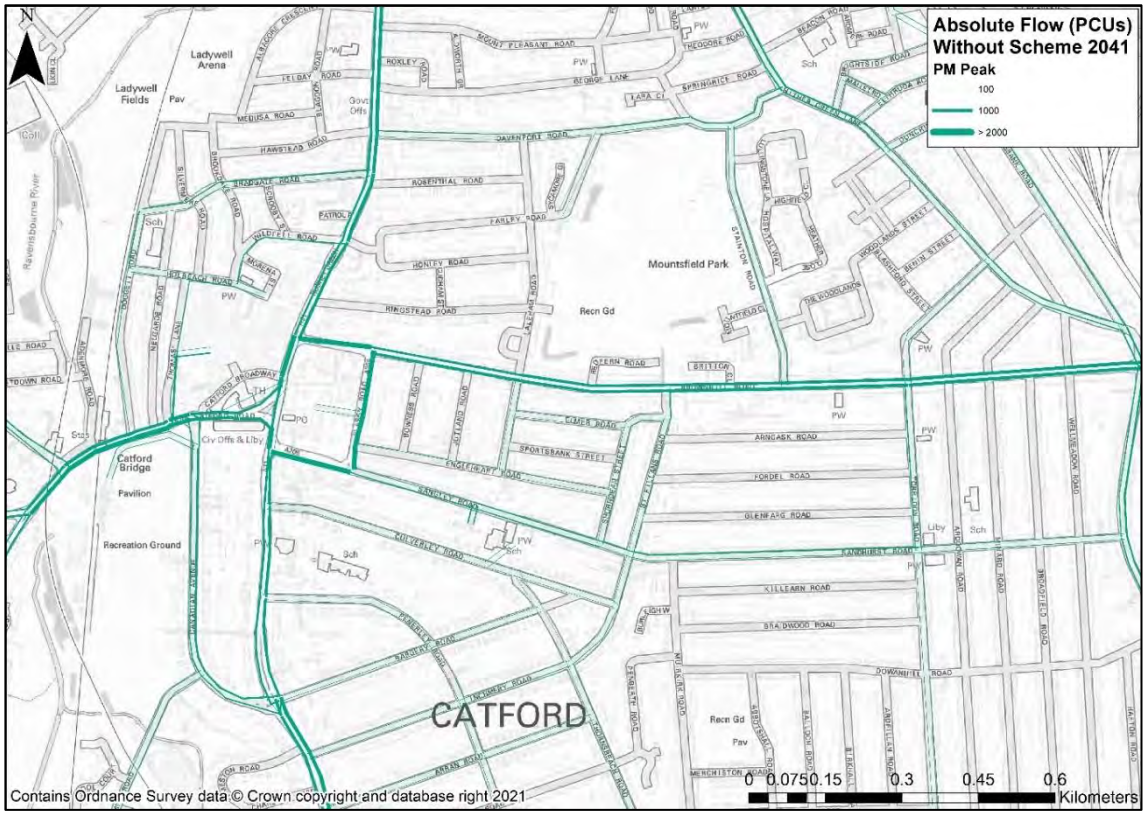


Figure 3-4: 2041 Without Scheme Traffic Flow - PM Peak



3.3.4 Figure 3-5 to Figure 3-8 show the change in traffic flows in the vicinity of the scheme from the 2016 Base Year to the Without Scheme scenario in 2026 and 2041 for the AM and PM Peaks.

3.3.5 Growth from 2016 to 2026 is relatively modest, with few links presenting growth of more than 50pcus in the AM Peak, and there is a pattern of limited increase in flow in the north to south movement through the gyratory. Growth to 2041 is more marked with consistent increases in flows on the gyratory and its approaches/exits, as well as the surrounding minor roads.

Figure 3-5: 2026 Without Scheme minus 2016 Base Year Traffic Flow - AM Peak

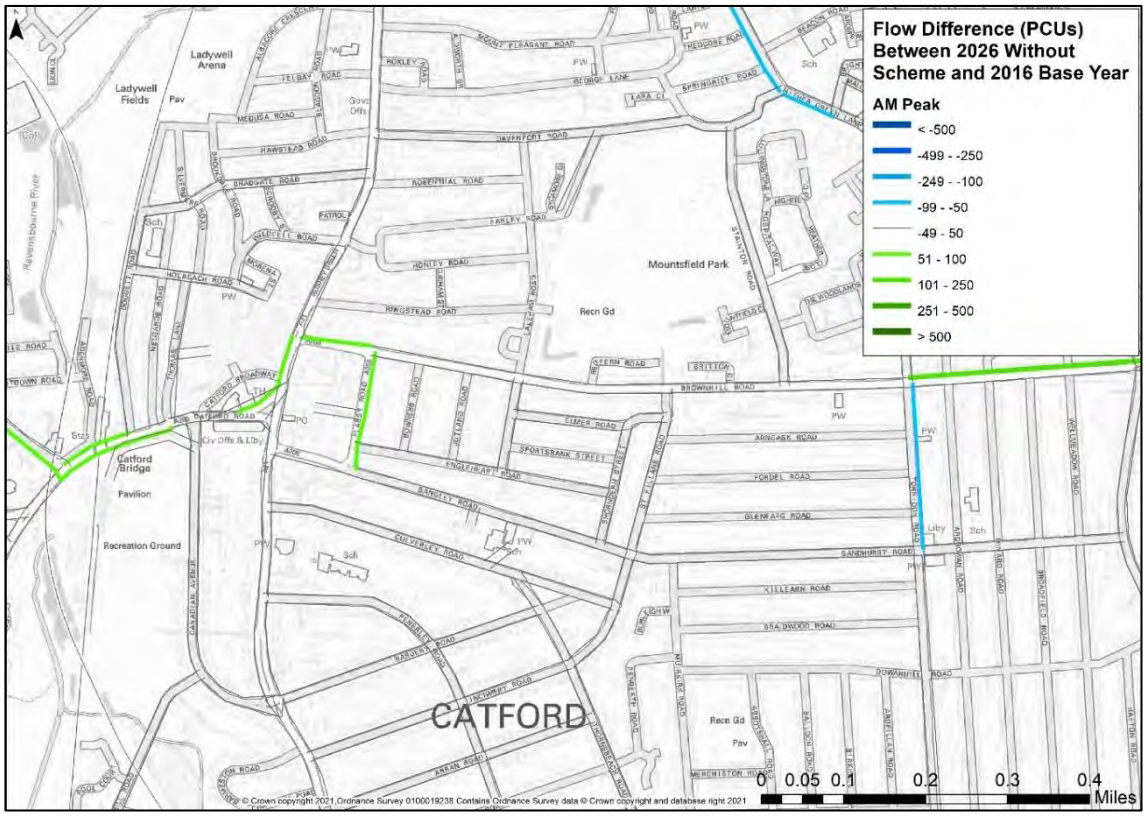


Figure 3-6: 2026 Without Scheme minus 2016 Base Year Traffic Flow - PM Peak

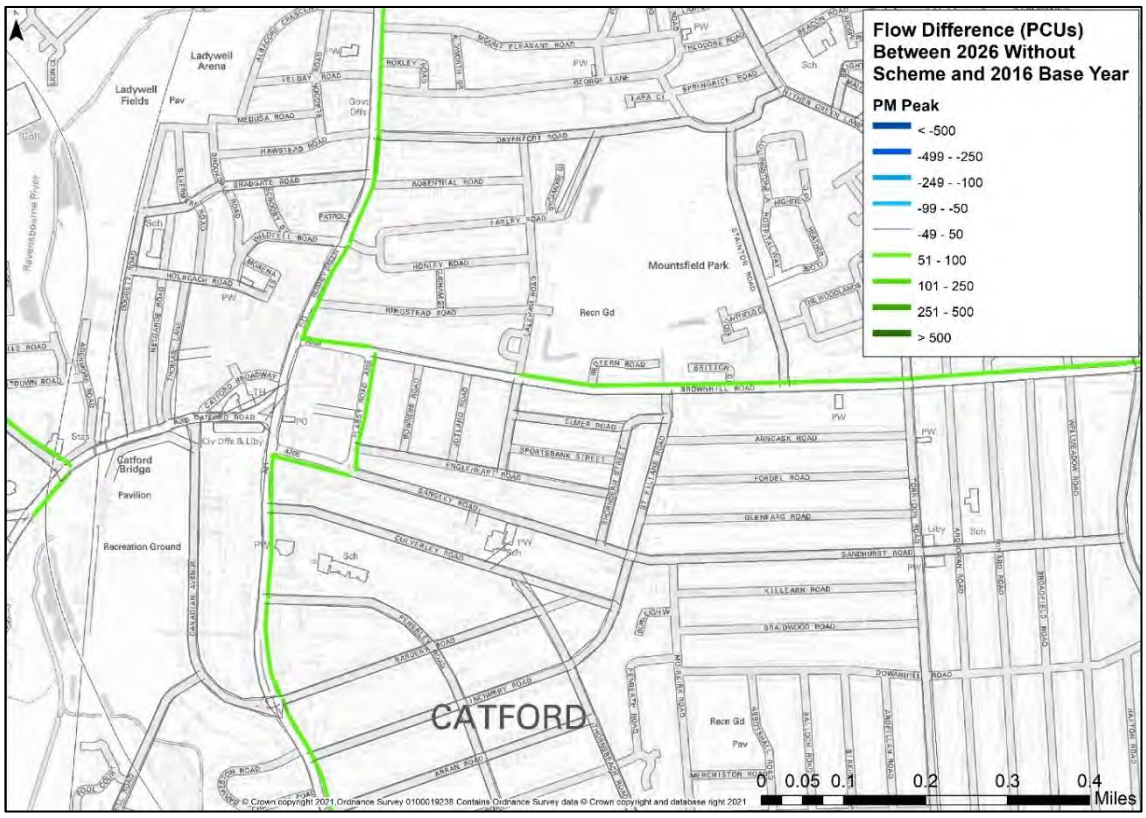


Figure 3-7: 2041 Without Scheme minus 2016 Base Year Traffic Flow - AM Peak

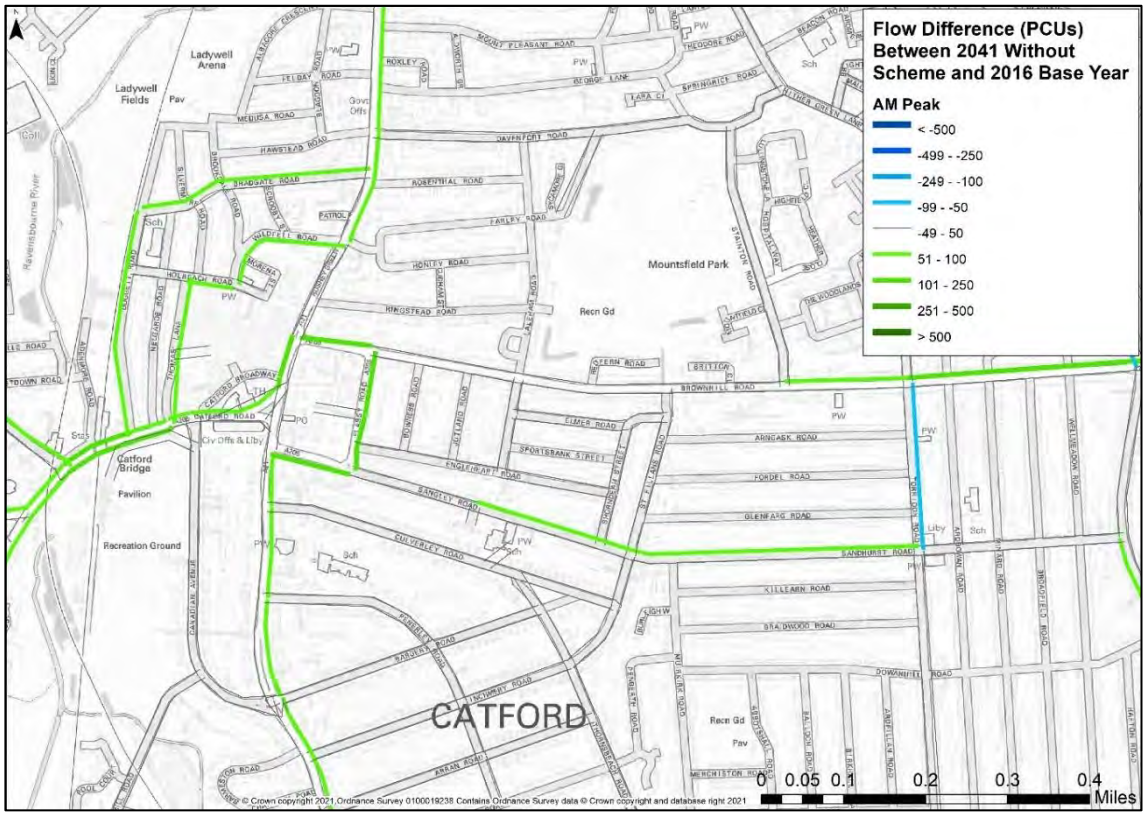
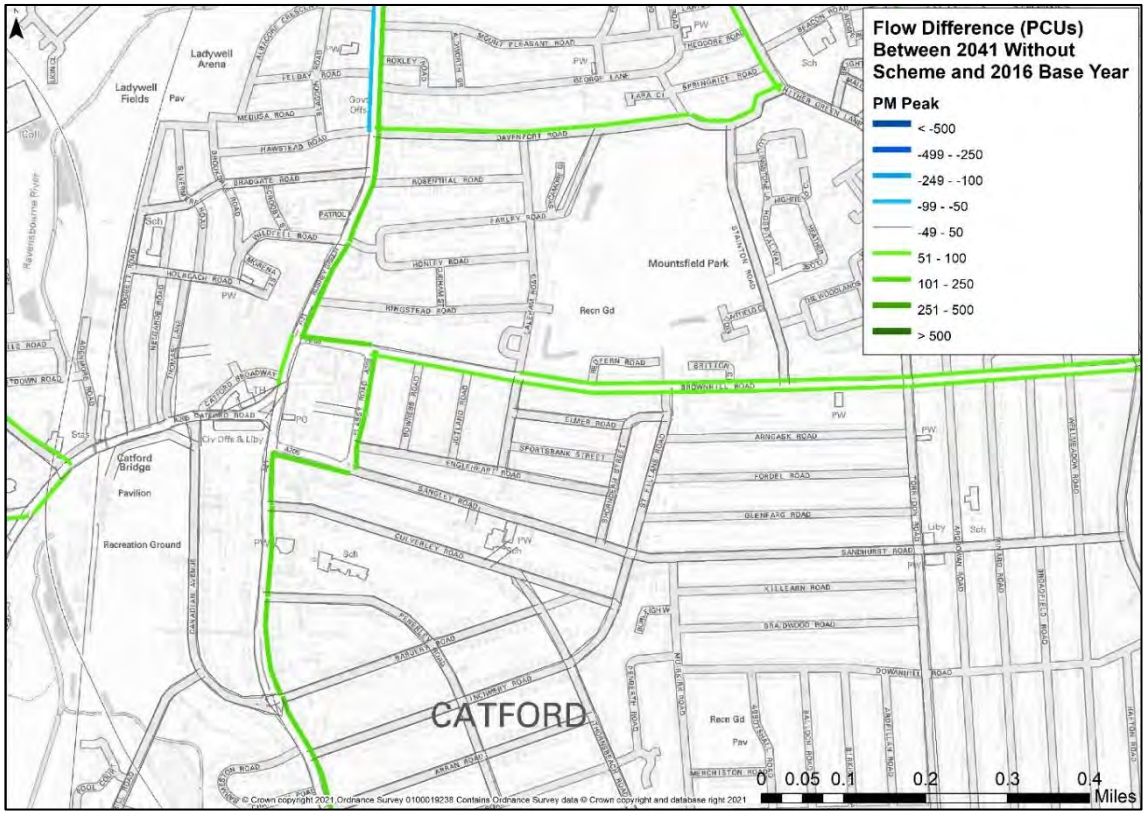


Figure 3-8: 2041 Without Scheme minus 2016 Base Year Traffic Flow - PM Peak



3.4 Traffic Delay Forecasts

3.4.1 Figure 3-9 to Figure 3-12 show forecast link delay in the vicinity of the scheme in the 2026 and 2041 Without Scheme scenario for the AM and PM Peaks.

3.4.2 Modest levels of forecast delay (generally up to one minute) can be seen in the 2026 AM Peak, particularly along the western side of the gyratory and also on Catford Road to the west. A similar pattern of delay can be seen in the 2026 PM Peak with generally more instances of delay above one minute that in the AM Peak.

3.4.3 The 2041 forecasts retain a similar pattern of delay in the area, with the additional growth in traffic resulting in those delays being generally higher than that of the 2026 forecasts.

Figure 3-9: 2026 Without Scheme Delay - AM Peak

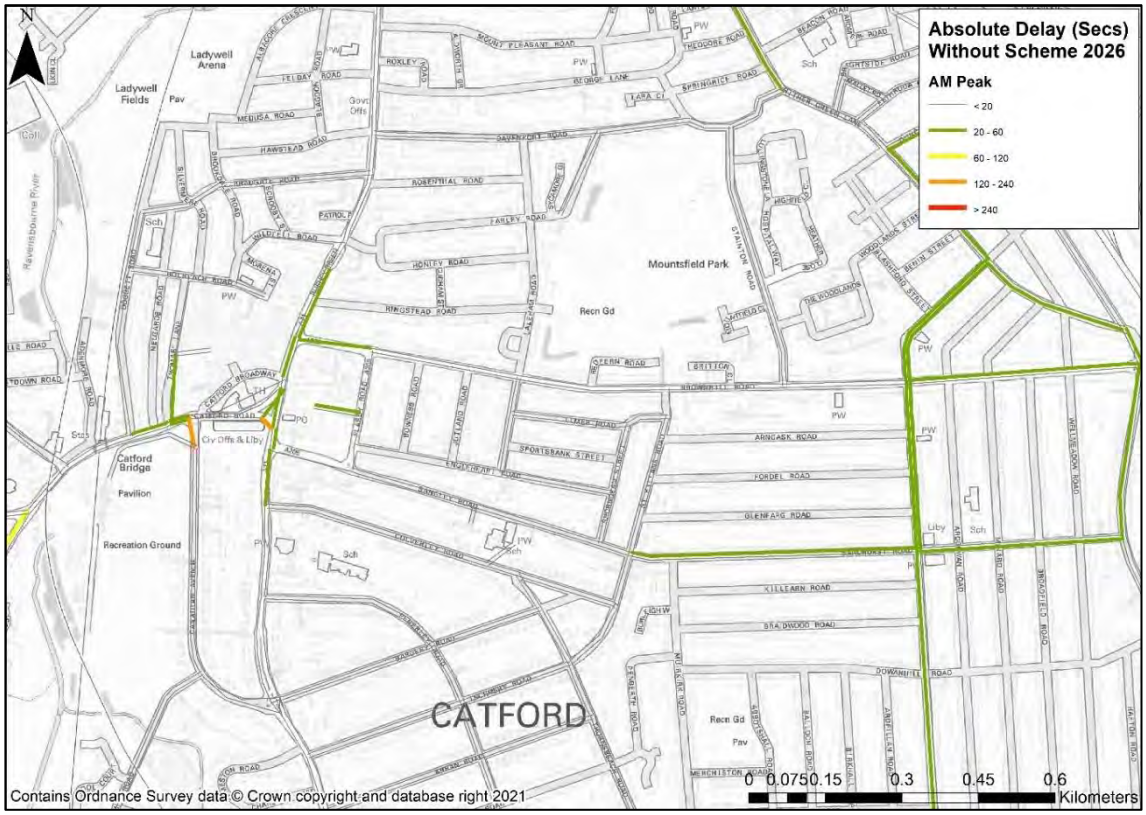


Figure 3-10: 2026 Without Scheme Delay - PM Peak

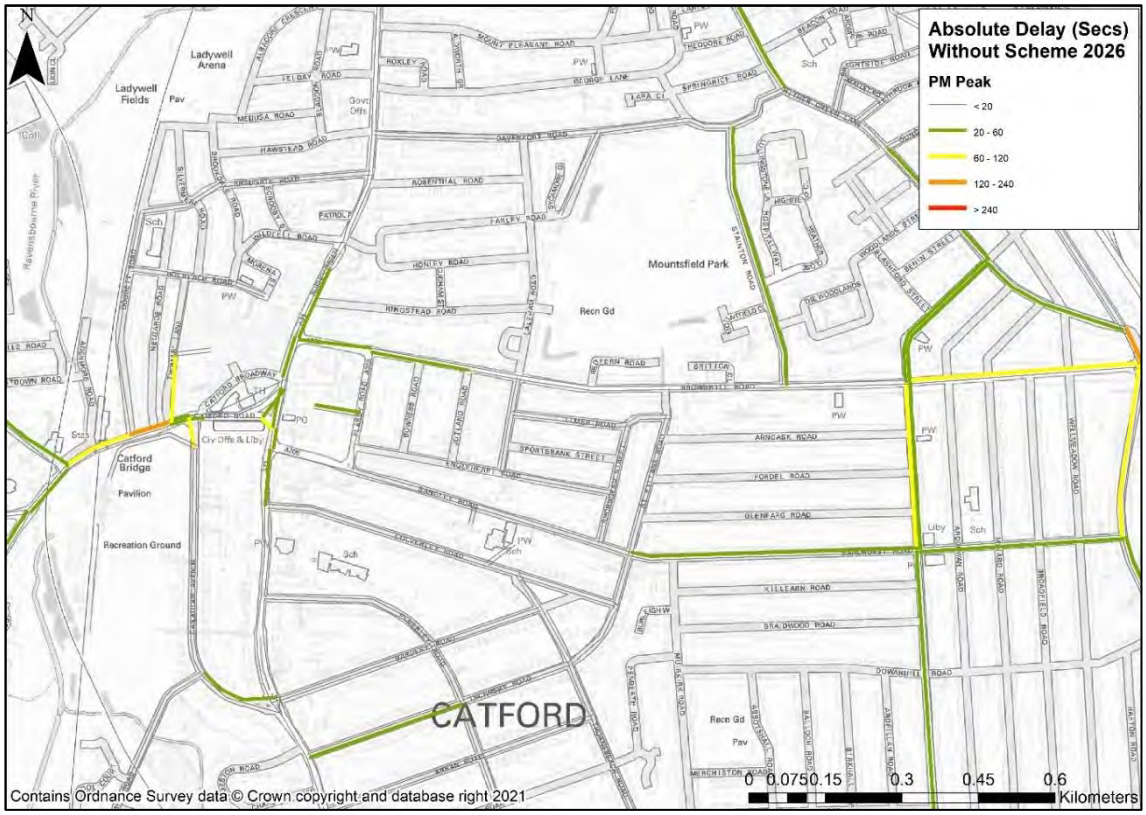


Figure 3-11: 2041 Without Scheme Delay - AM Peak

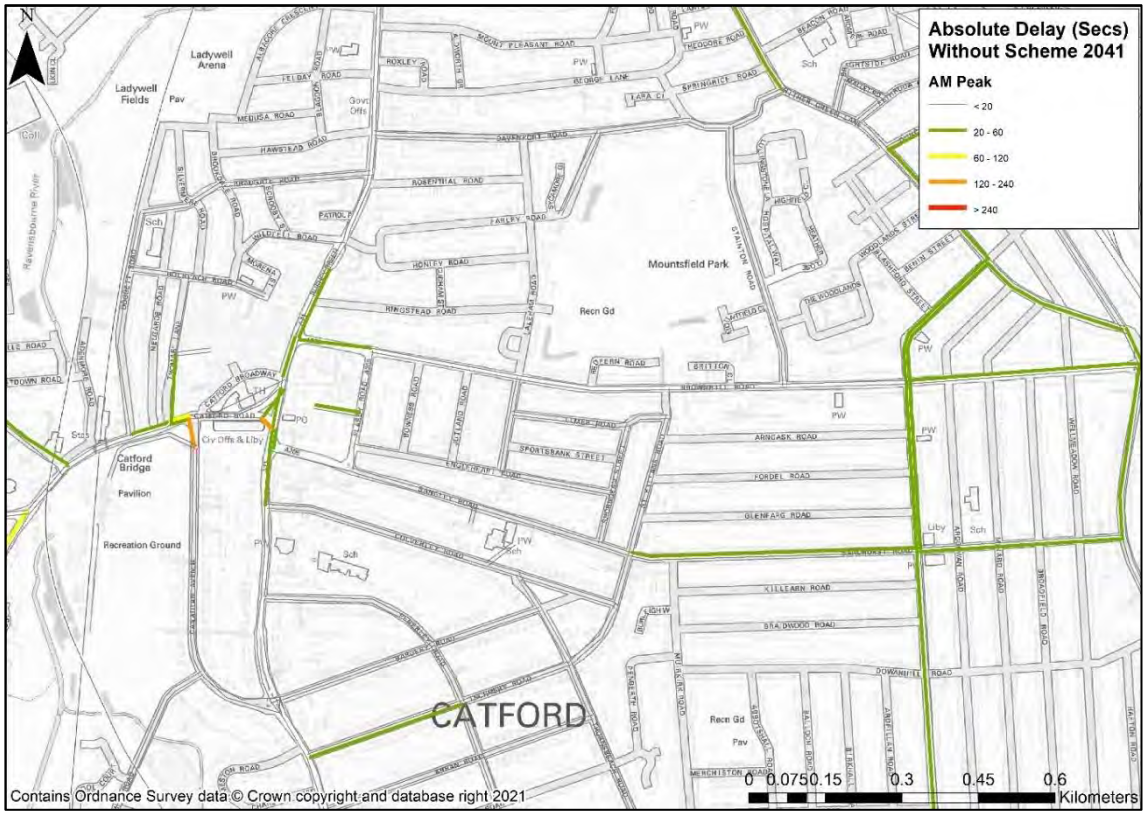
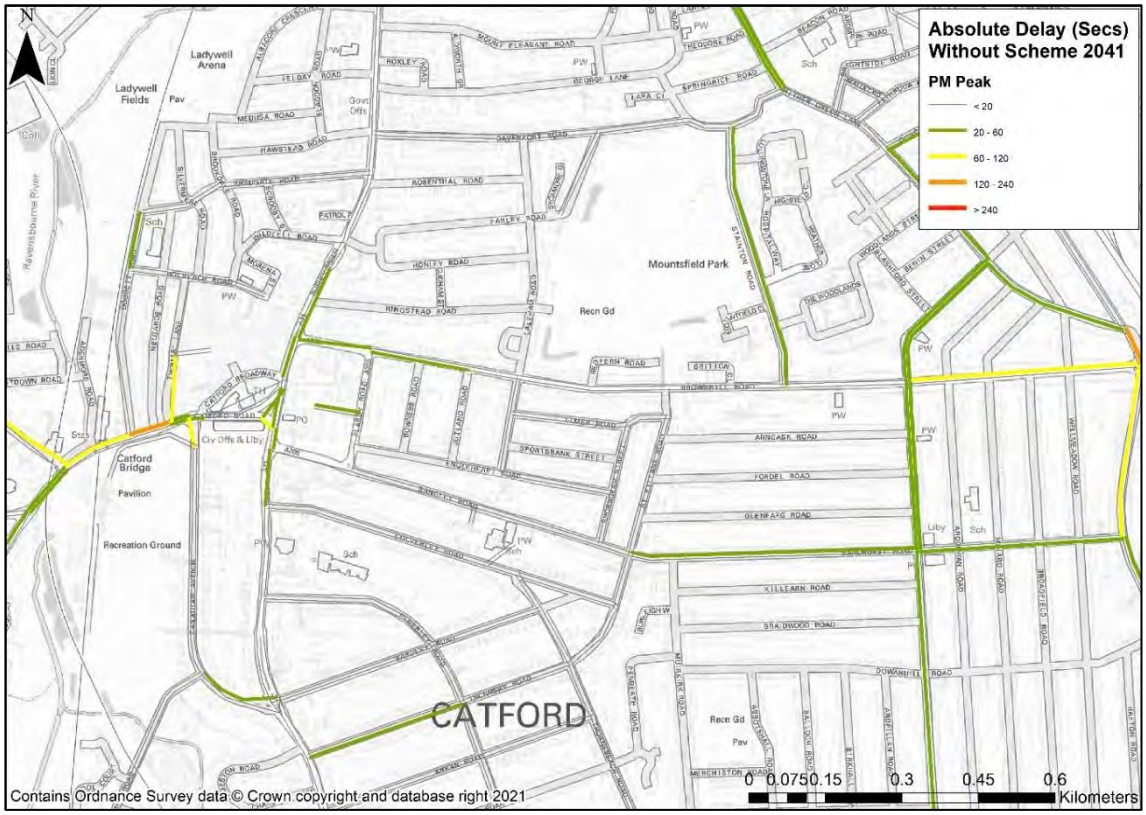


Figure 3-12: 2041 Without Scheme Delay - PM Peak



3.4.4 Figure 3-13 to Figure 3-16 show the forecast change in link delay between the 2016 Base Year and the 2026 and 2041 Without Scheme scenarios, for the AM and PM Peaks.

3.4.5 The increase in delay from 2016 to 2026 is minimal, reflecting the modest increases in flow observed in Section 3.3. The only marked increase can be seen in the PM Peak on the western approach to the gyratory. In 2041, increases in delay are more widespread, particularly in the PM Peak where the western approach again stands out as the area with the greatest increase in delay.

Figure 3-13: 2026 Without Scheme minus 2016 Base Year Delay - AM Peak

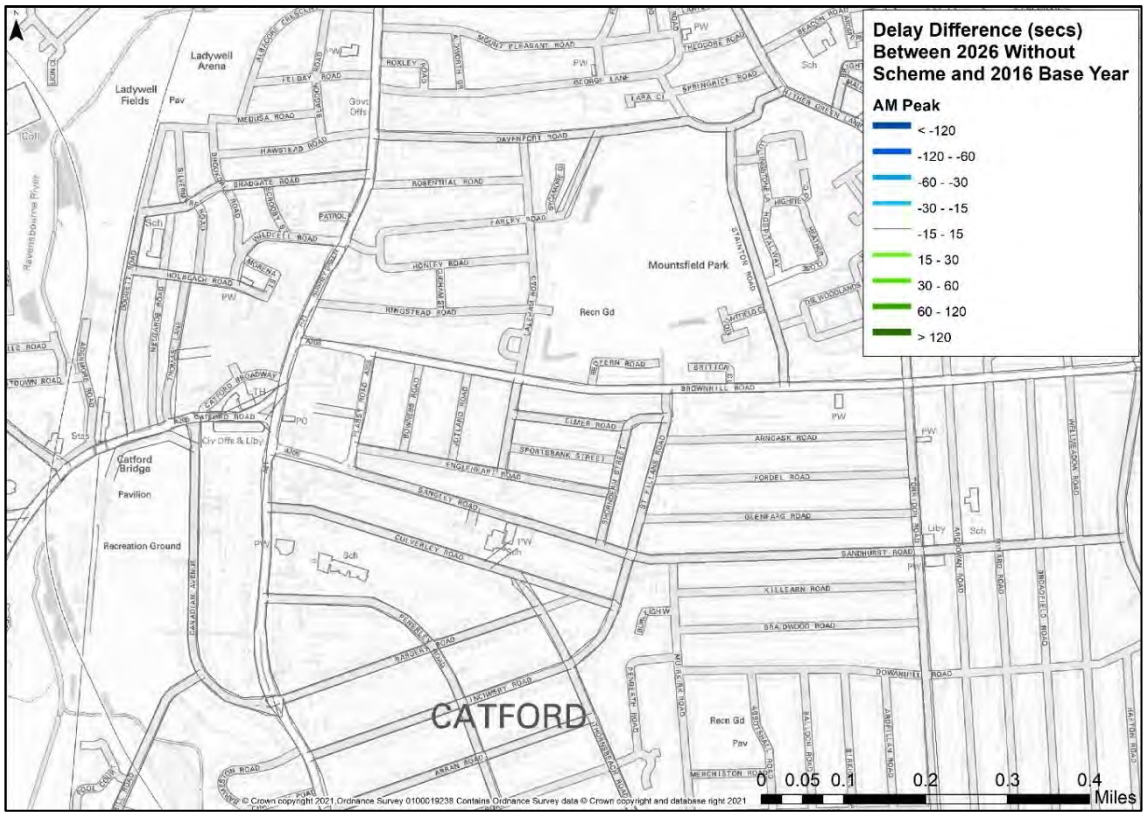


Figure 3-14: 2026 Without Scheme minus 2016 Base Year Delay - PM Peak

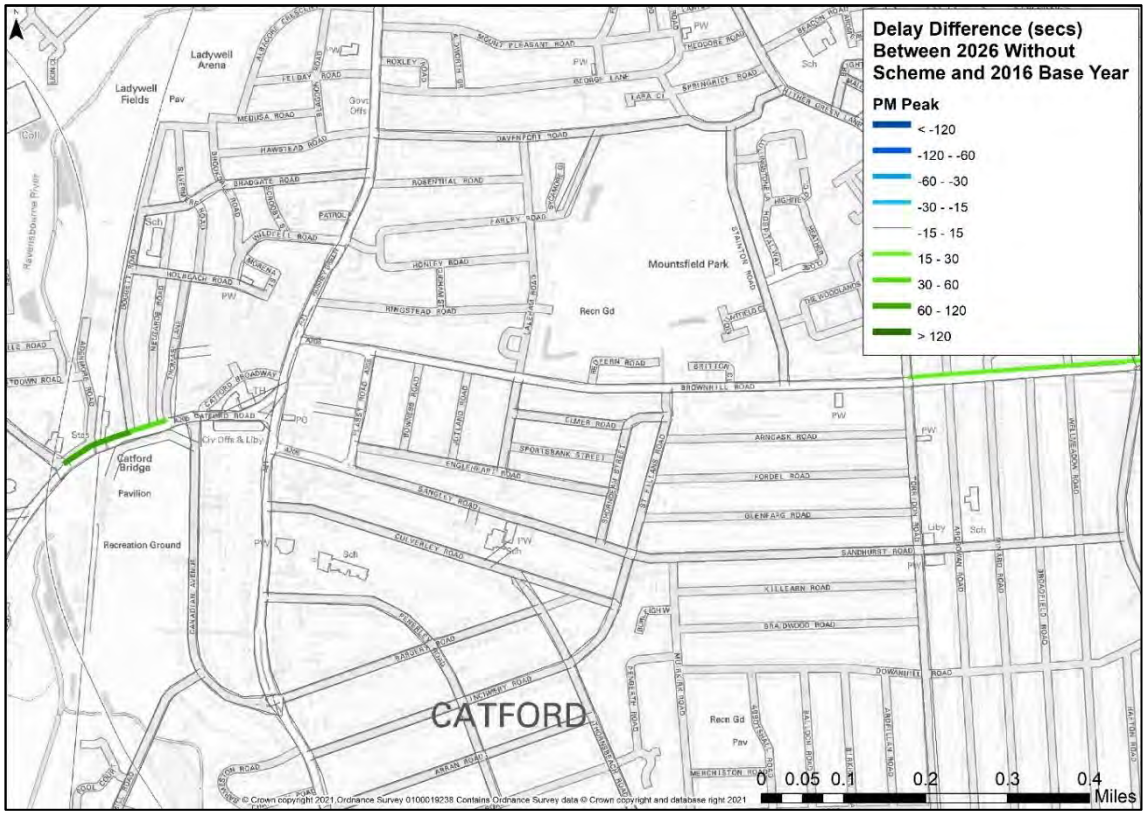


Figure 3-15: 2041 Without Scheme minus 2016 Base Year Delay - AM Peak

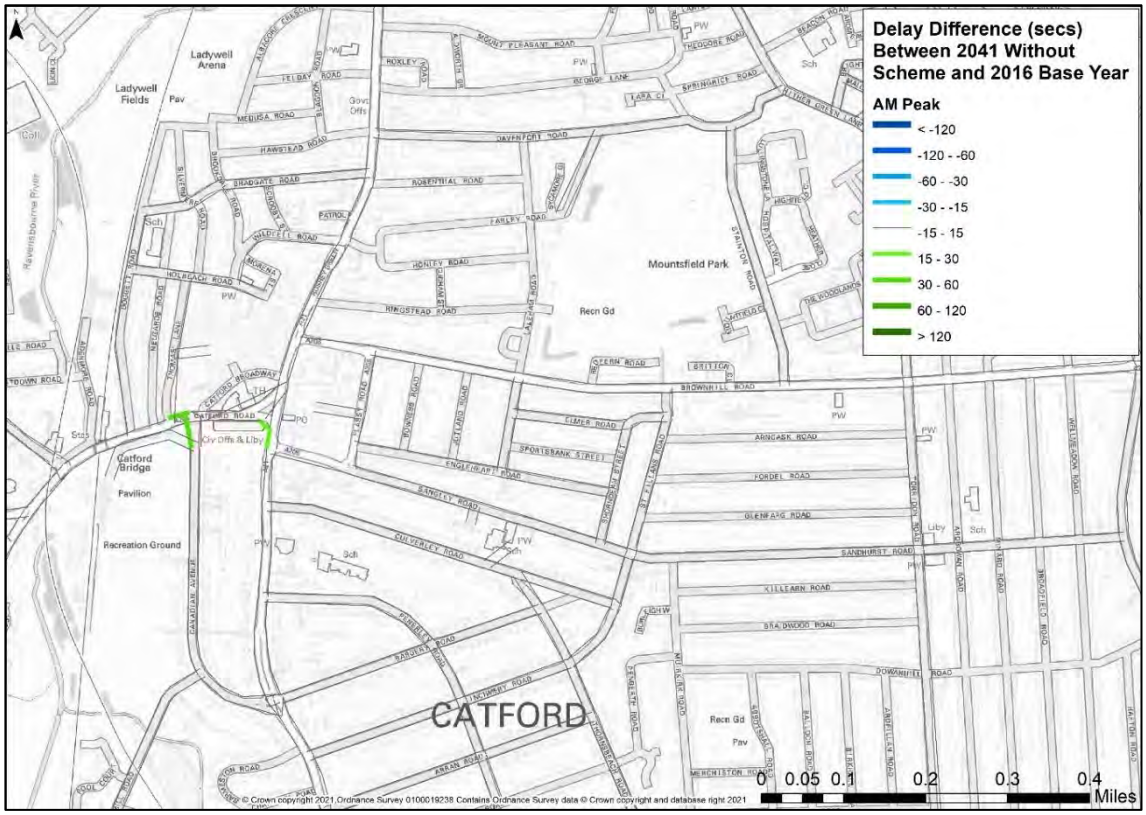
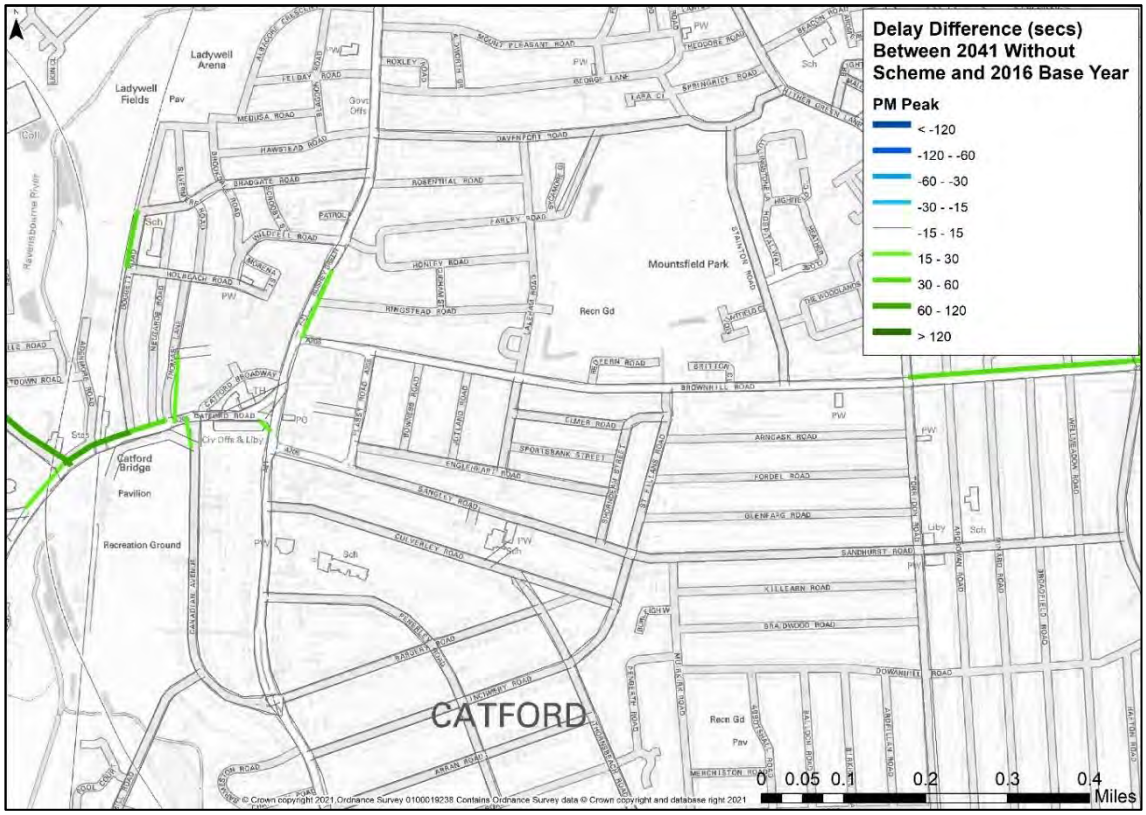


Figure 3-16: 2041 Without Scheme minus 2016 Base Year Delay - PM Peak



3.5 Routeing analysis

3.5.1 As well as impacting on delay around the gyratory, the scheme will result in changes to the routeing options available to vehicles travelling through the area. Figure 3-17 and Figure 3-18 show the Without Scheme scenario routeing for journeys using the A205 Catford Road to the west, and the A205 Brownhill Road to the east, in the 2026 AM Peak. Figure 3-19 and Figure 3-20 show the Without Scheme scenario routeing for journeys using the A21 Rushey Green to the north, and the A21 Bromley Road to the south, in the 2026 AM Peak.

3.5.2 The plots show that trips that are currently travelling from west to south through the gyratory must either traverse around the whole of the gyratory clockwise, or turn right onto Canadian Avenue southbound. Similarly, traffic travelling from east to north is forced to route south along the bottom of the gyratory before turning north up Rushey Green. Possibly the most circuitous route is taken by traffic travelling from the north to the south which is required to travel three sides of the gyratory.

Figure 3-17: 2026 AM Peak Without Scheme A205 Catford Road Select Link

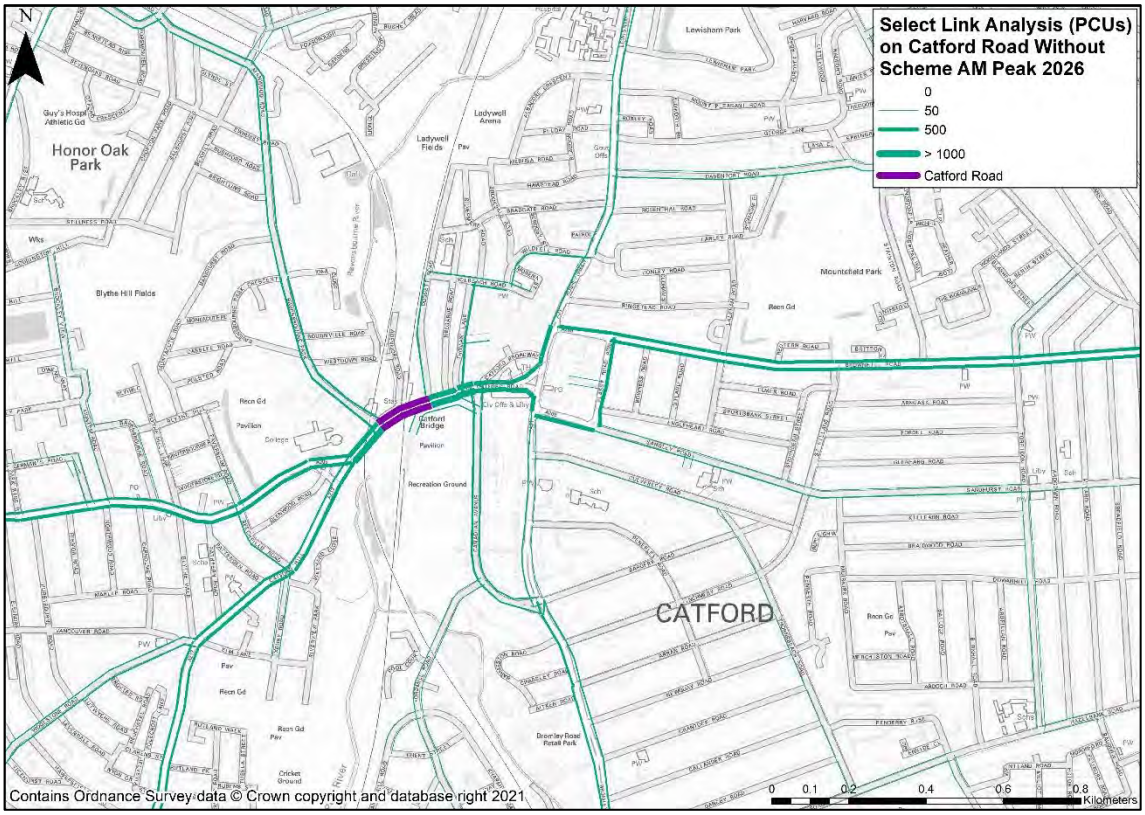


Figure 3-18: 2026 AM Peak Without Scheme A205 Brownhill Road Select Link

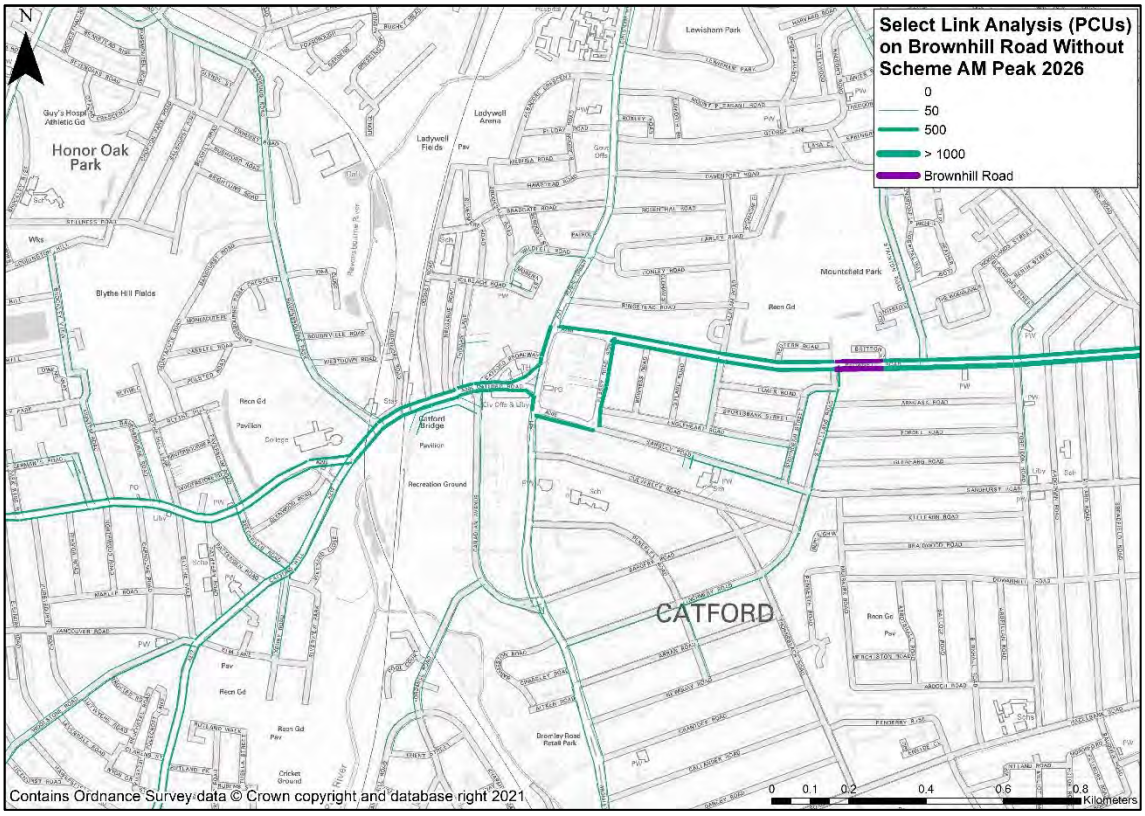


Figure 3-19: 2026 AM Peak Without Scheme A21 Rushey Green Select Link

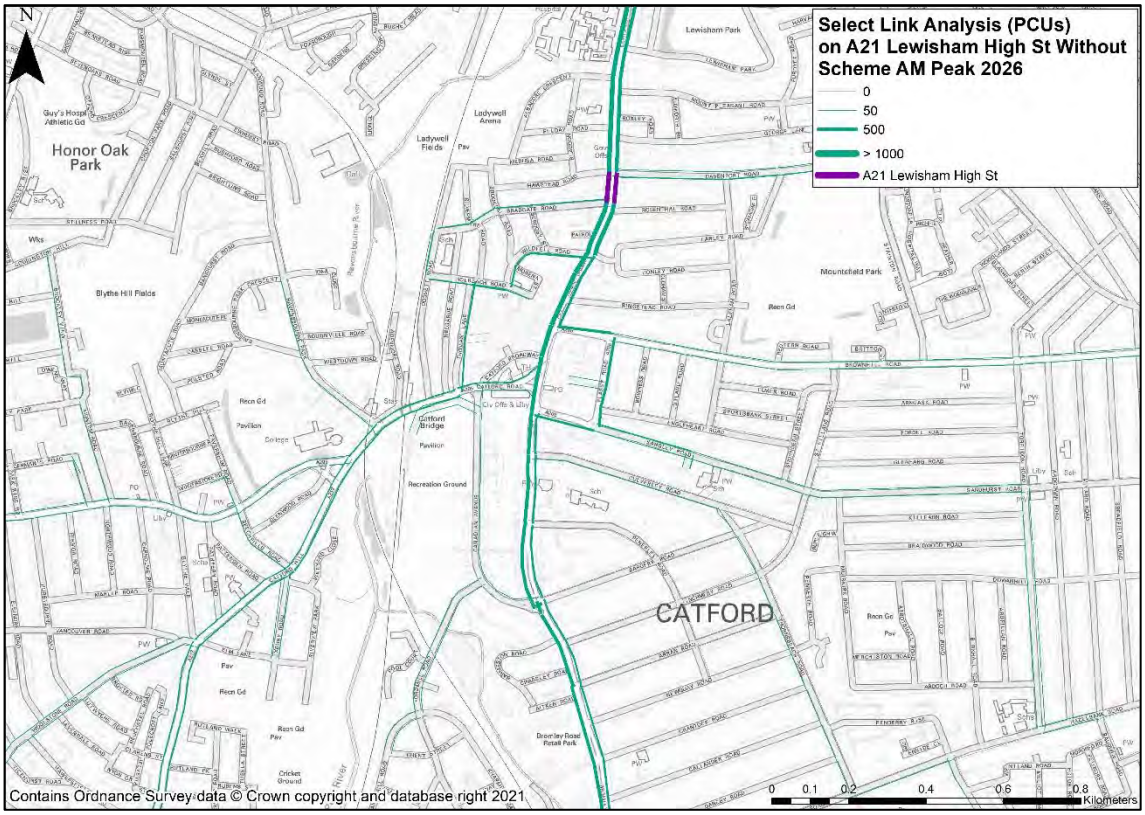
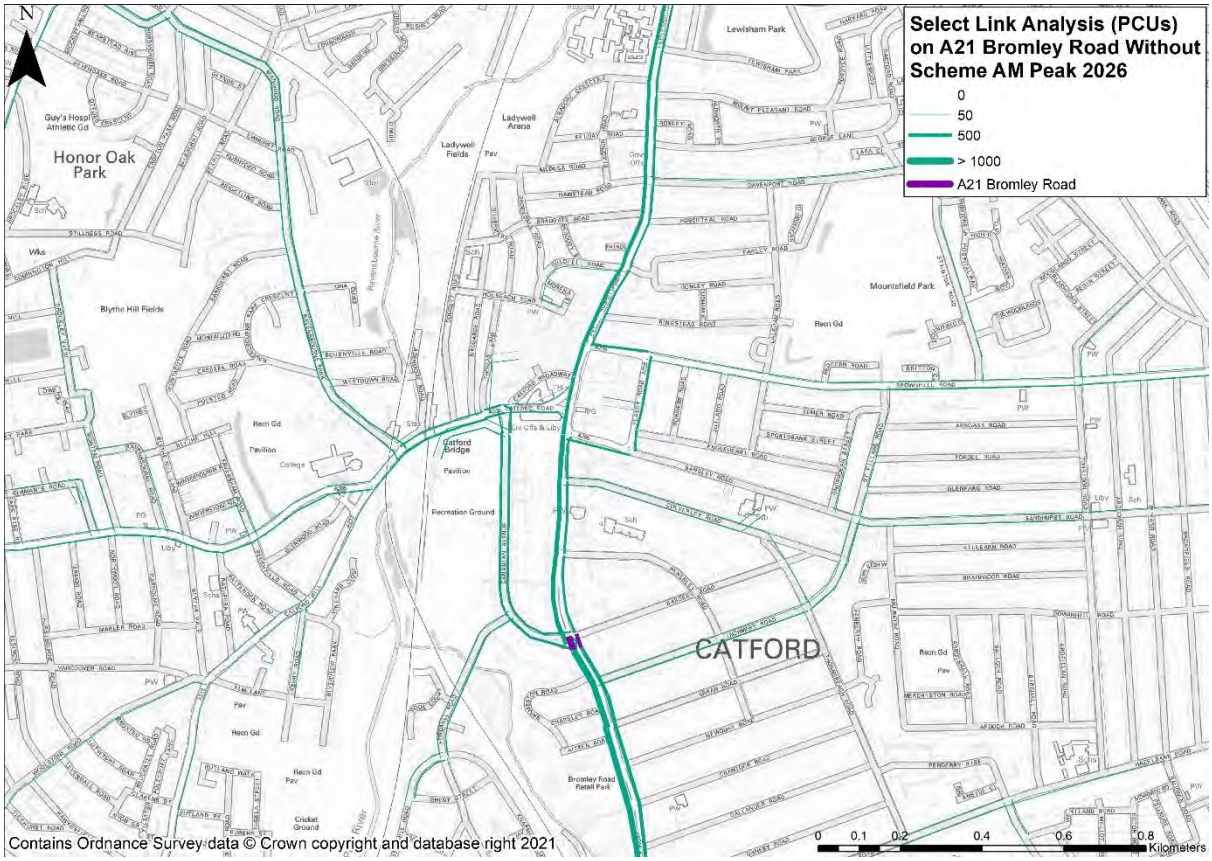


Figure 3-20: 2026 AM Peak Without Scheme A21 Bromley Road Select Link



3.5.3 Analysis of the trip length distribution of car trips using the A205 is shown in Table 3-4. This shows that 15-25% of car trips on this route are less than 5km in length, with a further 20-30% between 5km and 10km in length. Around 50-60% of trips are greater than 10km. In general, trips using Catford Road are shorter than those using Brownhill Road.

Table 3-4: Trip Length Distribution Analysis of A205 Car Trips, 2026 AM Peak

Trip Length (km)	Proportion of Total Car Trips	
	A205 Catford Road	A205 Brownhill Road
0-2	3%	3%
2-5	20%	14%
5-10	28%	21%
10-20	31%	31%
20-50	12%	19%
50-100	6%	11%

4. With Scheme Forecast Results

4.1 Introduction

4.1.1 This section sets out the With Scheme scenario forecast results, comparing back to the analysis presented in Section 3. In addition, analysis of journey times through the gyratory is presented, comparing Without Scheme and With Scheme conditions and routeing.

4.2 Borough Statistics

4.2.1 Table 4-1 to Table 4-3 show the key highway assignment statistics for the 2026 and 2041 Without Scheme and With Scheme scenarios in the AM and PM Peaks, for Lewisham and the surrounding boroughs. The results show that the scheme has a marginal impact on traffic conditions overall, with a small reduction in travel distance and travel time of up to 1.1% across both years and all time periods in Lewisham. This translates into a very small (less than 0.5%) reduction in average speed in all cases, apart from the 2026 PM Peak, where average speed increases slightly. Across the other boroughs the impact of the scheme is negligible.

Table 4-1: Borough Statistics by Modelled Year – Without and With Scheme – AM Peak

Borough	Metric	2026 Without Scheme	2026 With Scheme	Change from Without Scheme	2041 Without Scheme	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	104,692	104,090	-0.6%	110,524	109,699	-0.7%
	Travel Time (pcu-hours)	6,227	6,200	-0.4%	6,934	6,916	-0.3%
	Average Speed (kph)	16.8	16.8	-0.1%	15.9	15.9	-0.5%
Greenwich	Travel Distance (pcu-km)	206,861	206,884	0.0%	222,445	222,407	0.0%
	Travel Time (pcu-hours)	8,694	8,693	0.0%	9,662	9,653	-0.1%
	Average Speed (kph)	23.8	23.8	0.0%	23.0	23.0	0.1%
Bromley	Travel Distance (pcu-km)	261,970	262,017	0.0%	277,612	277,669	0.0%
	Travel Time (pcu-hours)	11,122	11,123	0.0%	12,744	12,751	0.1%
	Average Speed (kph)	23.6	23.6	0.0%	21.8	21.8	0.0%
Southwark	Travel Distance (pcu-km)	90,290	90,349	0.1%	97,524	97,568	0.0%
	Travel Time (pcu-hours)	5,271	5,272	0.0%	5,803	5,797	-0.1%
	Average Speed (kph)	17.1	17.1	0.0%	16.8	16.8	0.2%

Table 4-2: Borough Statistics by Modelled Year – Without and With Scheme – Interpeak

Borough	Metric	2026 Without Scheme	2026 With Scheme	Change from Without Scheme	2041 Without Scheme	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	87,745	87,146	-0.7%	93,746	93,106	-0.7%
	Travel Time (pcu-hours)	4,380	4,359	-0.5%	4,812	4,790	-0.5%
	Average Speed (kph)	20.0	20.0	-0.2%	19.5	19.4	-0.2%
Greenwich	Travel Distance (pcu-km)	171,907	171,941	0.0%	185,299	185,274	0.0%
	Travel Time (pcu-hours)	5,789	5,790	0.0%	6,363	6,361	0.0%
	Average Speed (kph)	29.7	29.7	0.0%	29.1	29.1	0.0%
Bromley	Travel Distance (pcu-km)	195,364	195,397	0.0%	213,079	213,096	0.0%
	Travel Time (pcu-hours)	6,963	6,968	0.1%	7,701	7,703	0.0%
	Average Speed (kph)	28.1	28.0	0.0%	27.7	27.7	0.0%
Southwark	Travel Distance (pcu-km)	78,690	78,718	0.0%	83,807	83,822	0.0%
	Travel Time (pcu-hours)	4,251	4,253	0.0%	4,637	4,636	0.0%
	Average Speed (kph)	18.5	18.5	0.0%	18.1	18.1	0.1%

Table 4-3: Borough Statistics by Modelled Year – Without and With Scheme – PM Peak

Borough	Metric	2026 Without Scheme	2026 With Scheme	Change from Without Scheme	2041 Without Scheme	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	102,070	101,442	-0.6%	107,237	106,589	-0.6%
	Travel Time (pcu-hours)	5,776	5,710	-1.1%	6,416	6,387	-0.4%
	Average Speed (kph)	17.7	17.8	0.5%	16.7	16.7	-0.2%
Greenwich	Travel Distance (pcu-km)	212,485	212,448	0.0%	225,355	225,272	0.0%
	Travel Time (pcu-hours)	8,592	8,588	0.0%	9,438	9,447	0.1%
	Average Speed (kph)	24.7	24.7	0.0%	23.9	23.8	-0.1%
Bromley	Travel Distance (pcu-km)	253,560	253,635	0.0%	271,335	271,424	0.0%
	Travel Time (pcu-hours)	10,335	10,350	0.1%	11,713	11,724	0.1%
	Average Speed (kph)	24.5	24.5	-0.1%	23.2	23.2	-0.1%
Southwark	Travel Distance (pcu-km)	87,015	87,052	0.0%	90,294	90,367	0.1%
	Travel Time (pcu-hours)	4,855	4,858	0.1%	5,197	5,211	0.3%
	Average Speed (kph)	17.9	17.9	0.0%	17.4	17.3	-0.2%

4.3 Traffic Flow Forecasts

4.3.1 Figure 4-1 to Figure 4-4 show the forecast impact of the scheme on traffic flows in 2026 and 2041 for the AM and PM Peaks.

4.3.2 In the 2026 AM Peak, clockwise flows on the gyratory generally reduce due to anti-clockwise movements being permitted with the scheme in place. The scheme also results in some wider re-routeing on minor roads around the gyratory. For example, traffic using the rat-run along Station Road and Davenport Road in the Without Scheme scenario switches to staying on Brownhill Road as the route westbound along Brownhill Road is available in the With Scheme scenario. Also, traffic that appeared to be rat-running along Wildfell Road, Thomas' Lane and Canadian Avenue in the Without Scheme scenario switches to the direct route south along Rushey Green and Bromley Road in the With Scheme scenario.

4.3.3 In the 2026 PM Peak, there is a similar pattern of clockwise reduction and anti-clockwise increases in flow around the gyratory. However, there is little in terms of wider re-routeing compared to the AM Peak.

4.3.4 In 2041, the AM and PM Peak re-routeing impacts of the scheme are similar in pattern to that seen in the 2026 AM and PM Peaks. This gives confidence that the forecast impact of the scheme produced by the model is stable and can be relied upon.

4.3.5 It is also worth noting that the impacts of the scheme are relatively local, with little impact on traffic outside of a 1km radius from the gyratory. This is consistent with the borough level highway statistics presented above.

Figure 4-1: 2026 With Scheme minus Without Scheme Traffic Flow - AM Peak

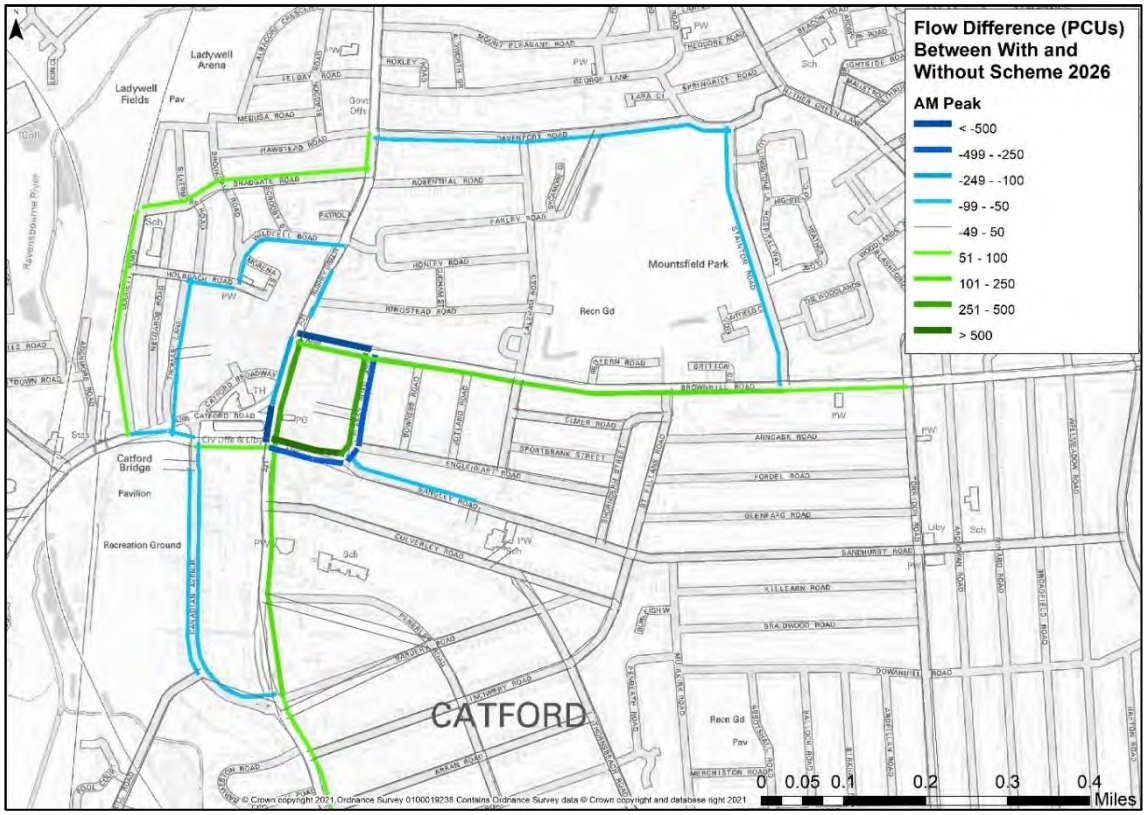


Figure 4-2: 2026 With Scheme minus Without Scheme Traffic Flow - PM Peak

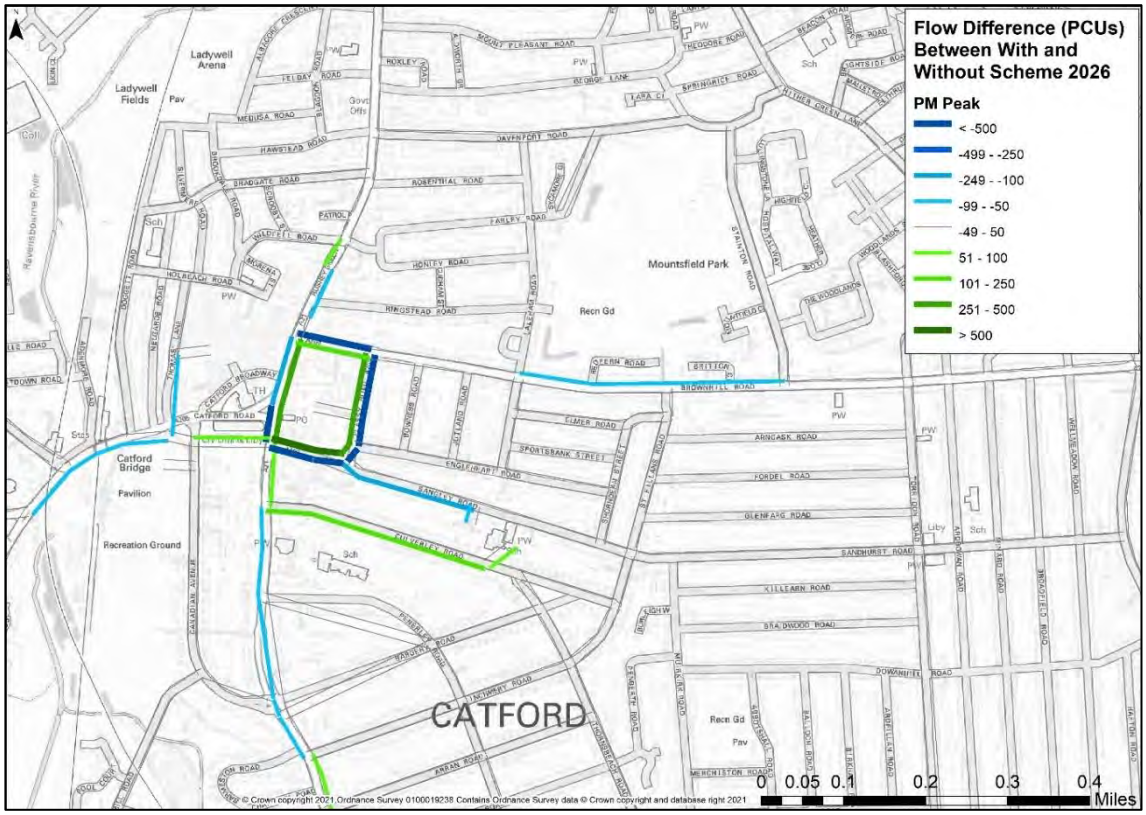


Figure 4-3: 2041 With Scheme minus Without Scheme Traffic Flow - AM Peak

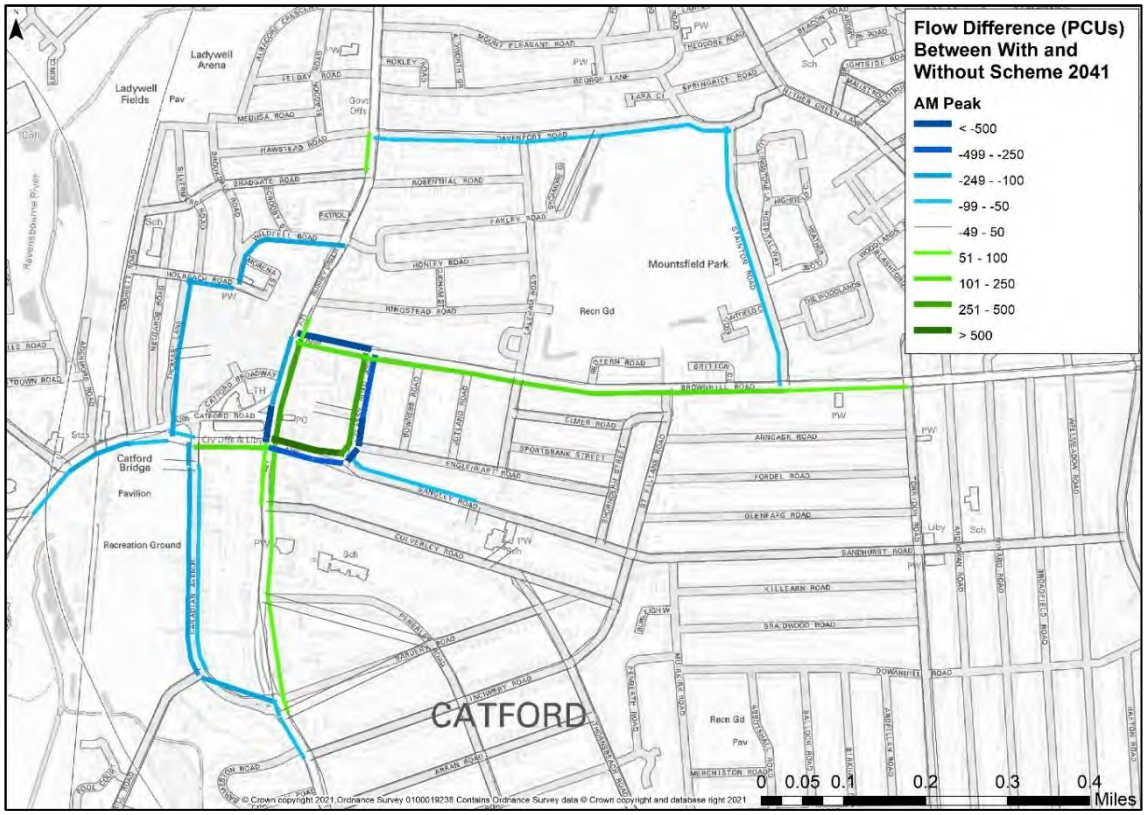
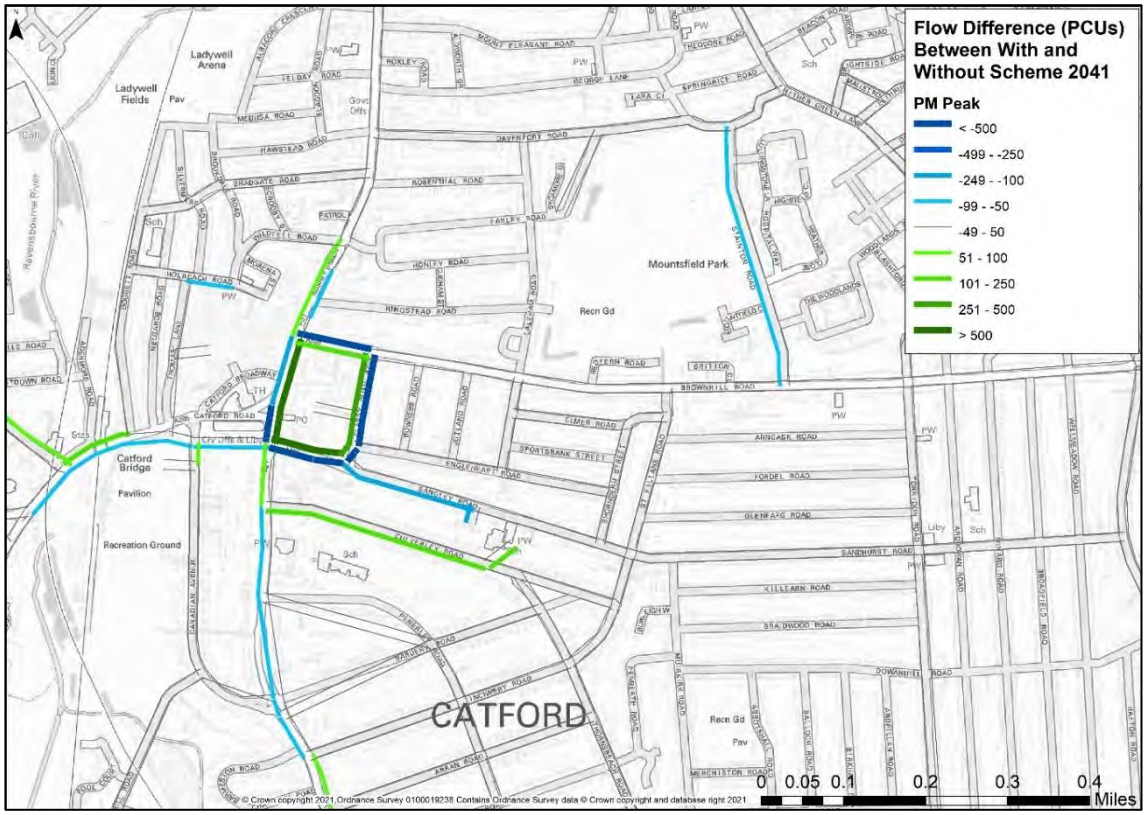


Figure 4-4: 2041 With Scheme minus Without Scheme Traffic Flow - PM Peak



4.4 Traffic Delay Forecasts

4.4.1 Figure 4-5 to Figure 4-8 show the forecast change in link delay brought about by the scheme in 2026 and 2041 for the AM and PM Peaks.

4.4.2 In the 2026 AM Peak, delay increases can be seen on many of the roads around and on the gyratory due to the additional conflicts that exist at the signalised junctions. These include the A205 Catford Road in both directions, the A205 Brownhill Road approach to the gyratory, and the A21 Bromley Road approach. Some roads experience some reduction in delay, particularly on the Canadian Avenue northbound approach to A205 Catford Road.

4.4.3 In the 2026 PM Peak, there is again generally an increase in delay on roads around the gyratory, although not as widespread as in the AM Peak. Reductions in delay exist on the A205 Catford Road eastbound, Canadian Avenue northbound and on the A21 Rushey Green southbound approach to the gyratory.

4.4.4 The pattern of forecast delay change in the 2041 AM and PM Peaks is very similar to that seen in 2026.

Figure 4-5: 2026 With Scheme minus Without Scheme Delay - AM Peak

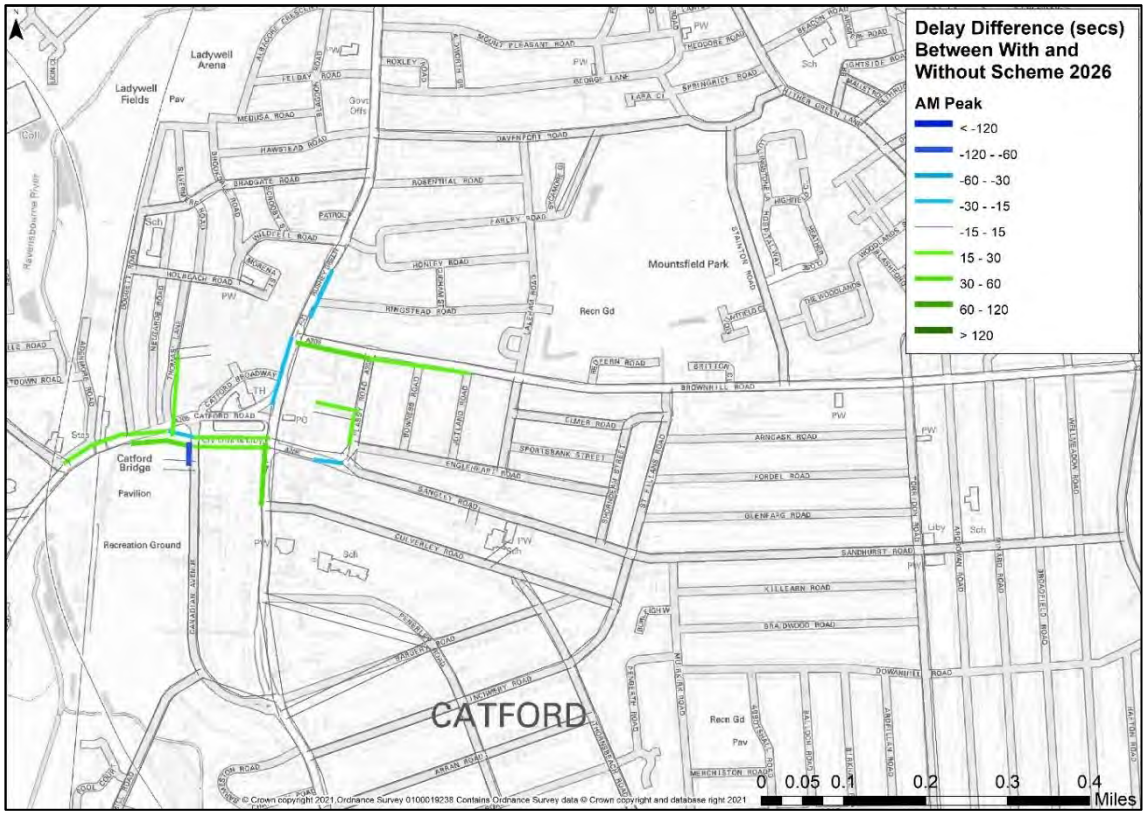


Figure 4-6: 2026 With Scheme minus Without Scheme Delay - PM Peak

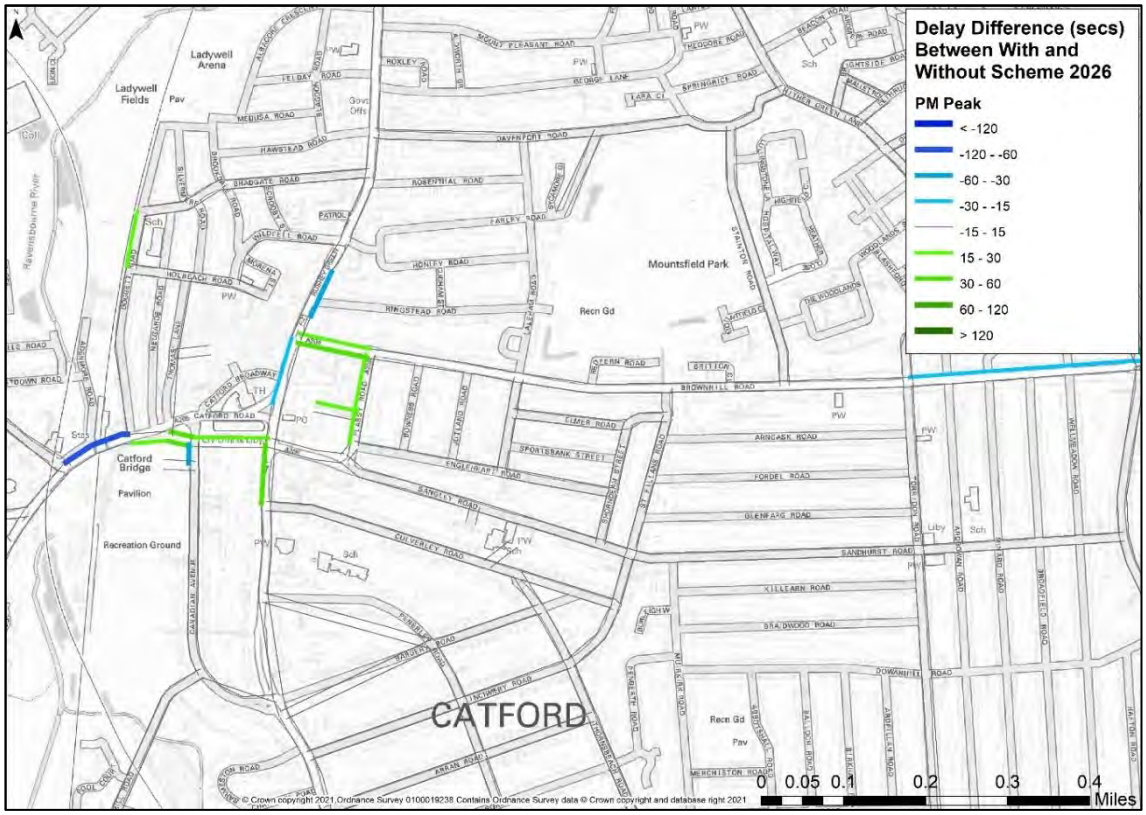


Figure 4-7: 2041 With Scheme minus Without Scheme Delay - AM Peak

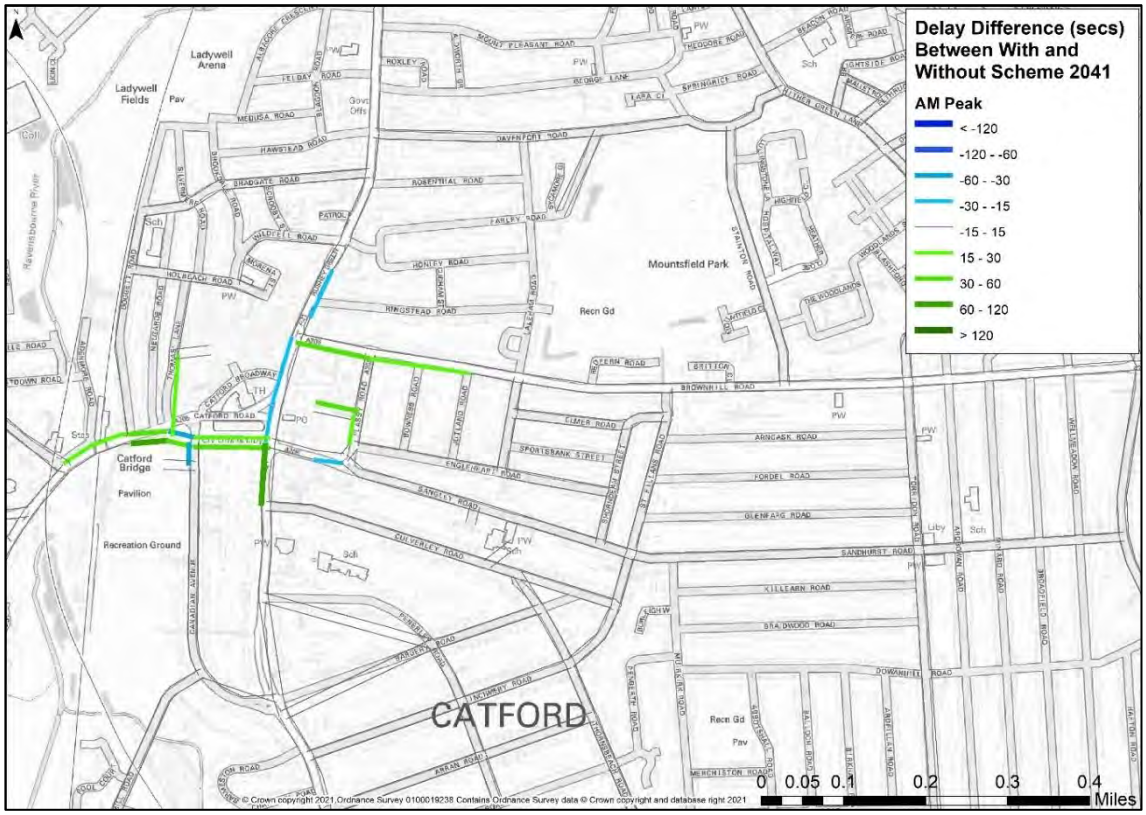
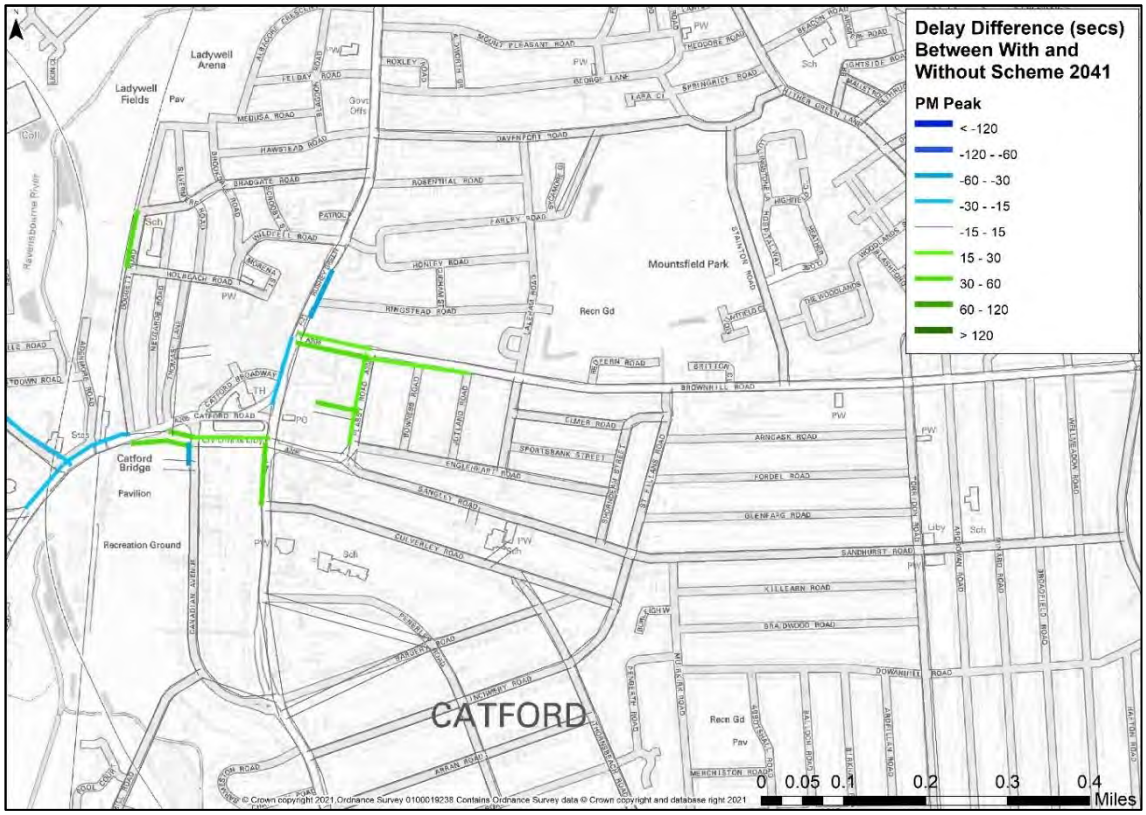


Figure 4-8: 2041 With Scheme minus Without Scheme Delay - PM Peak



4.5 Routeing analysis

4.5.1 Figure 4-9 to Figure 4-12 show the routeing of journeys using the same locations plotted in Figure 3-17 and Figure 3-20 in the With Scheme scenario for the 2026 AM Peak. These demonstrate how routeing options change with the introduction of the scheme.

4.5.2 For example, traffic travelling from the west to the east (either onto Sangley Road or the A205 Brownhill Road) is able to use the southern end of the gyratory. There is also a slight reduction in traffic using Canadian Avenue southbound as right turns from the A205 onto the A21 southbound are made possible by the scheme. For traffic travelling from east to north, routeing through the gyratory is now more direct, leading to more traffic making this movement through the gyratory in the With Scheme scenario than the Without Scheme scenario. Routeing for traffic travelling from north to south is made particularly more efficient with traffic able to take the direct route along the western side of the gyratory.

Figure 4-9: 2026 AM Peak With Scheme A205 Catford Road Select Link

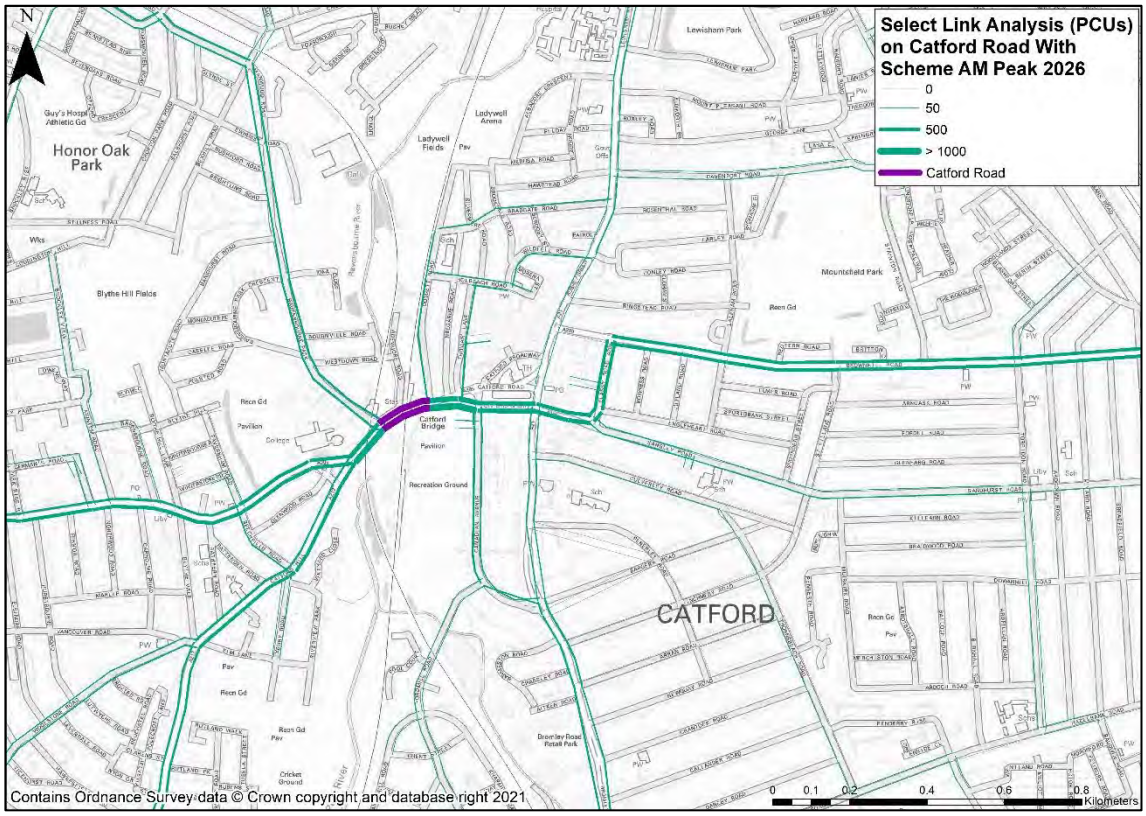


Figure 4-10: 2026 AM Peak With Scheme A205 Brownhill Road Select Link

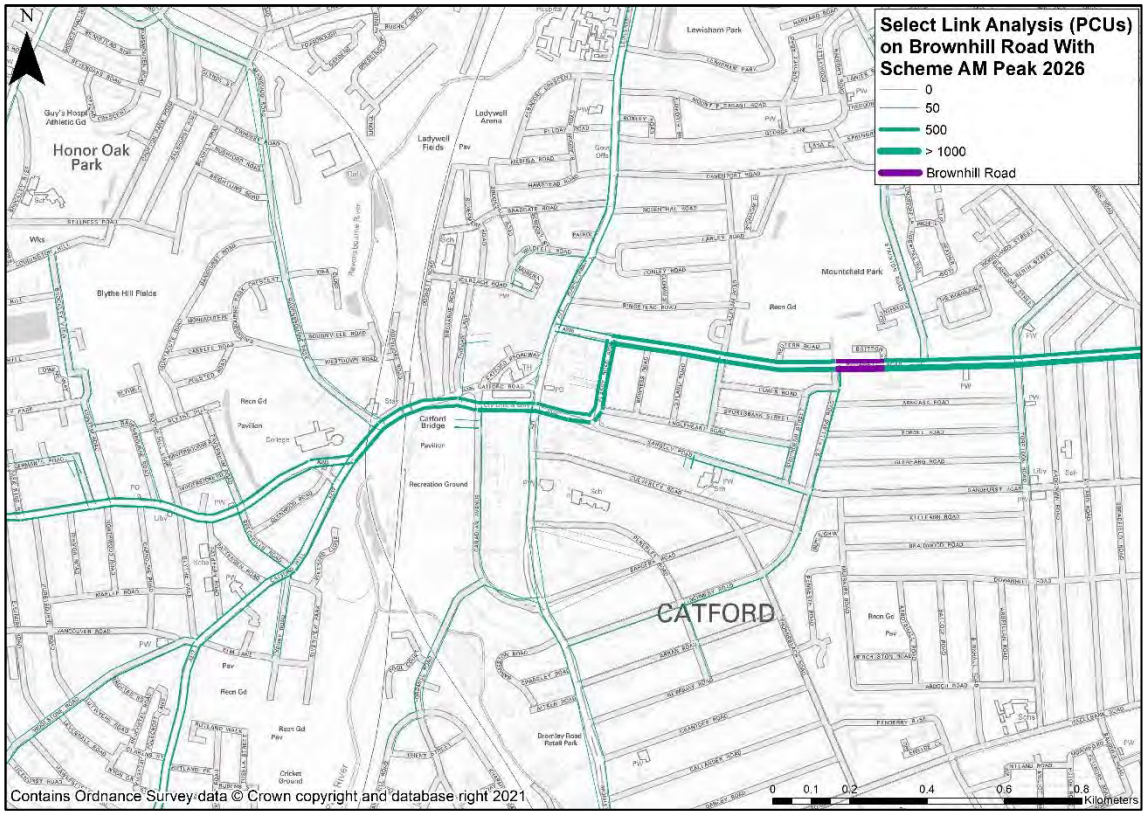


Figure 4-11: 2026 AM Peak With Scheme A21 Rushey Green Select Link

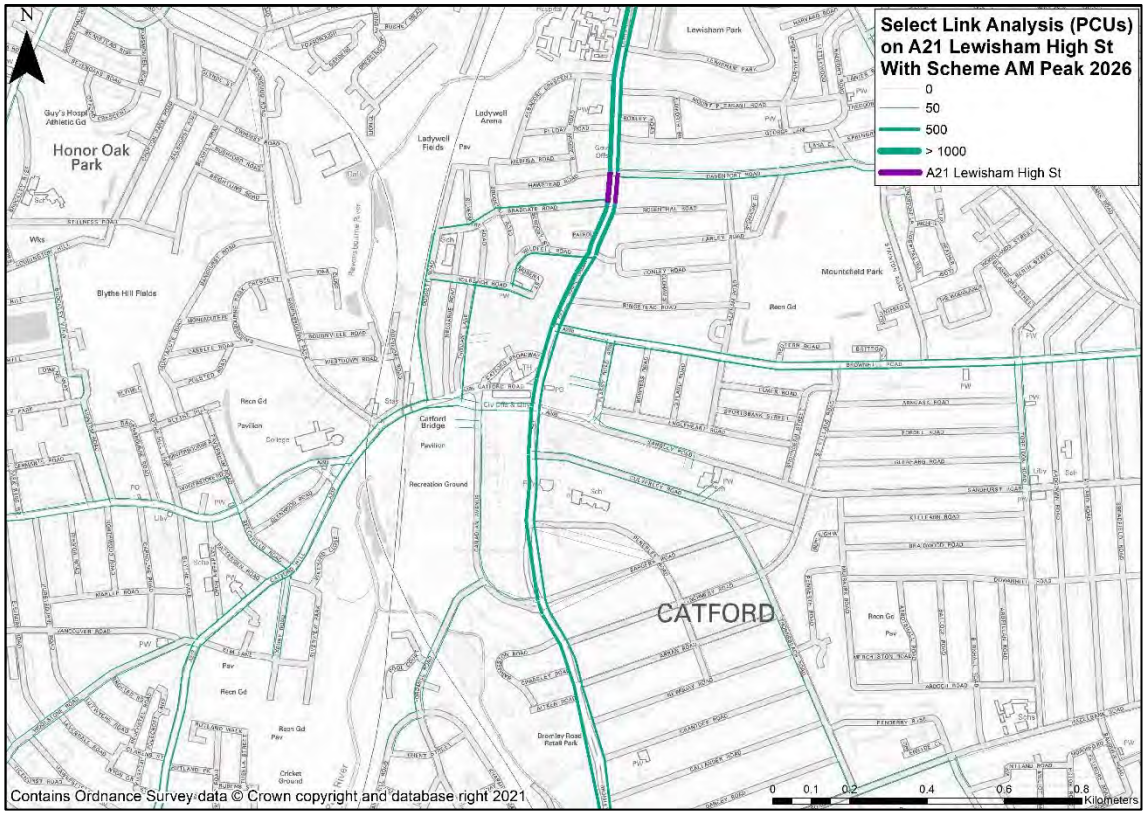
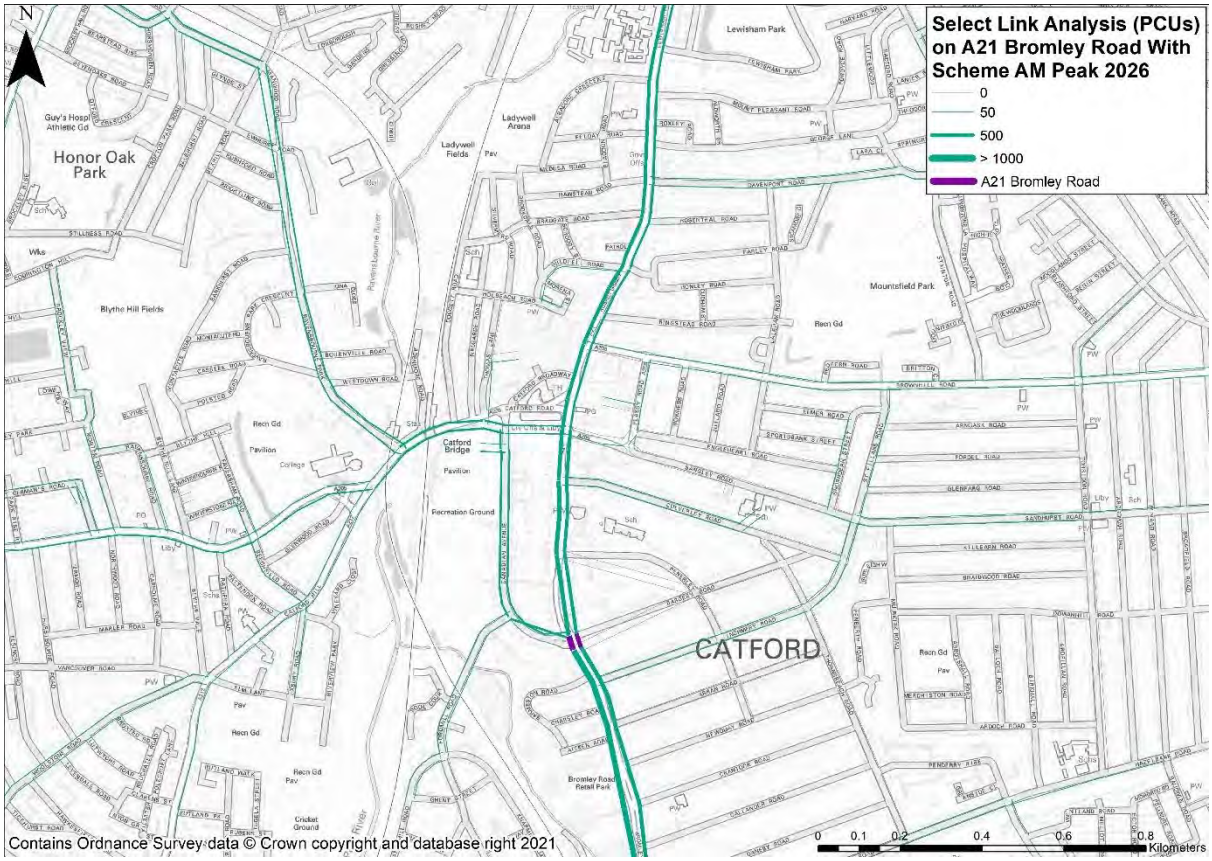


Figure 4-12: 2026 AM Peak With Scheme A21 Bromley Road Select Link



4.6 Journey time analysis

4.6.1 As seen in Section 4.5 the scheme brings about some changes in routeing through the gyratory which means that the scheme will generate journey distance benefits for certain movements. In some cases this will also result in journey time benefits however this will depend on the extent to which this is outweighed by the general increase in delay experienced at junctions around the scheme presented in Section 4.4.

4.6.2 Figure 4-15 to Figure 4-18 demonstrate the impact on journey times for a selection of movements through the gyratory in the 2026 AM Peak, comparing the Without Scheme scenario with the With Scheme scenario. The routes for which the analysis has been undertaken are shown in Figure 4-13 and Figure 4-14.

4.6.3 For three out of four routes, the distance benefit brought about by the scheme is minimal, and therefore in most cases there is a small journey time disbenefit brought about by additional delay at the junctions. However, for the A21 Southbound route, there is a distance benefit of 350m and therefore a journey time benefit of one minute. This balance of increased delay and, in some cases, more efficient routeing will be borne out in the TUBA assessment reported on in the TUBA Assessment Report.

4.6.4 The journey time patterns for these routes are broadly similar in the Interpeak and PM Peak, however the A205 Eastbound route in the PM Peak shows faster journey times in the With Scheme scenario than the Without Scheme, as shown in Figure 4-19. The With Scheme route is just over a minute faster that the Without Scheme route.

Figure 4-13: Without Scheme Scenario Routes

Figure 4-14: With Scheme Scenario Routes

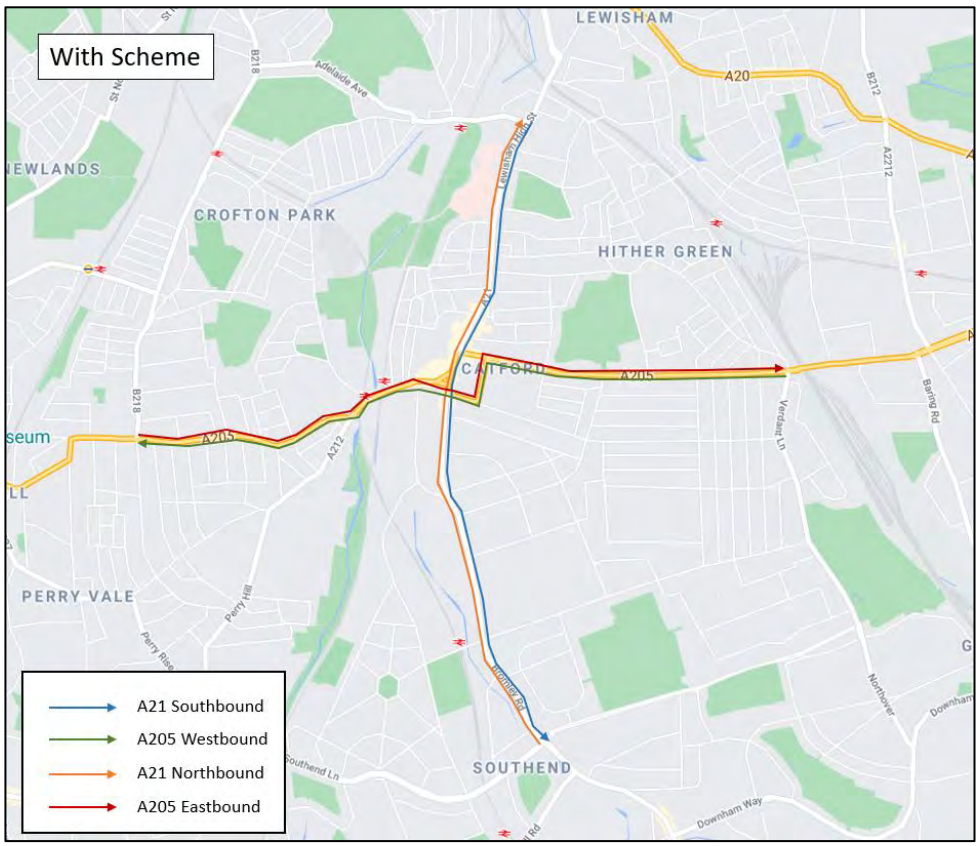


Figure 4-15: 2026 AM Peak Journey Times – A21 Southbound

Figure 4-16: 2026 AM Peak Journey Times – A205 Westbound

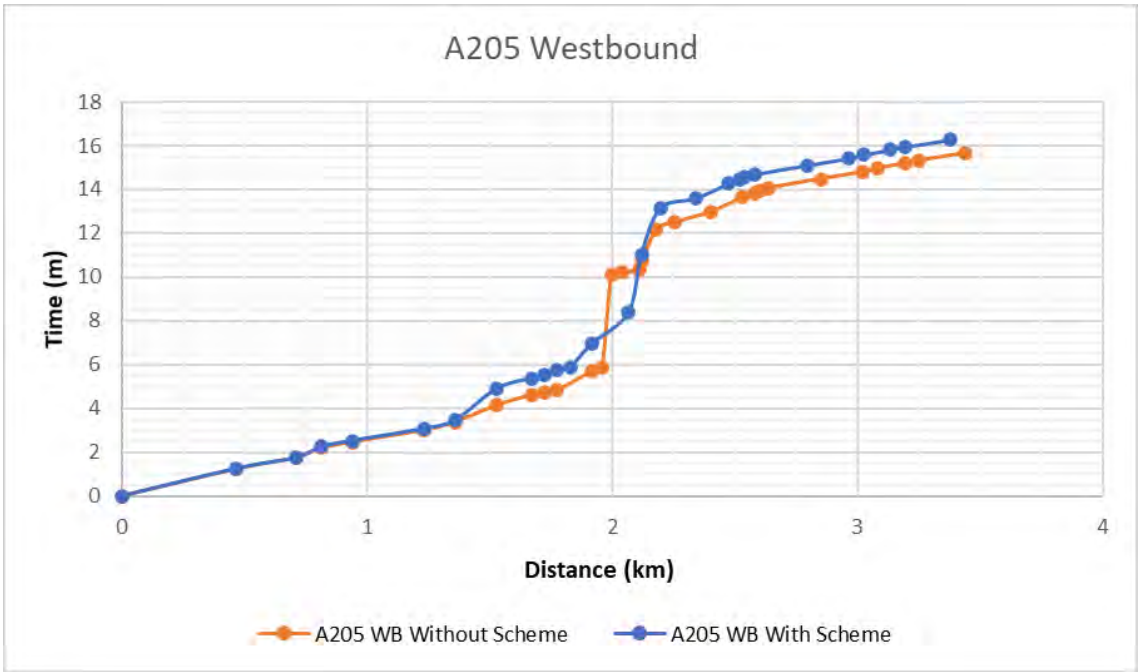


Figure 4-17: 2026 AM Peak Journey Times – A21 Northbound

Figure 4-18: 2026 AM Peak Journey Times – A205 Eastbound

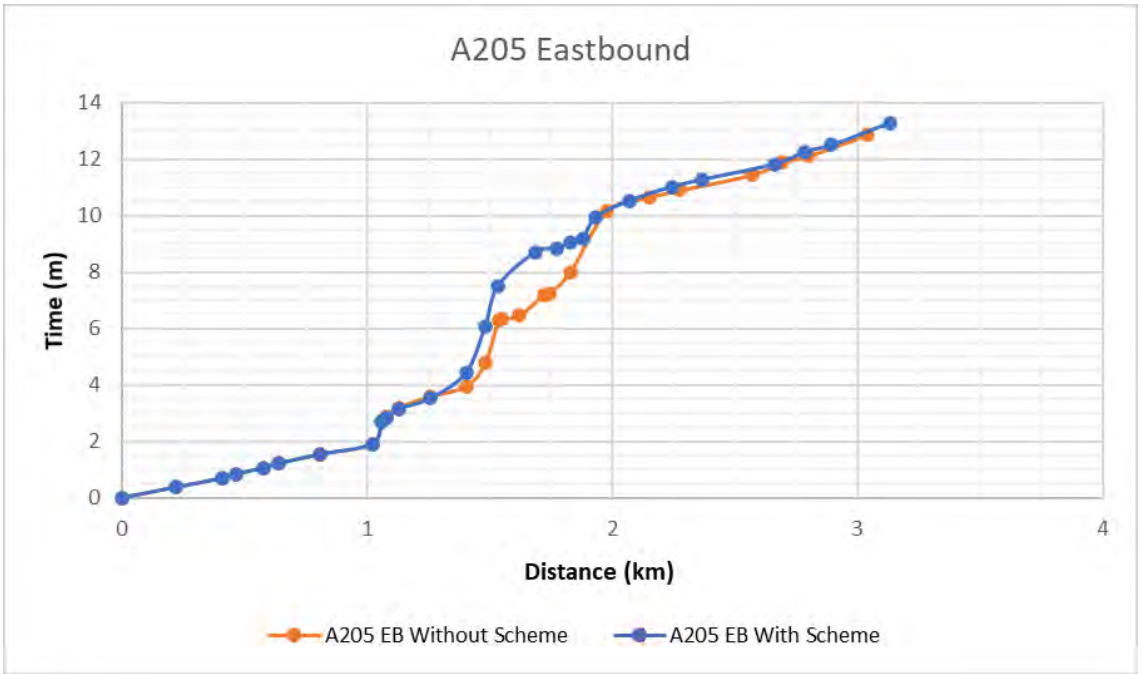
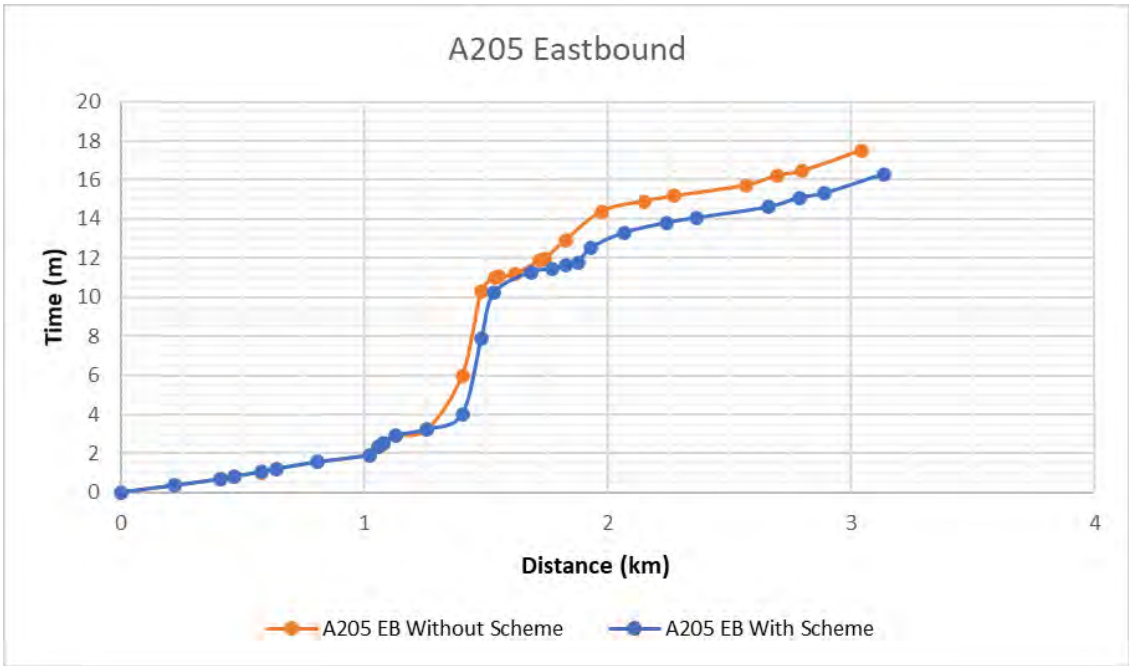


Figure 4-19: 2026 PM Peak Journey Times – A205 Eastbound



5. TAG High/Low Growth Sensitivity Testing

5.1 Introduction

5.1.1 Stress testing was undertaken by increasing and decreasing core matrix growth by a proportion of the base year demand and evaluating the effect on the model results in accordance with TAG Unit M4 guidance.

5.1.2 The formula applied to each forecast year matrix is:

High/Low Growth Scenario = Core Demand ± (N x P x Base Demand)

where

N = the square root of the number of years between forecast and base year; and

P = 0.025 (2.5% reflects uncertainty around annual forecasts from the National Transport Model)

5.1.3 Table 5-1 present the proportion of base year demand applied to the core demand in order to create the high and low growth demand in each forecast year.

Table 5-1: Proportion of Base Year Demand by Forecast Year

Forecast Year	Difference from Base Year	N	P	NxP
2026	10	3.162	0.025	0.079
2031	15	3.873	0.025	0.097
2041	25	5	0.025	0.125

5.1.4 The high and low growth matrices were assigned to the Without and With Scheme networks and the findings are presented in the rest of this section.

5.2 Borough Statistics

Table 5-2 to Table 5-7 present the borough highway assignment statistics for the high and low growth scenarios, in the AM and PM Peaks for 2026 and 2041. They demonstrate the difference in traffic conditions compared to the core growth scenario, and the impact of the scheme in the high and low growth scenarios. The results are as expected, with higher levels of congestion in the high growth scenario and lower levels in the low growth scenario, compared to the core growth scenario. The impact of the scheme at borough level in the high and low growth scenarios is very similar to that seen in the core growth scenario which demonstrates a level of stability in the model's representation of the scheme.

Table 5-2: Borough Statistics by Modelled Year – With and Without Scheme, High Growth – AM Peak

Borough	Metric	2026 Without (Core Growth)	2026 Without Scheme	Change from Core	2026 With Scheme	Change from Without Scheme	2041 Without (Core Growth)	2041 Without Scheme	Change from Core	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	104,692	111,440	6%	110,574	-0.8%	110,524	119,024	14%	117,877	-1.0%
	Travel Time (pcu-hours)	6,227	7,099	14%	7,076	-0.3%	6,934	8,404	35%	8,381	-0.3%
	Average Speed (kph)	16.8	15.7	-7%	15.6	-0.5%	15.9	14.2	-16%	14.1	-0.7%
Greenwich	Travel Distance (pcu-km)	206,861	218,838	6%	218,852	0.0%	222,445	240,504	16%	240,485	0.0%
	Travel Time (pcu-hours)	8,694	9,805	13%	9,816	0.1%	9,662	11,602	33%	11,629	0.2%
	Average Speed (kph)	23.8	22.3	-6%	22.3	-0.1%	23.0	20.7	-13%	20.7	-0.2%
Bromley	Travel Distance (pcu-km)	261,970	276,478	6%	276,557	0.0%	277,612	299,925	14%	300,054	0.0%
	Travel Time (pcu-hours)	11,122	12,528	13%	12,536	0.1%	12,744	15,443	39%	15,459	0.1%
	Average Speed (kph)	23.6	22.1	-6%	22.1	0.0%	21.8	19.4	-18%	19.4	-0.1%
Southwark	Travel Distance (pcu-km)	90,290	96,314	7%	96,367	0.1%	97,524	107,548	19%	107,631	0.1%
	Travel Time (pcu-hours)	5,271	5,663	7%	5,664	0.0%	5,803	6,485	23%	6,491	0.1%
	Average Speed (kph)	17.1	17.0	-1%	17.0	0.0%	16.8	16.6	-3%	16.6	0.0%

Table 5-3: Borough Statistics by Modelled Year – With and Without Scheme, High Growth – Interpeak

Borough	Metric	2026 Without (Core Growth)	2026 Without Scheme	Change from Core	2026 With Scheme	Change from Without Scheme	2041 Without (Core Growth)	2041 Without Scheme	Change from Core	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	87,745	93,887	7%	93,265	-0.7%	93,746	103,035	17%	102,331	-0.7%
	Travel Time (pcu-hours)	4,380	4,824	10%	4,808	-0.3%	4,812	5,622	28%	5,602	-0.4%
	Average Speed (kph)	20.0	19.5	-3%	19.4	-0.3%	19.5	18.3	-8%	18.3	-0.3%
Greenwich	Travel Distance (pcu-km)	171,907	182,797	6%	182,820	0.0%	185,299	201,099	17%	201,722	0.3%
	Travel Time (pcu-hours)	5,789	6,351	10%	6,351	0.0%	6,363	7,424	28%	7,323	-1.4%
	Average Speed (kph)	29.7	28.8	-3%	28.8	0.0%	29.1	27.1	-9%	27.5	1.7%
Bromley	Travel Distance (pcu-km)	195,364	208,588	7%	208,594	0.0%	213,079	233,422	19%	233,496	0.0%
	Travel Time (pcu-hours)	6,963	7,567	9%	7,568	0.0%	7,701	8,751	26%	8,779	0.3%
	Average Speed (kph)	28.1	27.6	-2%	27.6	0.0%	27.7	26.7	-5%	26.6	-0.3%
Southwark	Travel Distance (pcu-km)	78,690	83,464	6%	83,496	0.0%	83,807	91,567	16%	91,596	0.0%
	Travel Time (pcu-hours)	5,271	5,663	7%	5,664	0.0%	5,803	6,485	23%	6,491	0.1%
	Average Speed (kph)	17.1	17.0	-1%	17.0	0.0%	16.8	16.6	-3%	16.6	0.0%

Table 5-4: Borough Statistics by Modelled Year – With and Without Scheme, High Growth – PM Peak

Borough	Metric	2026 Without (Core Growth)	2026 Without Scheme	Change from Core	2026 With Scheme	Change from Without Scheme	2041 Without (Core Growth)	2041 Without Scheme	Change from Core	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	102,070	108,495	6%	107,977	-0.5%	107,237	116,086	14%	115,258	-0.7%
	Travel Time (pcu-hours)	5,776	6,597	14%	6,545	-0.8%	6,416	8,005	39%	7,954	-0.6%
	Average Speed (kph)	17.7	16.4	-7%	16.5	0.3%	16.7	14.5	-18%	14.5	-0.1%
Greenwich	Travel Distance (pcu-km)	212,485	224,184	6%	224,065	-0.1%	225,355	241,123	13%	241,116	0.0%
	Travel Time (pcu-hours)	8,592	9,785	14%	9,766	-0.2%	9,438	11,825	38%	11,797	-0.2%
	Average Speed (kph)	24.7	22.9	-7%	22.9	0.1%	23.9	20.4	-18%	20.4	0.2%
Bromley	Travel Distance (pcu-km)	253,560	270,164	7%	270,310	0.1%	271,335	297,316	17%	297,483	0.1%
	Travel Time (pcu-hours)	10,335	11,564	12%	11,557	-0.1%	11,713	14,050	36%	14,056	0.0%
	Average Speed (kph)	24.5	23.4	-5%	23.4	0.1%	23.2	21.2	-14%	21.2	0.0%
Southwark	Travel Distance (pcu-km)	87,015	92,399	6%	92,576	0.2%	90,294	99,110	14%	99,177	0.1%
	Travel Time (pcu-hours)	4,855	5,215	7%	5,215	0.0%	5,197	5,799	19%	5,800	0.0%
	Average Speed (kph)	17.9	17.7	-1%	17.8	0.2%	17.4	17.1	-5%	17.1	0.1%

Table 5-5: Borough Statistics by Modelled Year – With and Without Scheme, Low Growth – AM Peak

Borough	Metric	2026 Without (Core Growth)	2026 Without Scheme	Change from Core	2026 With Scheme	Change from Without Scheme	2041 Without (Core Growth)	2041 Without Scheme	Change from Core	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	104,692	98,038	-6%	97,537	-0.5%	110,524	100,127	-4%	99,552	-0.6%
	Travel Time (pcu-hours)	6,227	5,494	-12%	5,464	-0.5%	6,934	5,698	-9%	5,673	-0.4%
	Average Speed (kph)	16.8	17.8	6%	17.9	0.0%	15.9	17.6	5%	17.5	-0.1%
Greenwich	Travel Distance (pcu-km)	206,861	194,749	-6%	194,750	0.0%	222,445	203,898	-1%	203,889	0.0%
	Travel Time (pcu-hours)	8,694	7,761	-11%	7,759	0.0%	9,662	8,021	-8%	8,013	-0.1%
	Average Speed (kph)	23.8	25.1	5%	25.1	0.0%	23.0	25.4	7%	25.4	0.1%
Bromley	Travel Distance (pcu-km)	261,970	245,239	-6%	245,207	0.0%	277,612	252,674	-4%	252,644	0.0%
	Travel Time (pcu-hours)	11,122	9,911	-11%	9,908	0.0%	12,744	10,534	-5%	10,535	0.0%
	Average Speed (kph)	23.6	24.7	5%	24.7	0.0%	21.8	24.0	2%	24.0	0.0%
Southwark	Travel Distance (pcu-km)	90,290	84,206	-7%	84,259	0.1%	97,524	87,609	-3%	87,633	0.0%
	Travel Time (pcu-hours)	5,271	4,876	-7%	4,878	0.0%	5,803	5,122	-3%	5,123	0.0%
	Average Speed (kph)	17.1	17.3	1%	17.3	0.0%	16.8	17.1	0%	17.1	0.0%

Table 5-6: Borough Statistics by Modelled Year – With and Without Scheme, Low Growth – Interpeak

Borough	Metric	2026 Without (Core Growth)	2026 Without Scheme	Change from Core	2026 With Scheme	Change from Without Scheme	2041 Without (Core Growth)	2041 Without Scheme	Change from Core	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	87,745	81,561	-7%	81,038	-0.6%	93,746	84,059	-4%	83,492	-0.7%
	Travel Time (pcu-hours)	4,380	3,973	-9%	3,961	-0.3%	4,812	4,138	-6%	4,116	-0.5%
	Average Speed (kph)	20.0	20.5	2%	20.5	-0.3%	19.5	20.3	1%	20.3	-0.1%
Greenwich	Travel Distance (pcu-km)	171,907	160,865	-6%	160,847	0.0%	185,299	168,594	-2%	168,539	0.0%
	Travel Time (pcu-hours)	5,789	5,258	-9%	5,254	-0.1%	6,363	5,518	-5%	5,515	-0.1%
	Average Speed (kph)	29.7	30.6	3%	30.6	0.1%	29.1	30.6	3%	30.6	0.0%
Bromley	Travel Distance (pcu-km)	195,364	181,793	-7%	181,804	0.0%	213,079	192,115	-2%	192,168	0.0%
	Travel Time (pcu-hours)	6,963	6,392	-8%	6,392	0.0%	7,701	6,761	-3%	6,770	0.1%
	Average Speed (kph)	28.1	28.4	1%	28.4	0.0%	27.7	28.4	1%	28.4	-0.1%
Southwark	Travel Distance (pcu-km)	78,690	73,674	-6%	73,694	0.0%	83,807	75,850	-4%	75,865	0.0%
	Travel Time (pcu-hours)	4,251	3,957	-7%	3,958	0.0%	4,637	4,154	-2%	4,154	0.0%
	Average Speed (kph)	18.5	18.6	1%	18.6	0.0%	18.1	18.3	-1%	18.3	0.0%

Table 5-7: Borough Statistics by Modelled Year – With and Without Scheme, Low Growth – PM Peak

Borough	Metric	2026 Without (Core Growth)	2026 Without Scheme	Change from Core	2026 With Scheme	Change from Without Scheme	2041 Without (Core Growth)	2041 Without Scheme	Change from Core	2041 With Scheme	Change from Without Scheme
Lewisham	Travel Distance (pcu-km)	102,070	95,329	-7%	94,714	-0.6%	107,237	96,762	-5%	96,060	-0.7%
	Travel Time (pcu-hours)	5,776	5,096	-12%	5,075	-0.4%	6,416	5,238	-9%	5,233	-0.1%
	Average Speed (kph)	17.7	18.7	6%	18.7	-0.2%	16.7	18.5	5%	18.4	-0.6%
Greenwich	Travel Distance (pcu-km)	212,485	199,002	-6%	199,000	0.0%	225,355	206,861	-3%	206,785	0.0%
	Travel Time (pcu-hours)	8,592	7,629	-11%	7,626	0.0%	9,438	7,794	-9%	7,786	-0.1%
	Average Speed (kph)	24.7	26.1	5%	26.1	0.0%	23.9	26.5	7%	26.6	0.1%
Bromley	Travel Distance (pcu-km)	253,560	237,230	-6%	237,254	0.0%	271,335	245,748	-3%	245,749	0.0%
	Travel Time (pcu-hours)	10,335	9,294	-10%	9,298	0.0%	11,713	9,902	-4%	9,917	0.2%
	Average Speed (kph)	24.5	25.5	4%	25.5	0.0%	23.2	24.8	1%	24.8	-0.2%
Southwark	Travel Distance (pcu-km)	87,015	81,352	-7%	81,360	0.0%	90,294	81,410	-6%	81,432	0.0%
	Travel Time (pcu-hours)	4,855	4,508	-7%	4,508	0.0%	5,197	4,622	-5%	4,624	0.1%
	Average Speed (kph)	17.9	18.0	1%	18.0	0.0%	17.4	17.6	-2%	17.6	0.0%

5.3 Traffic Flow Forecasts

5.3.1 Figure 5-1 to Figure 5-4 show the forecast flow differences comparing the high and low growth scenarios against the core growth scenarios for the AM and PM Peaks in 2026. As expected, the high growth scenario exhibits modest increases in flow compared to the core scenario, with the low growth scenario exhibiting modest reductions in flow.

Figure 5-1: 2026 Without Scheme High – Core Growth Traffic Flow - AM Peak

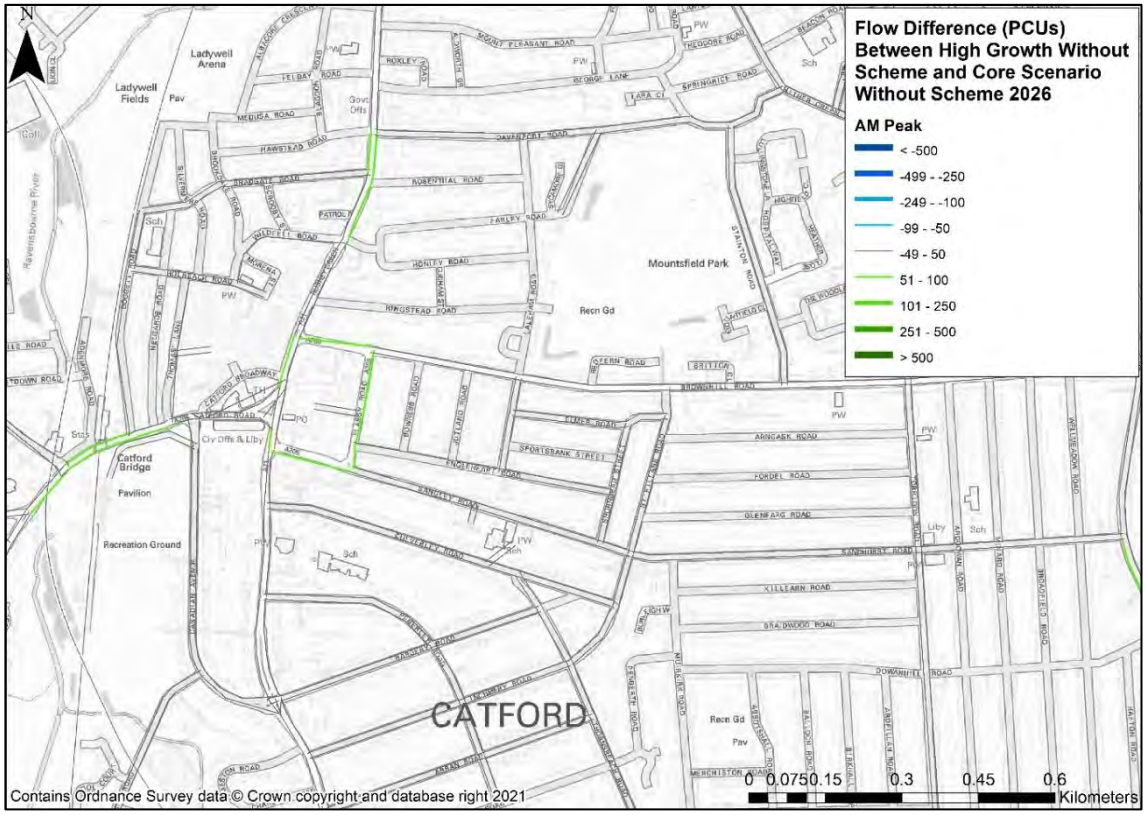


Figure 5-2: 2026 Without Scheme High – Core Growth Traffic Flow - PM Peak

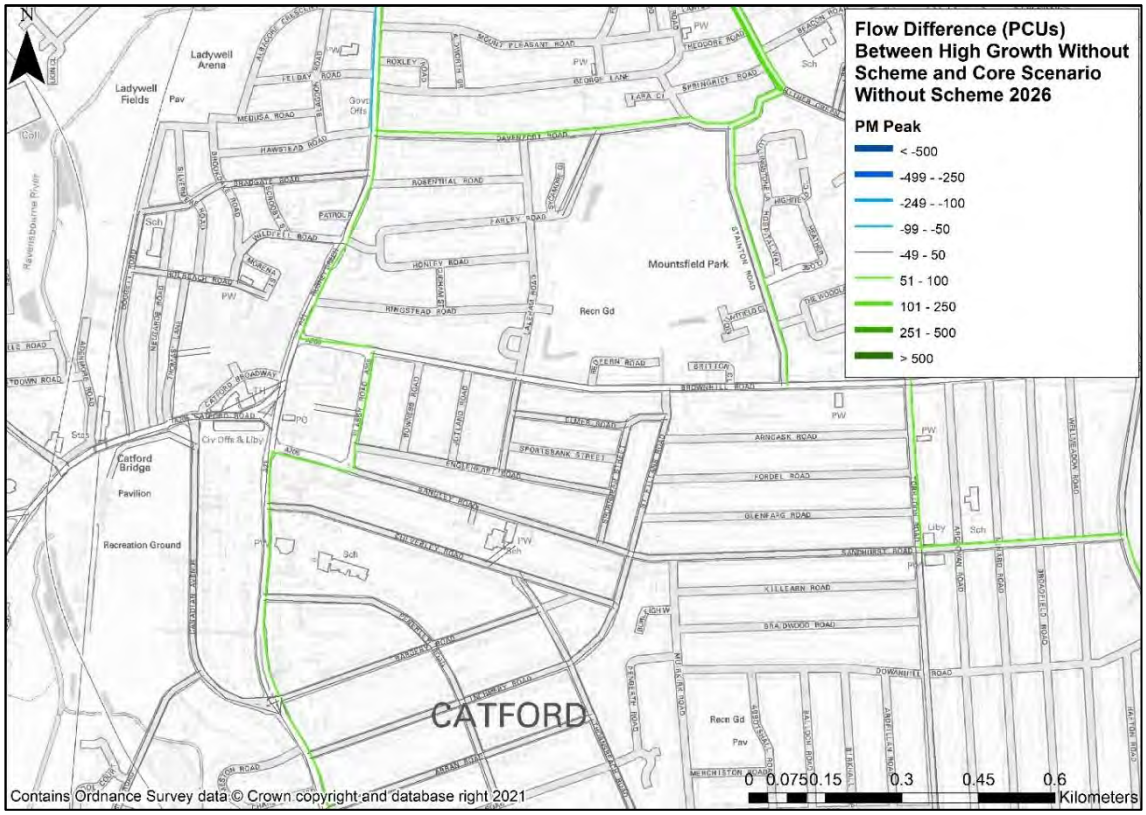


Figure 5-3: 2026 Without Scheme Low – Core Growth Traffic Flow - AM Peak

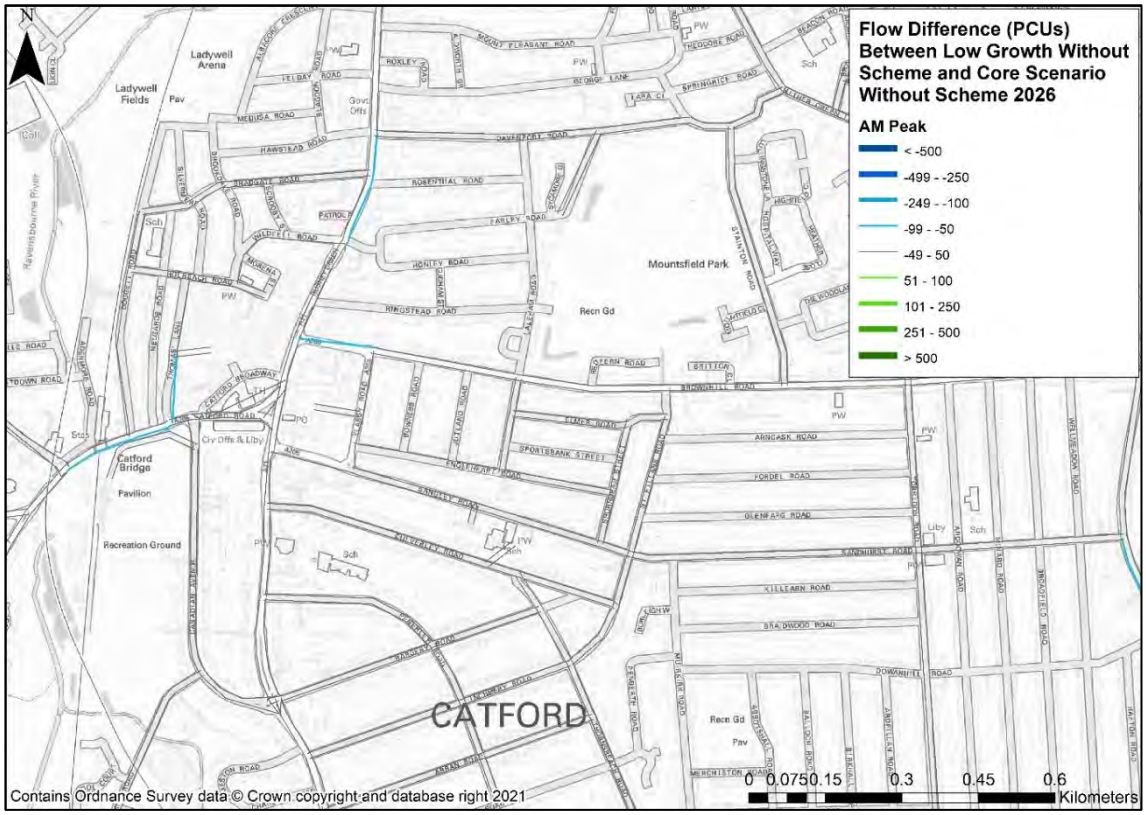
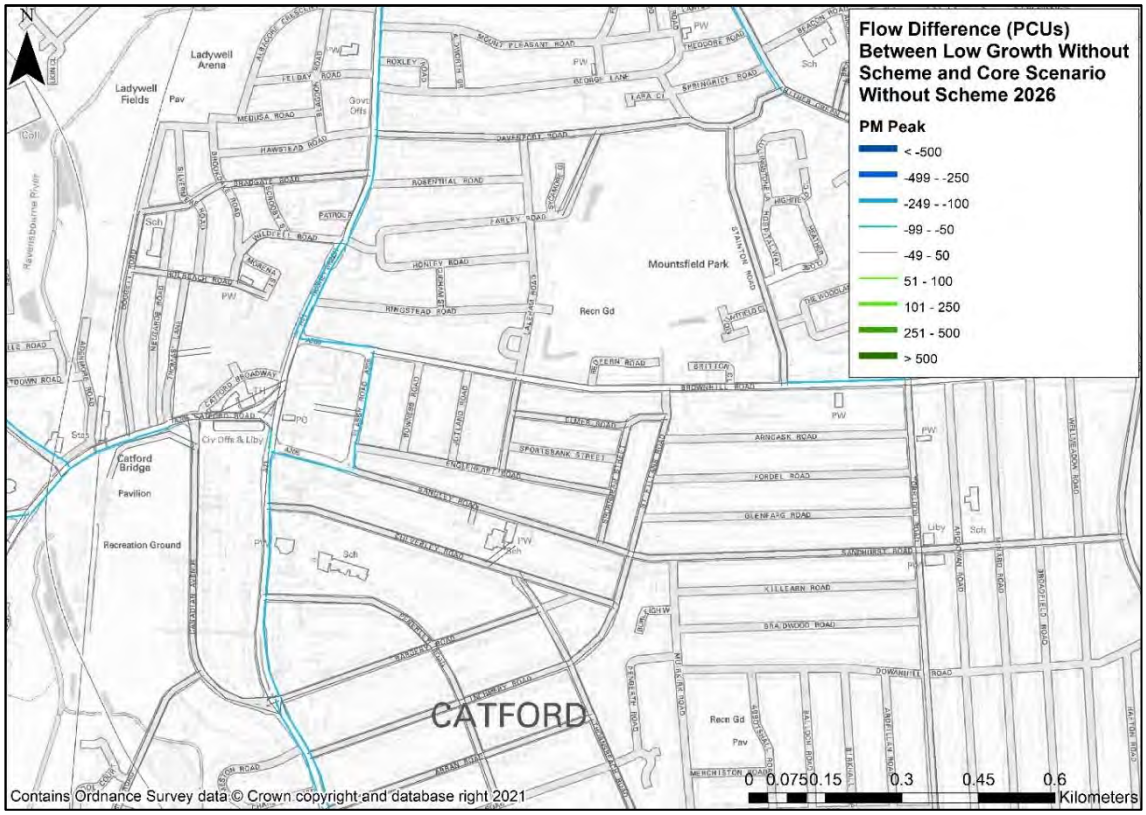


Figure 5-4: 2026 Without Scheme Low – Core Growth Traffic Flow - PM Peak



5.3.2 Figure 5-5 to Figure 5-8 show the forecast impact of the scheme in the 2026 high and low growth scenarios for the AM and PM Peaks. The scheme impact is similar to that reported on in Section 4 for the core growth scenario which suggests that the results provided by the model are stable and reliable.

Figure 5-5: 2026 With Scheme minus Without Scheme High Growth Traffic Flow - AM Peak

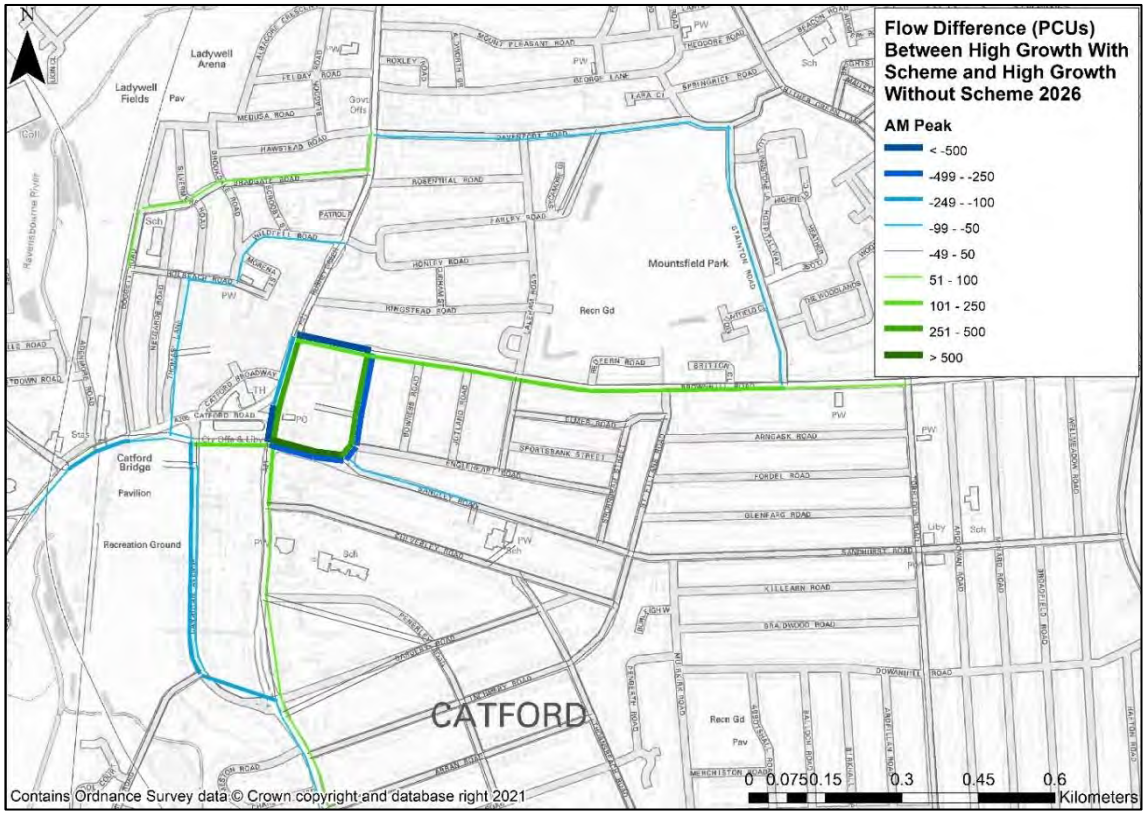


Figure 5-6: 2026 With Scheme minus Without Scheme High Growth Traffic Flow - PM Peak

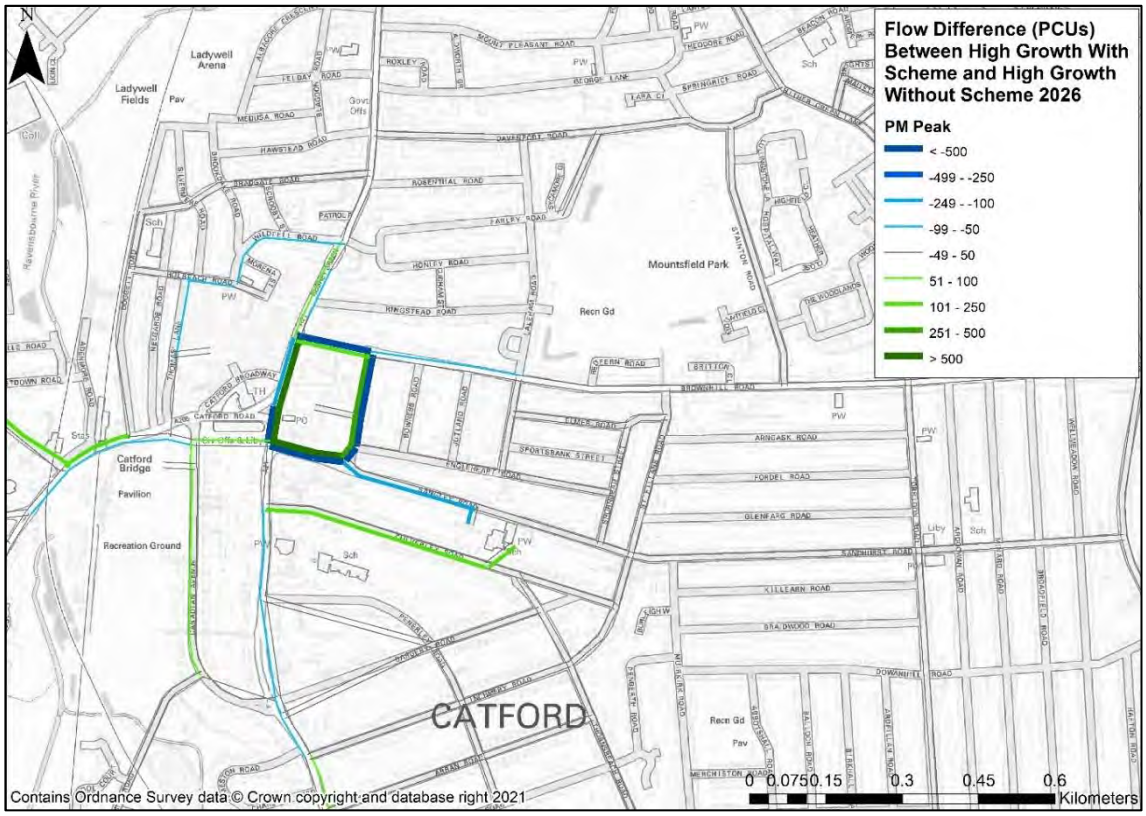


Figure 5-7: 2026 With Scheme minus Without Scheme Low Growth Traffic Flow - AM Peak

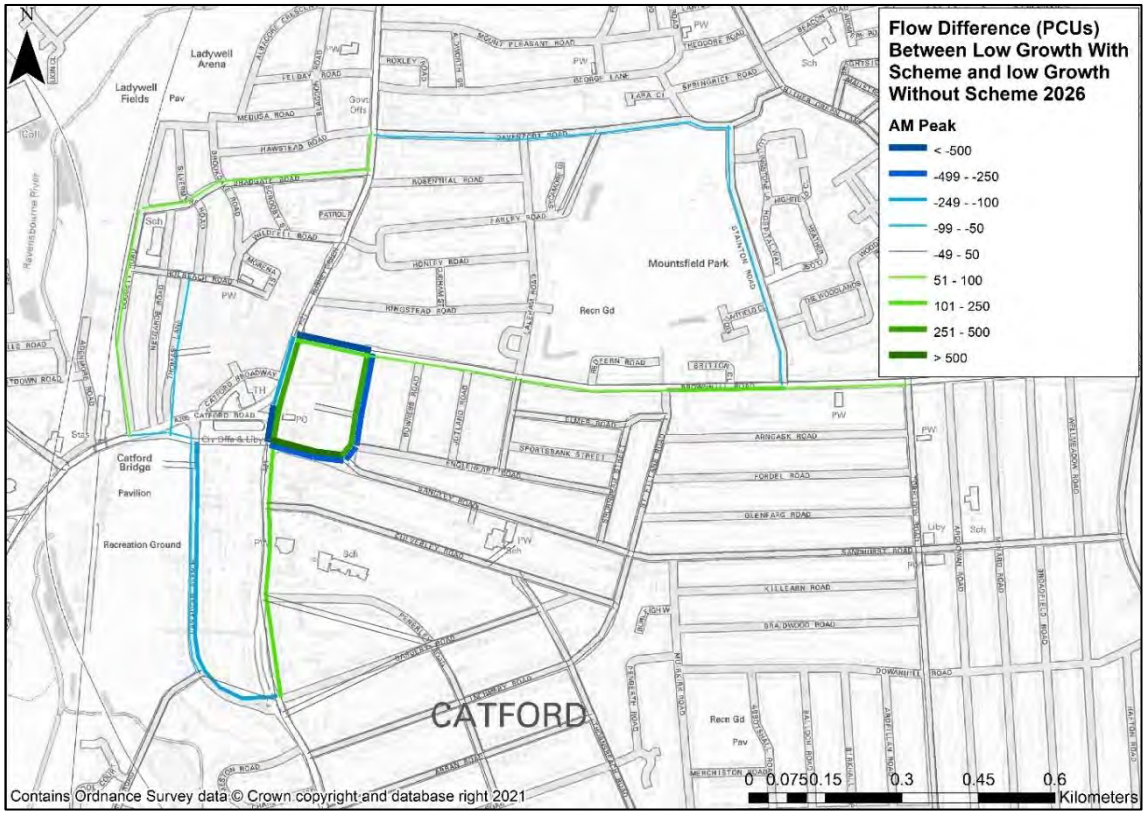
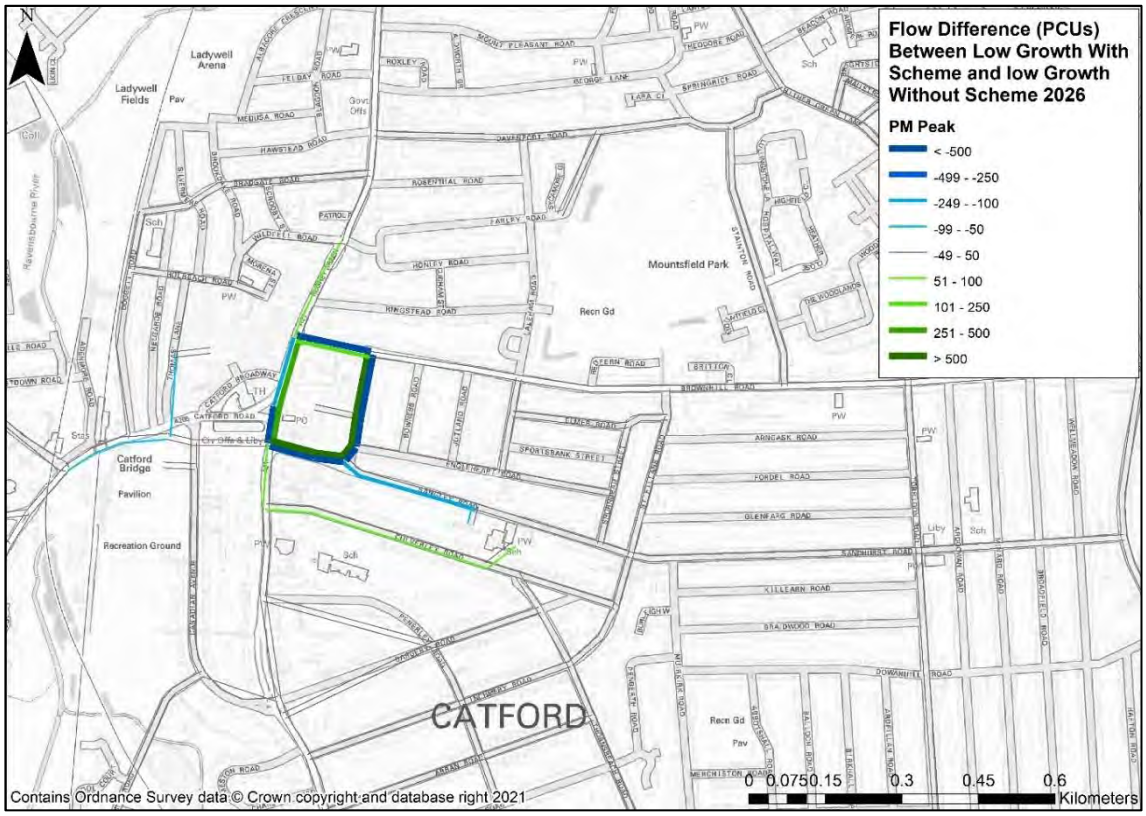


Figure 5-8: 2026 With Scheme minus Without Scheme Low Growth Traffic Flow - PM Peak



5.3.3 Figure 5-9 to Figure 5-16 show the difference in traffic flow in the high and low growth scenarios compared to the core growth scenario for the 2041 AM and PM Peaks, and the forecast impact of the scheme in the 2041 high and low growth scenarios for the AM and PM Peaks. These plots demonstrate similar results to the 2026 plots reported above, with differences in flow from the core growth scenario somewhat more pronounced, as would be expected, and the impact of the scheme remaining stable.

Figure 5-9: 2041 Without Scheme High – Core Growth Traffic Flow - AM Peak

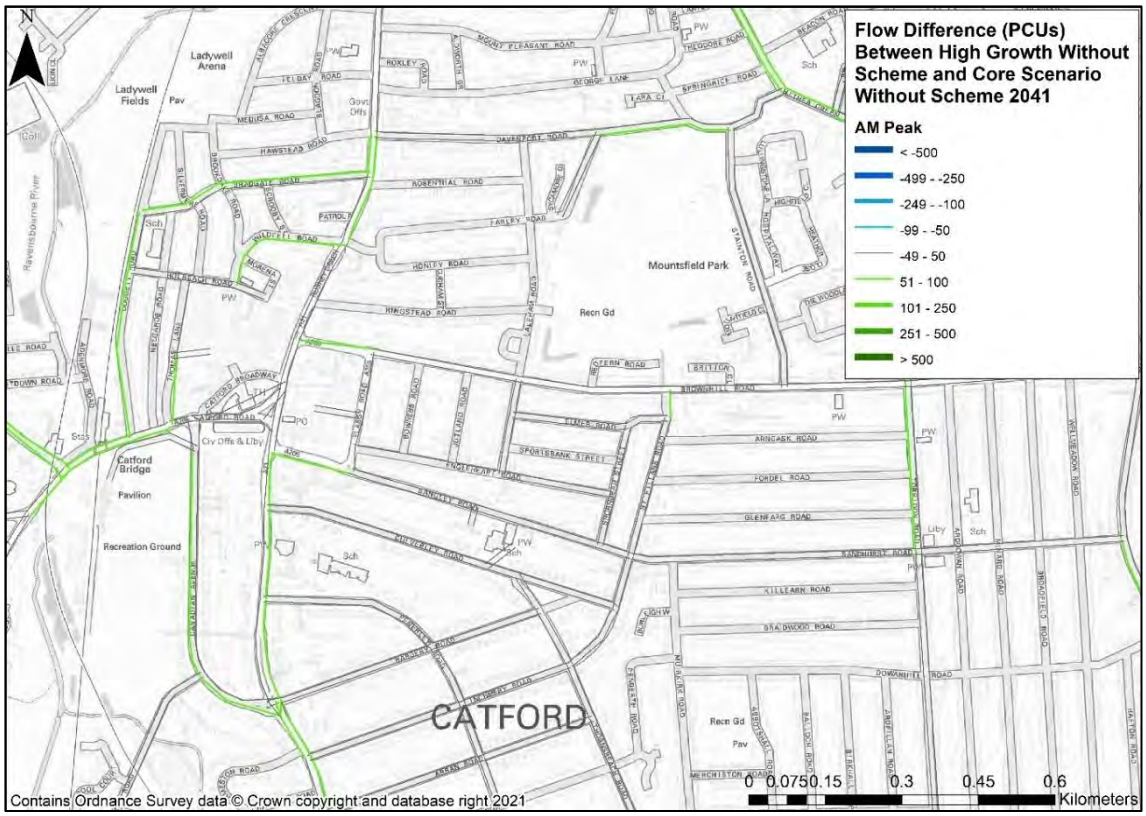


Figure 5-10: 2041 Without Scheme High – Core Growth Traffic Flow - PM Peak

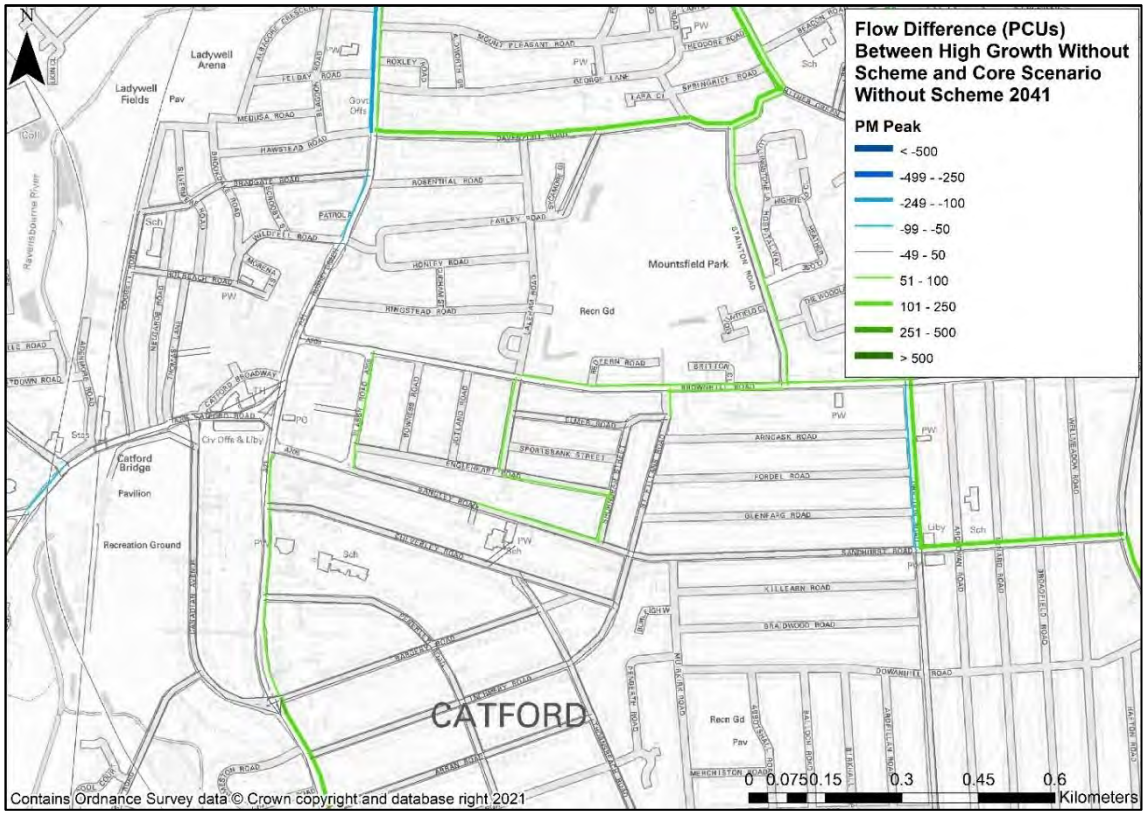


Figure 5-11: 2041 Without Scheme Low – Core Growth Traffic Flow - AM Peak

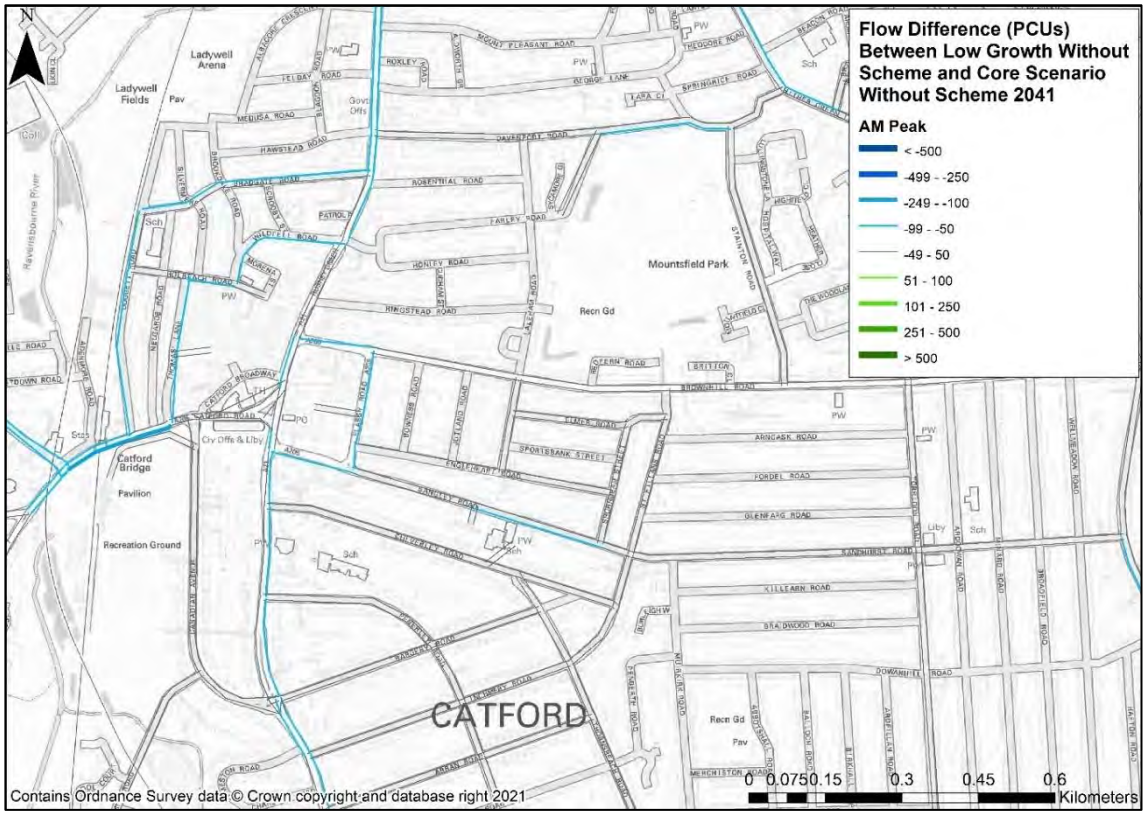


Figure 5-12: 2041 Without Scheme Low – Core Growth Traffic Flow - PM Peak

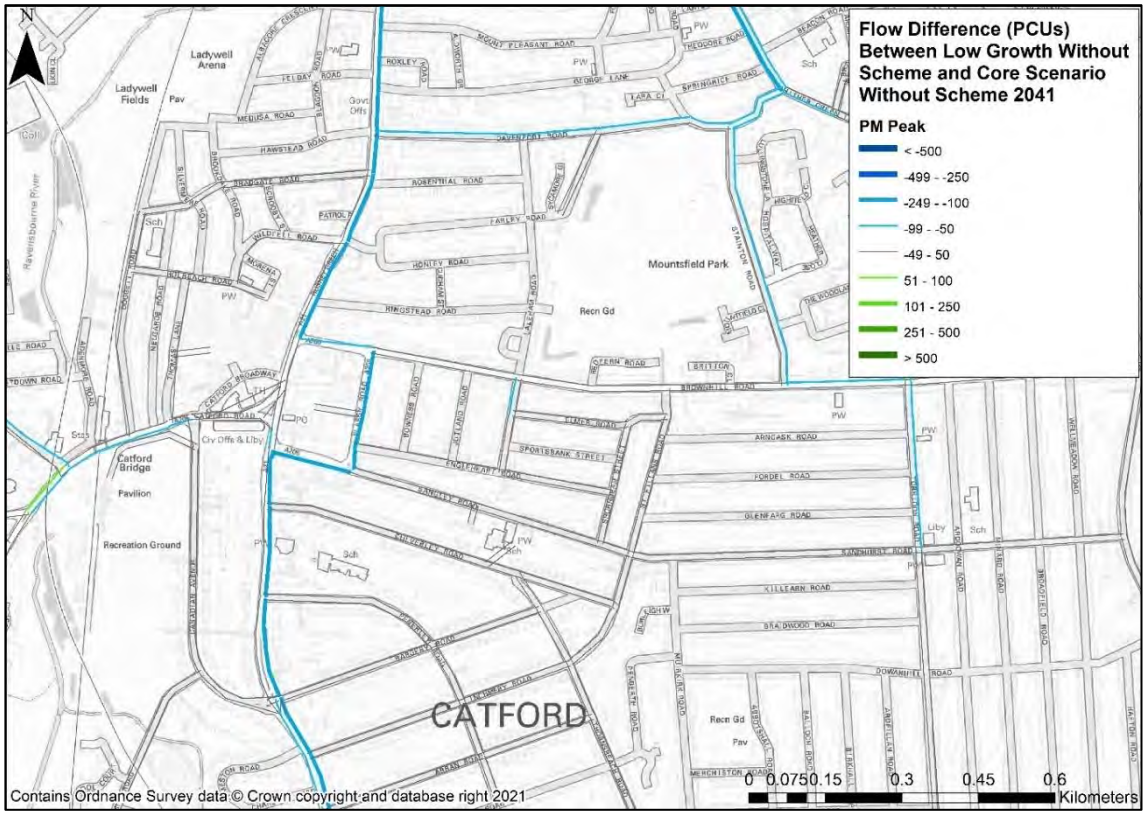


Figure 5-13: 2041 With Scheme minus Without Scheme High Growth Traffic Flow - AM Peak

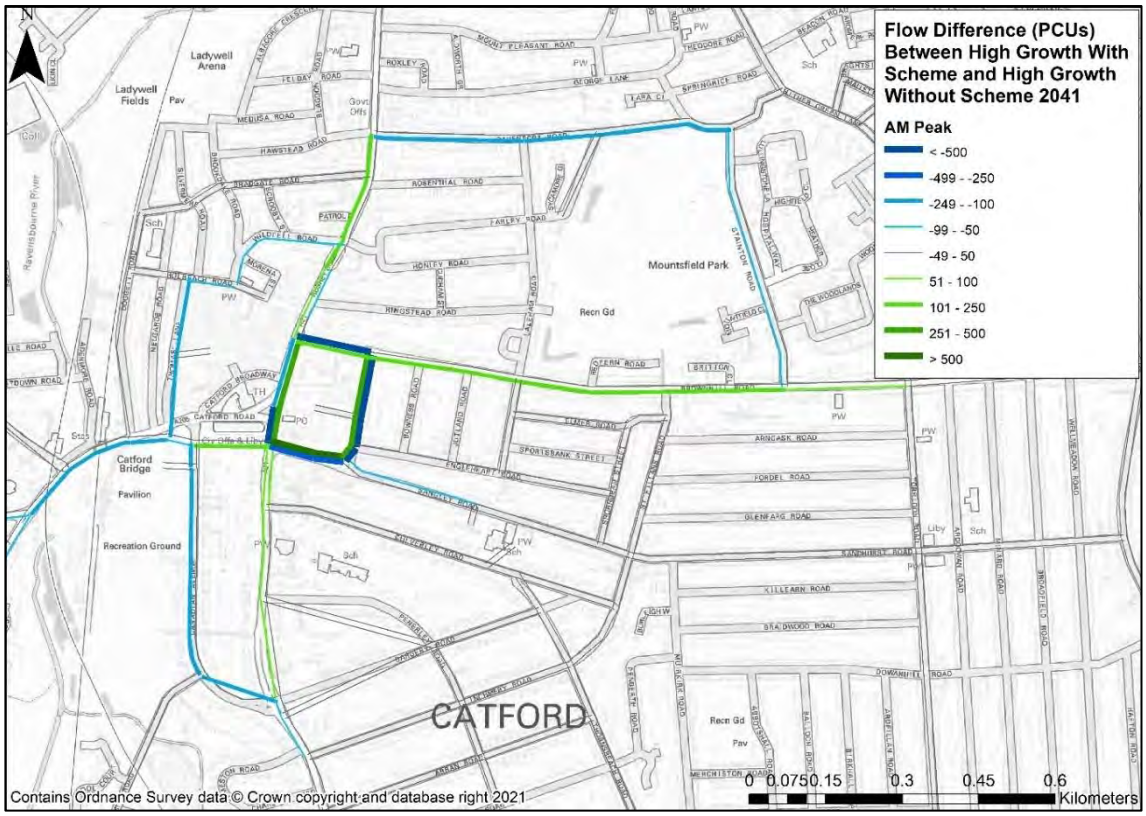


Figure 5-14: 2041 With Scheme minus Without Scheme High Growth Traffic Flow - PM Peak

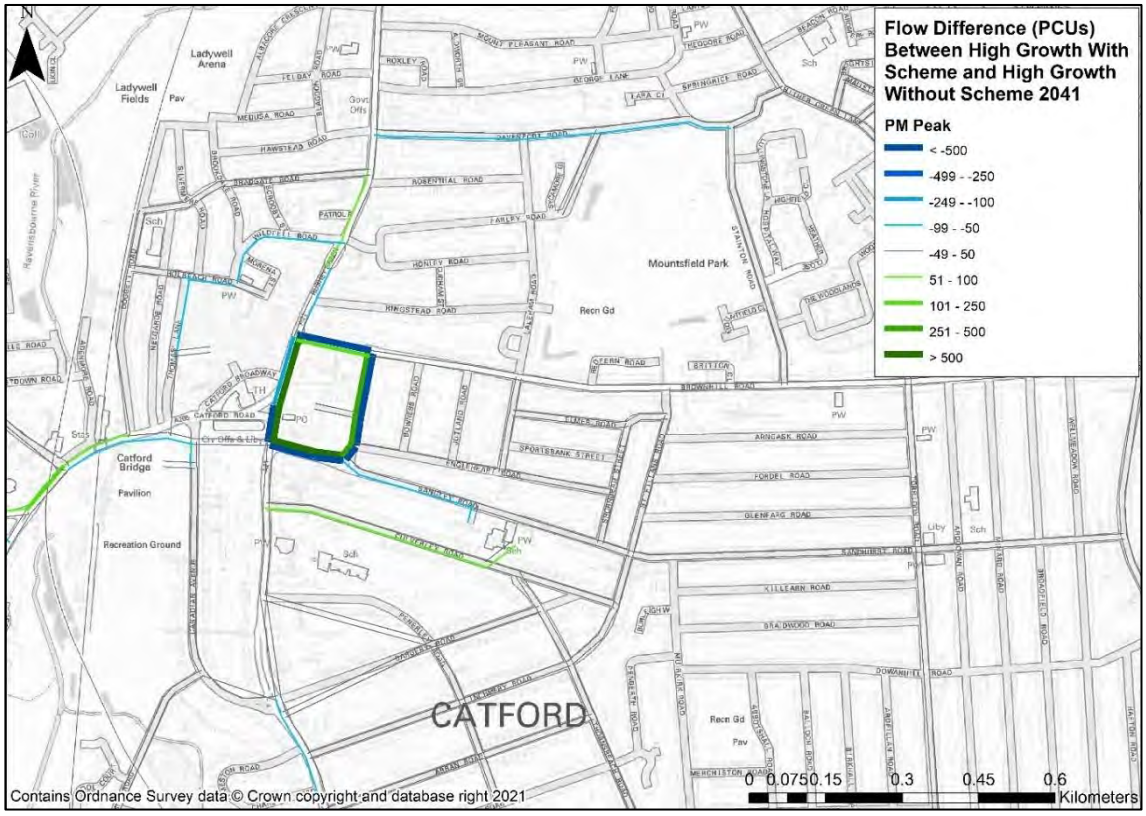


Figure 5-15: 2041 With Scheme minus Without Scheme Low Growth Traffic Flow - AM Peak

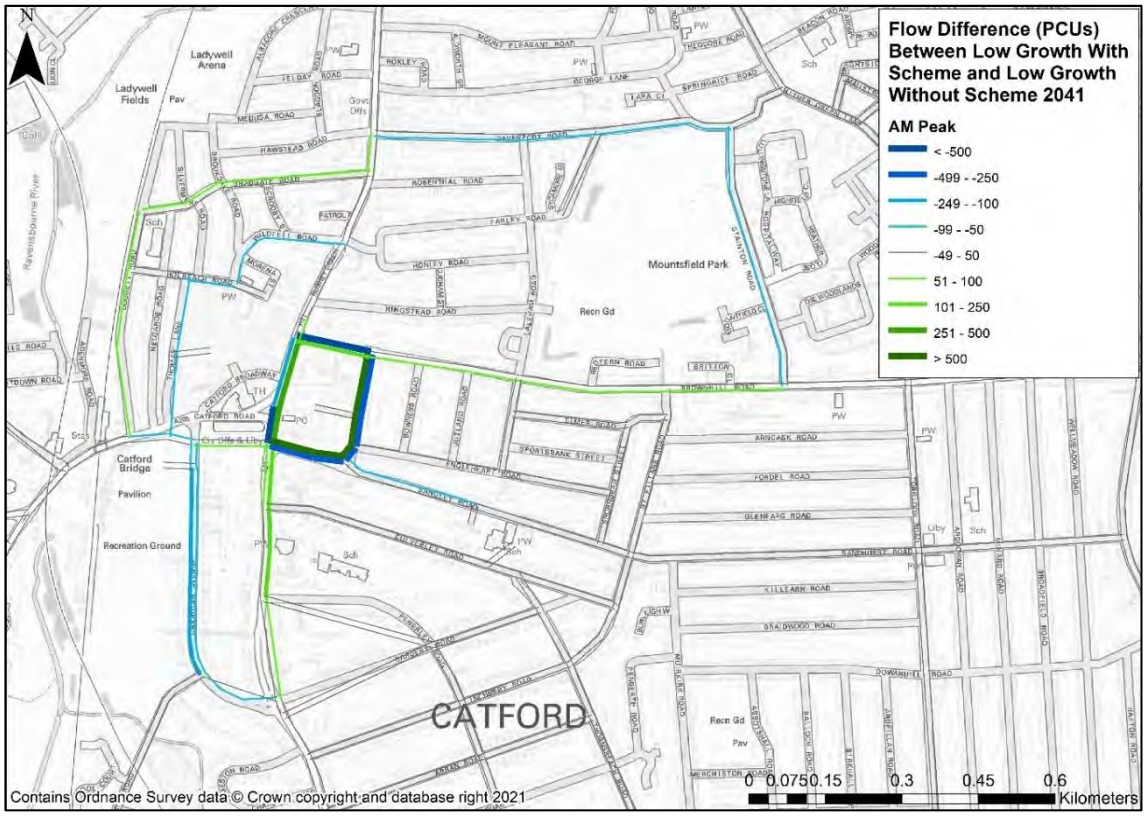
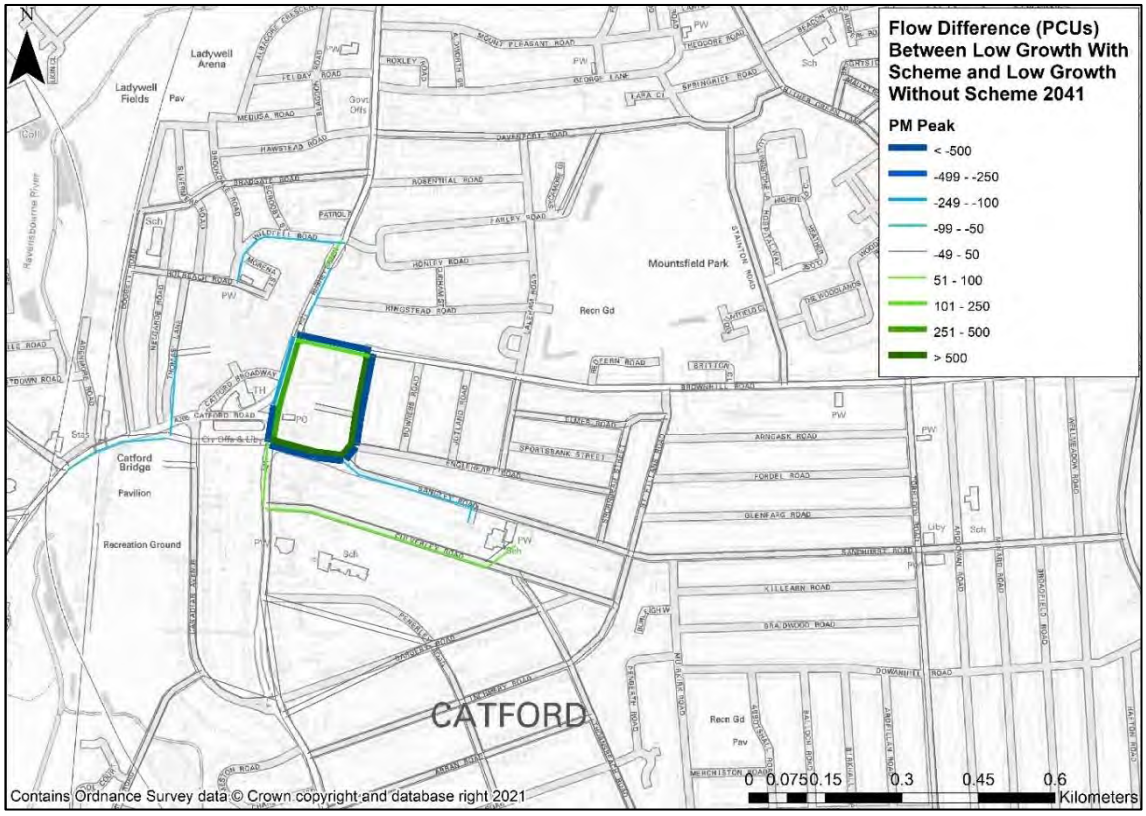


Figure 5-16: 2041 With Scheme minus Without Scheme Low Growth Traffic Flow - PM Peak



5.4 Traffic Delay Forecasts

5.4.1 Figure 5-17 to Figure 5-20 show the forecast delay differences from the core growth scenario to the low and high growth scenarios in the 2026 AM and PM Peaks. The impacts of changed growth assumptions in the AM Peak are relatively minor. However, in the PM Peak it can be seen that additional growth in the high growth scenario increases delay on the western approaches to the gyratory, and reduced growth in the low growth scenario reduces delay in the same area.

Figure 5-17: 2026 Without Scheme High – Core Growth Delay - AM Peak

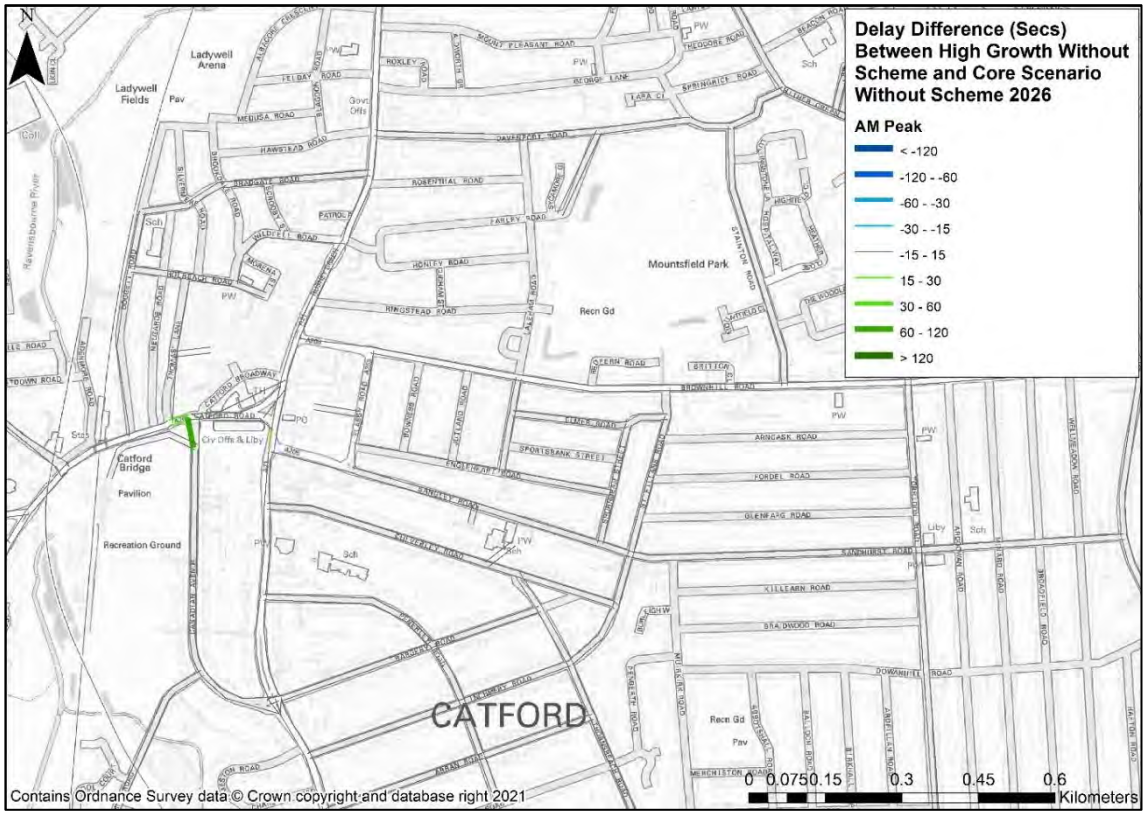


Figure 5-18: 2026 Without Scheme High – Core Growth Delay - PM Peak

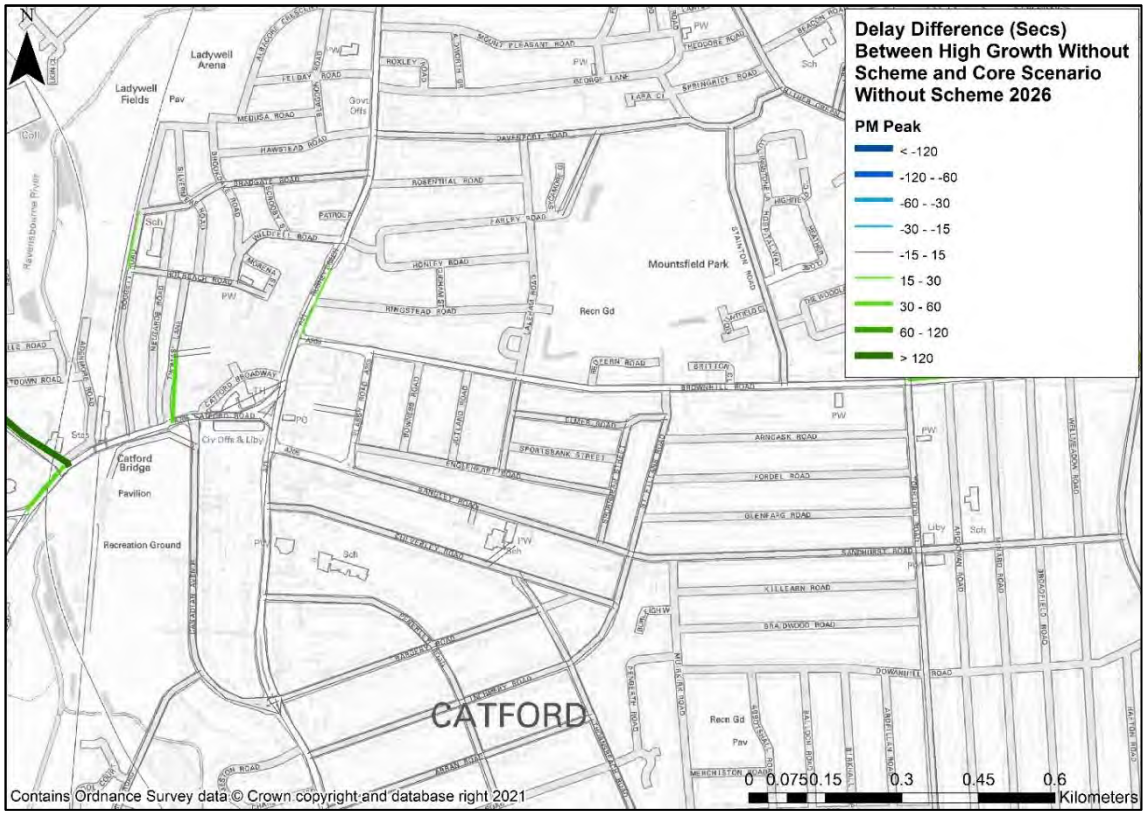


Figure 5-19: 2026 Without Scheme Low – Core Growth Delay - AM Peak

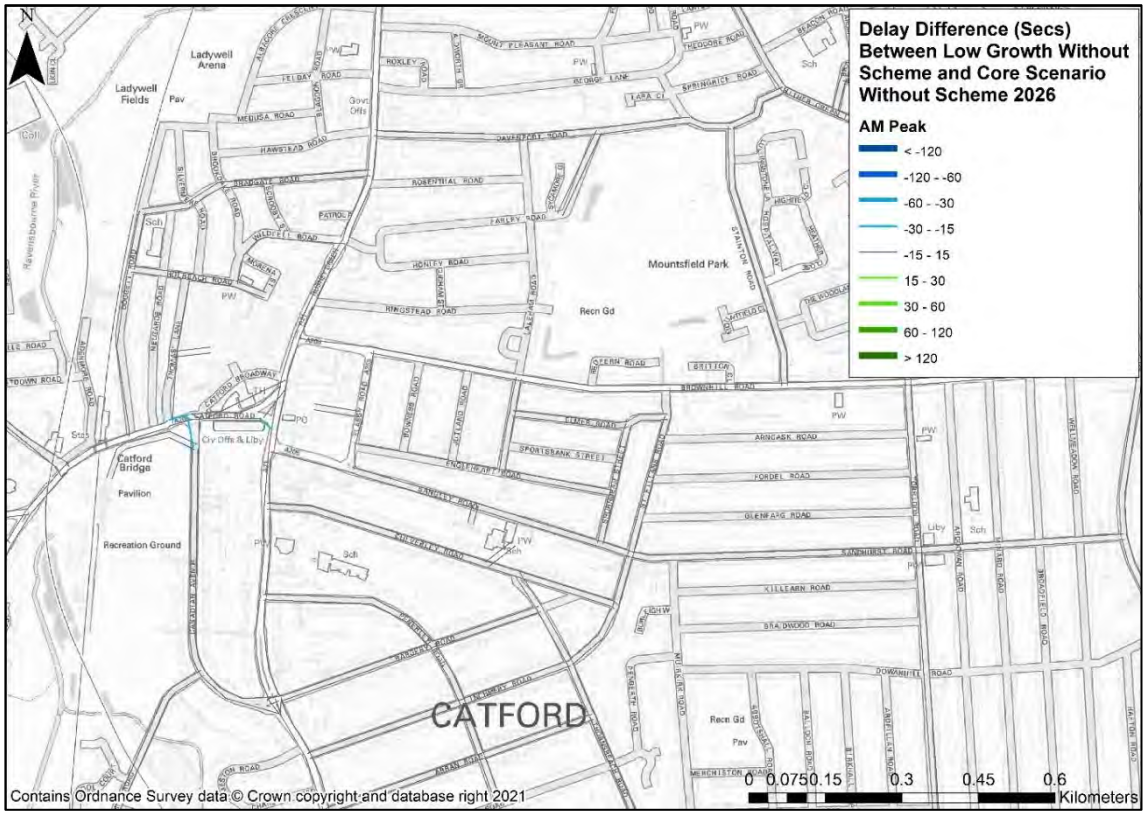
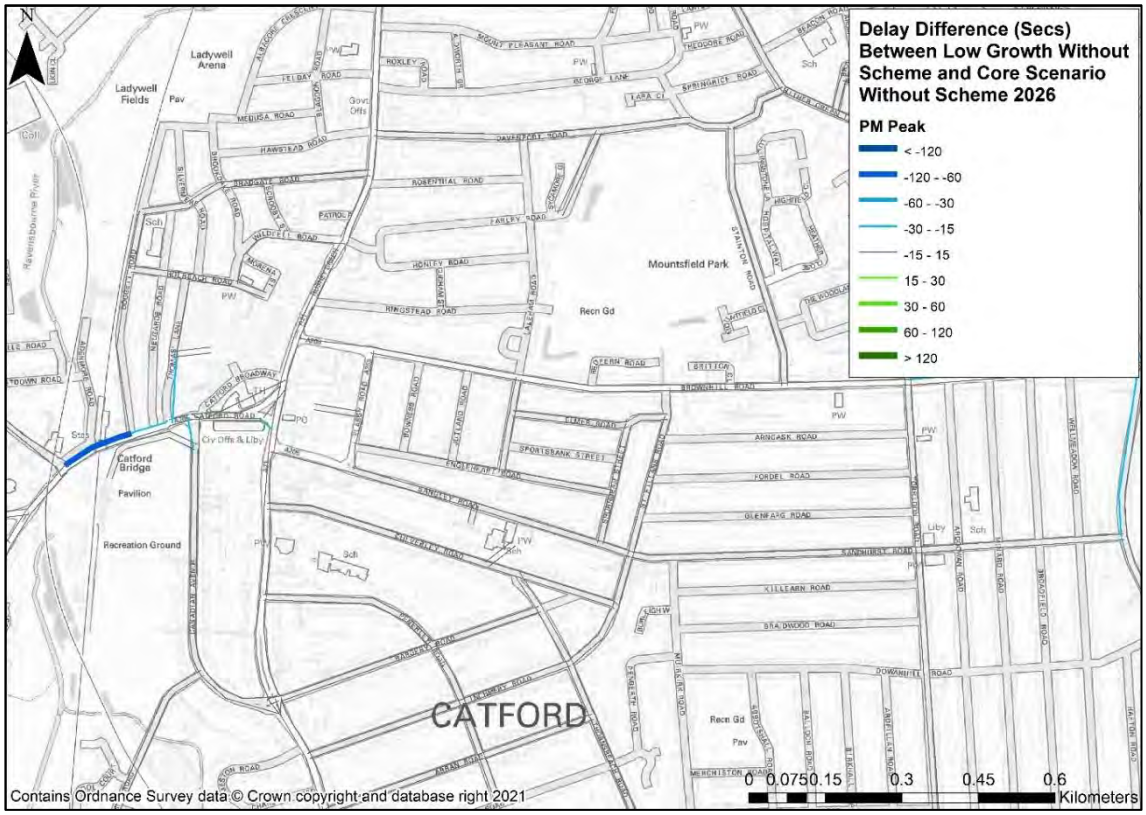


Figure 5-20: 2026 Without Scheme Low – Core Growth Delay - PM Peak



5.4.2 Figure 5-21 to Figure 5-24 show the forecast delay change as a result of the scheme in the 2026 AM and PM Peaks, for the high and low growth scenarios. The patterns of change are similar to that seen in the core growth scenario, with the impacts in the high growth scenario tending to be greater in magnitude and the impacts in the low growth scenario tending to be less in magnitude.

Figure 5-21: 2026 With Scheme minus Without Scheme High Growth Delay - AM Peak

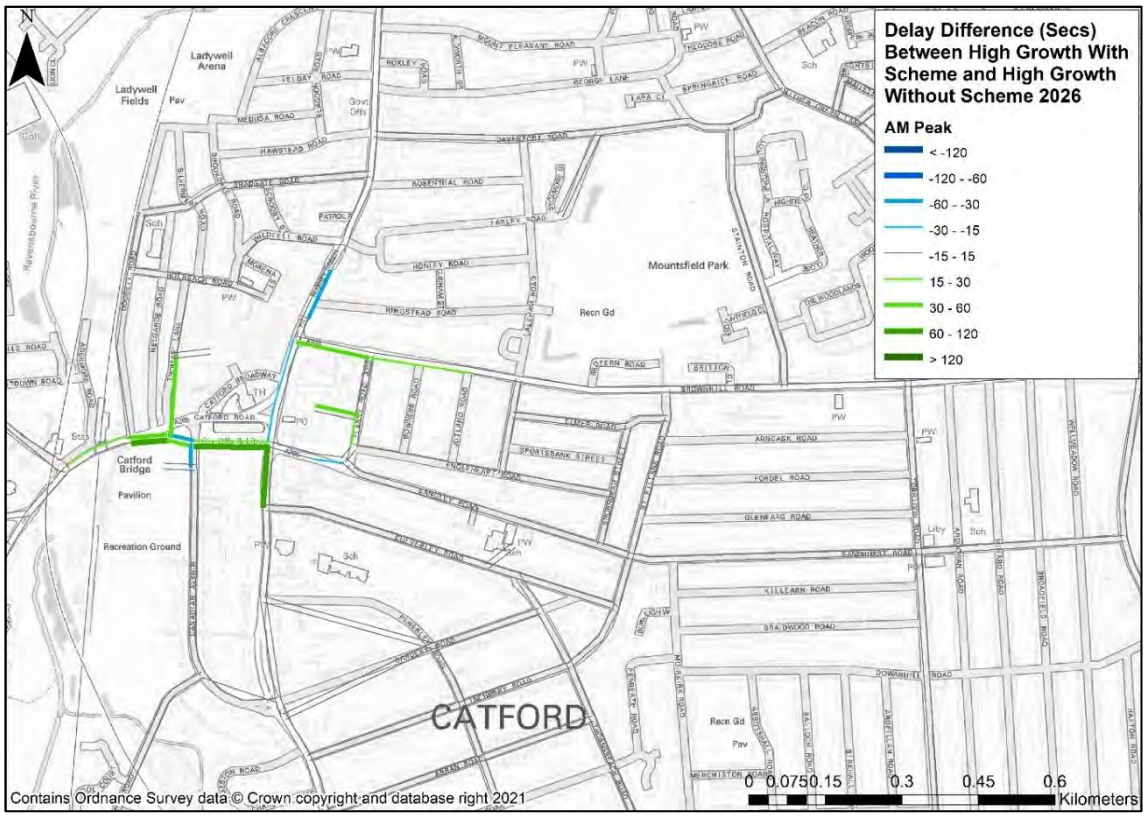


Figure 5-22: 2026 With Scheme minus Without Scheme High Growth Delay - PM Peak

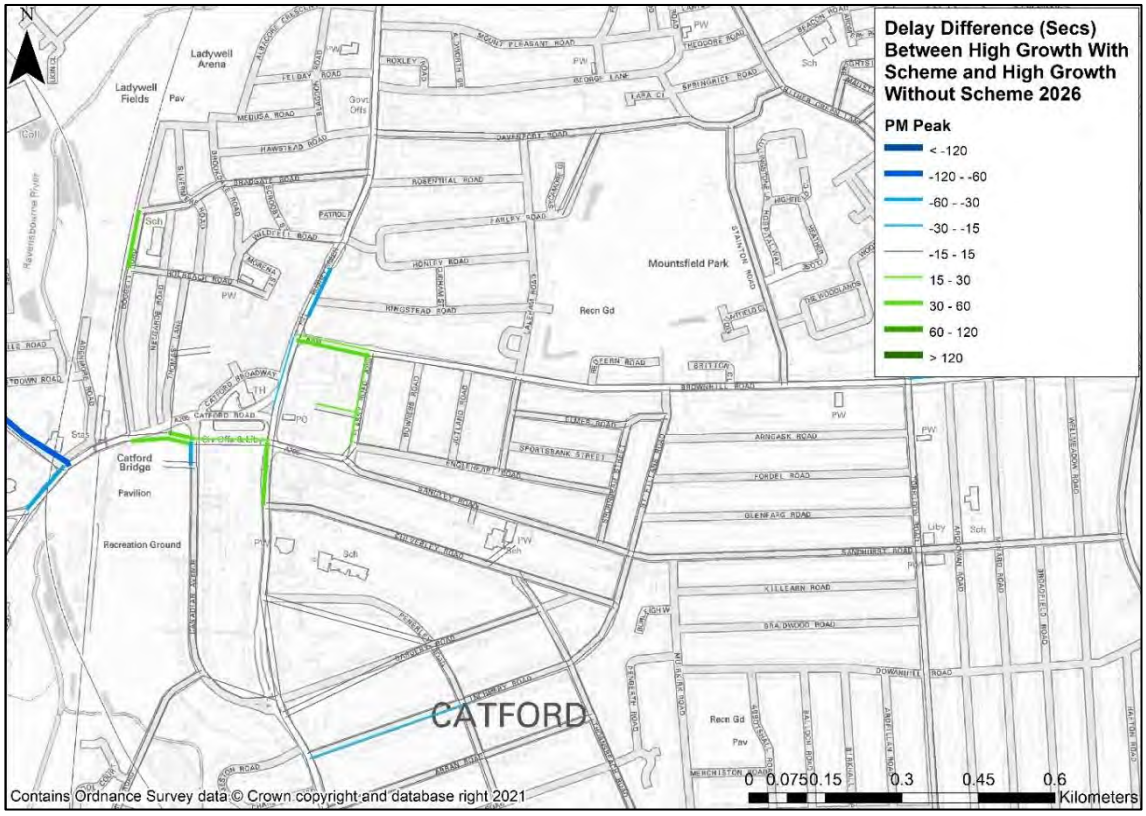


Figure 5-23: 2026 With Scheme minus Without Scheme Low Growth Delay - AM Peak

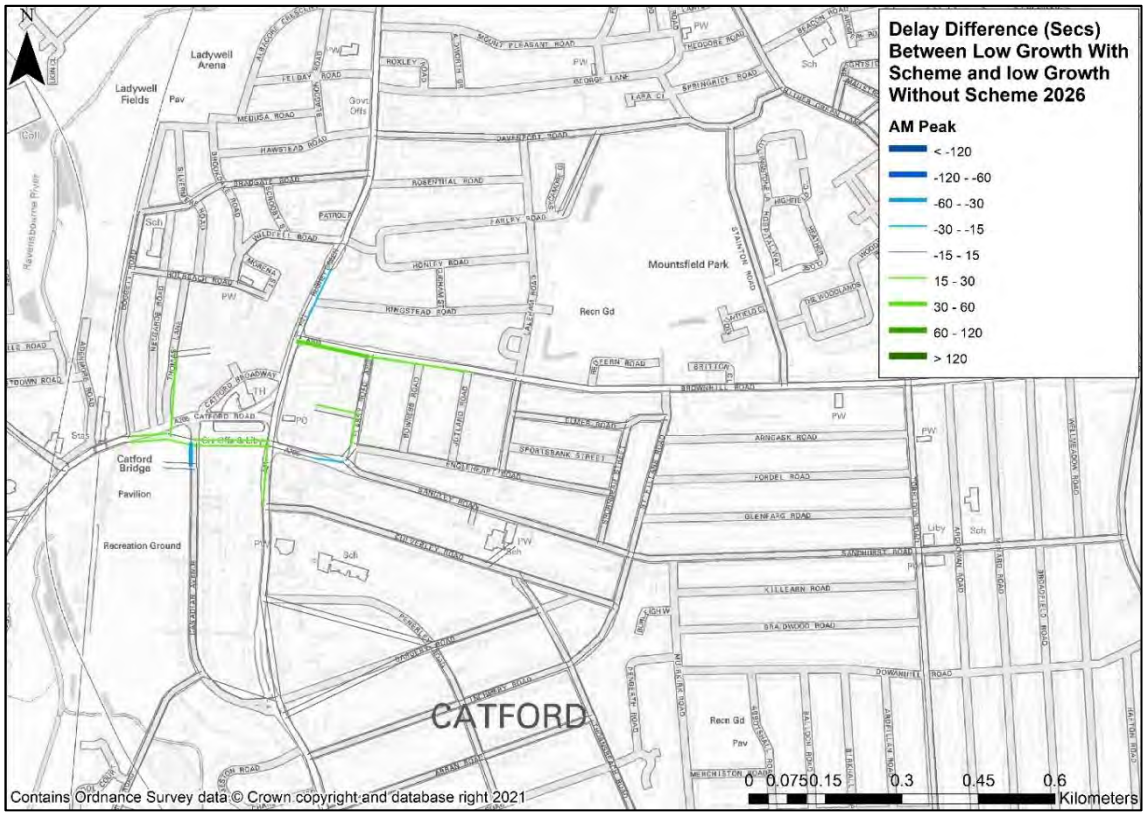
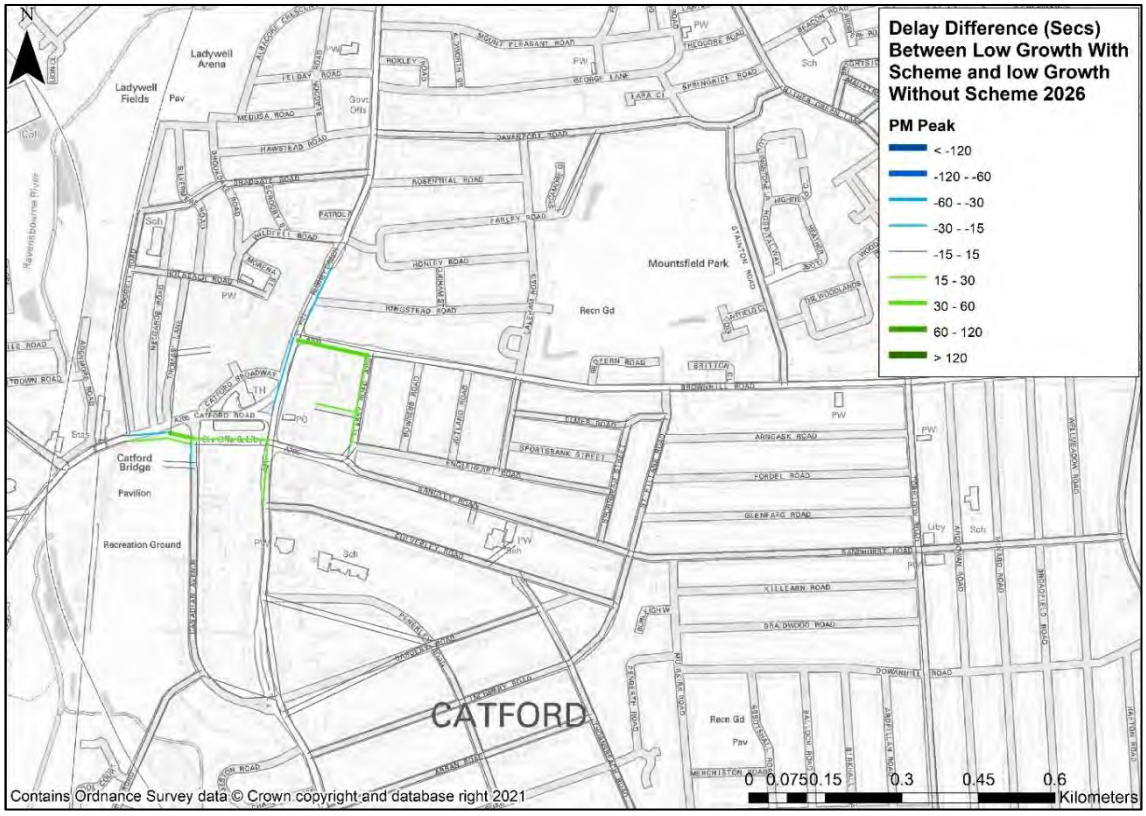


Figure 5-24: 2026 With Scheme minus Without Scheme Low Growth Delay - PM Peak



5.4.3 Figure 5-25 to Figure 5-28 show the forecast change in delay in the high and low growth scenarios compared to the core growth scenario for the 2041 AM and PM Peaks. As was seen for 2026, delays in the area to the west of the gyratory appear to be most sensitive to changes in forecast demand, with the PM Peak being more sensitive than the AM Peak.

Figure 5-25: 2041 Without Scheme High – Core Growth Delay - AM Peak

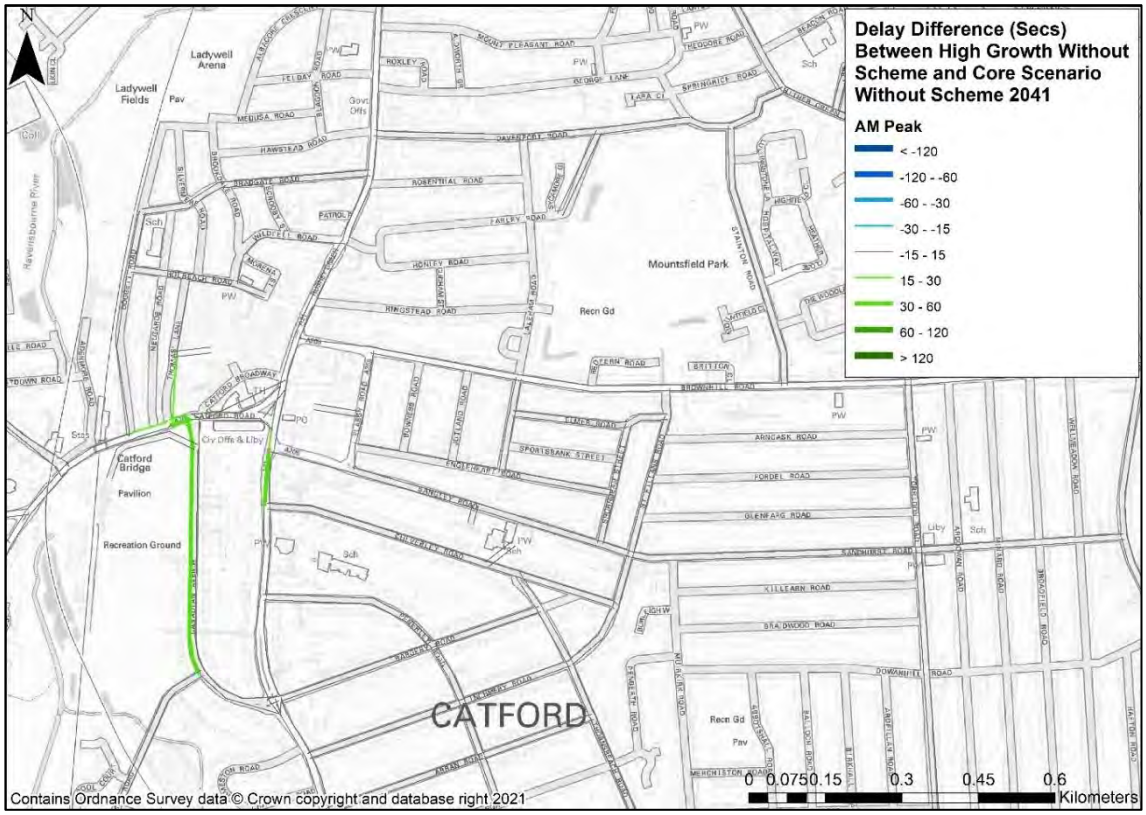


Figure 5-26: 2041 Without Scheme High – Core Growth Delay - PM Peak

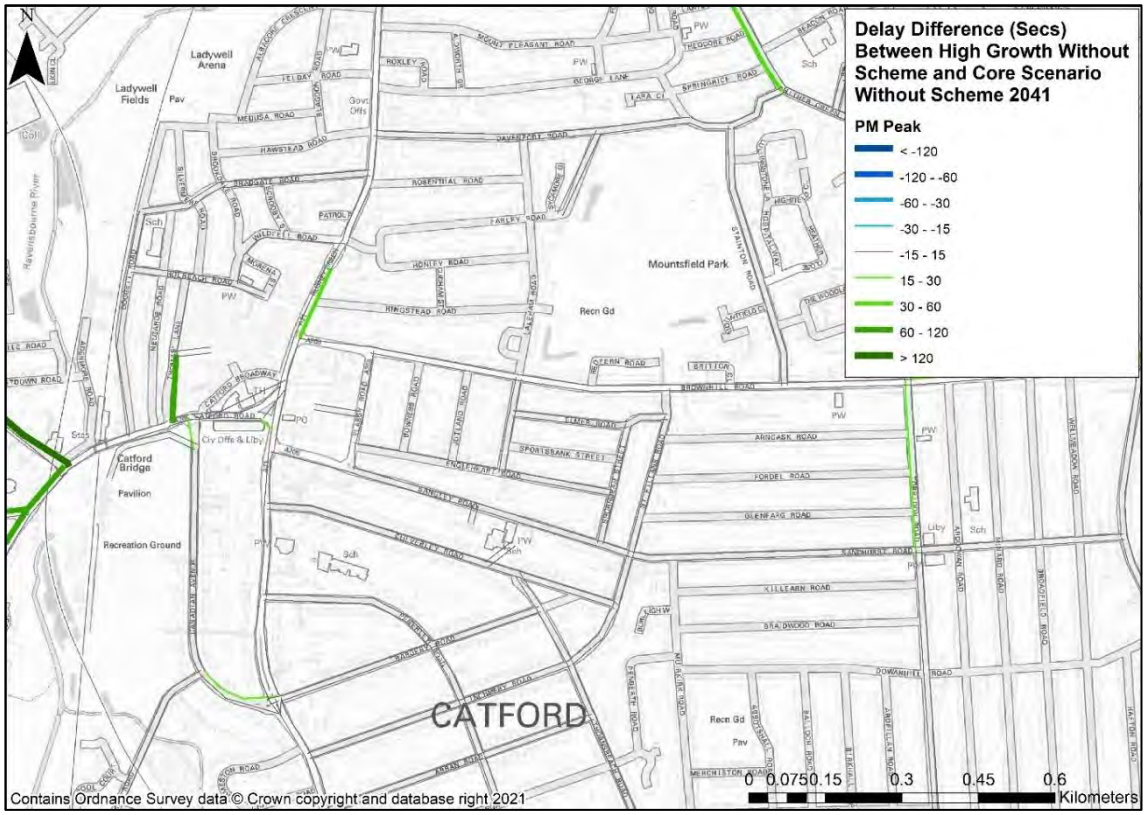


Figure 5-27: 2041 Without Scheme Low – Core Growth Delay - AM Peak

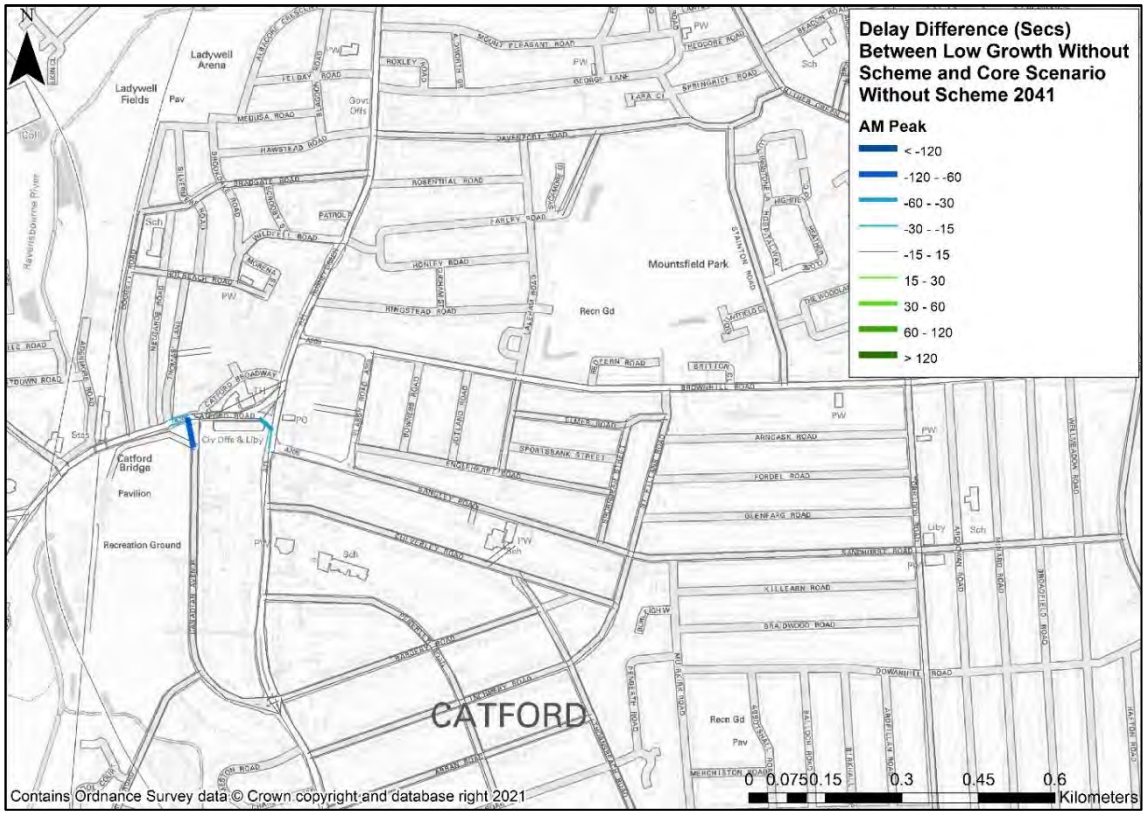
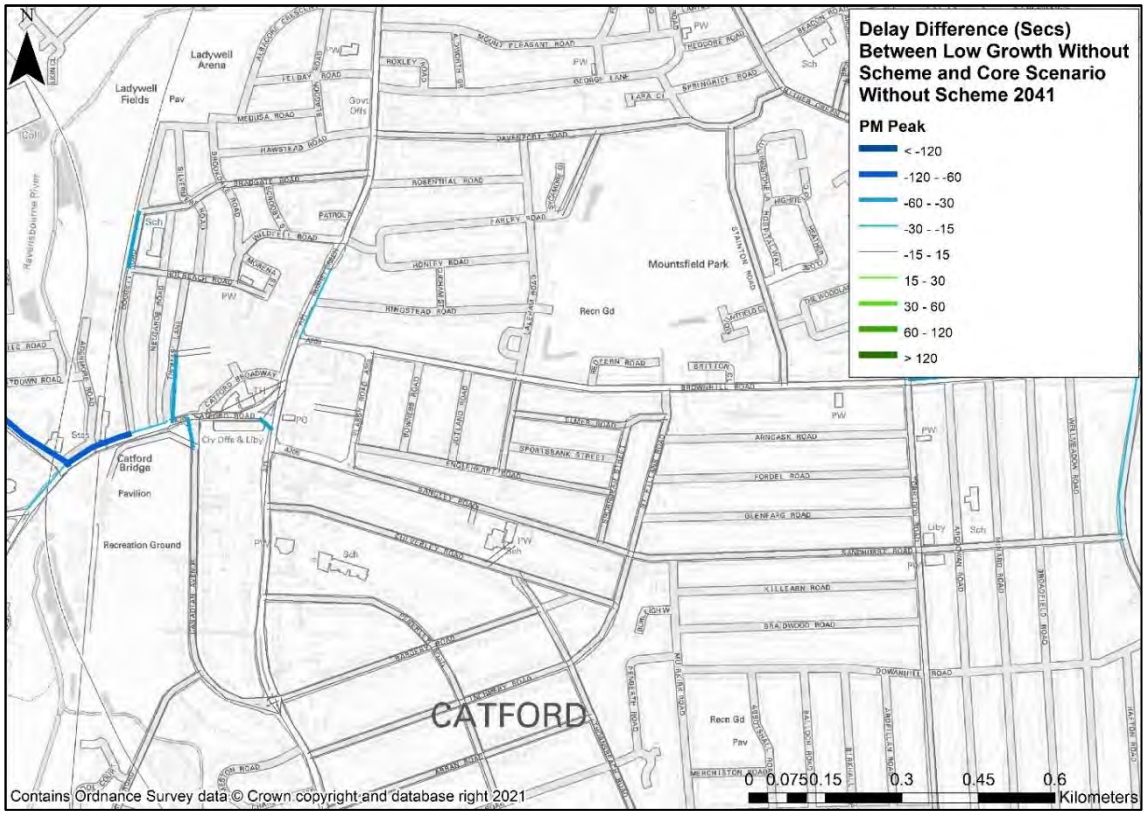


Figure 5-28: 2041 Without Scheme Low – Core Growth Delay - PM Peak



5.4.4 Figure 5-29 to Figure 5-32 show the forecast delay impact of the scheme in the 2041 high and low growth scenarios for the AM and PM Peaks. The patterns observed here reflect the patterns seen for the equivalent 2026 plots and demonstrate the consistency of results being produced by the model for the impacts of the scheme.

Figure 5-29: 2041 With Scheme minus Without Scheme High Growth Delay - AM Peak

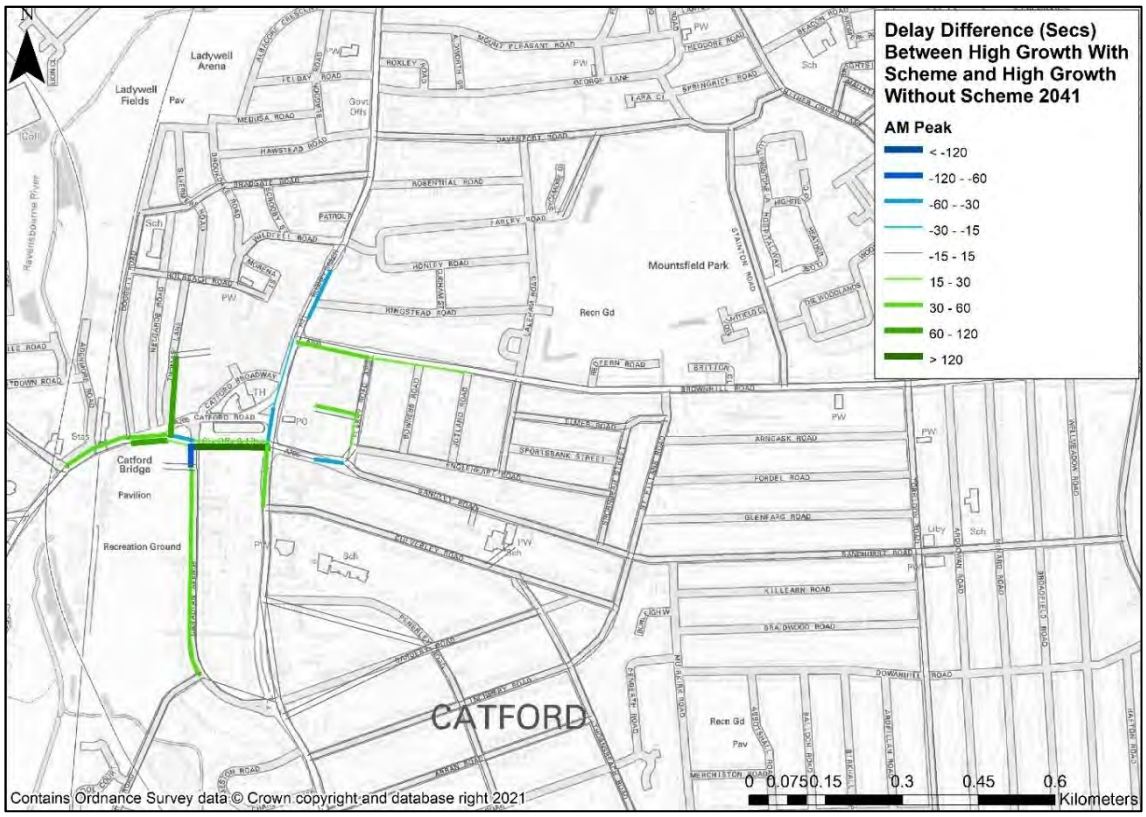


Figure 5-30: 2041 With Scheme minus Without Scheme High Growth Delay - PM Peak

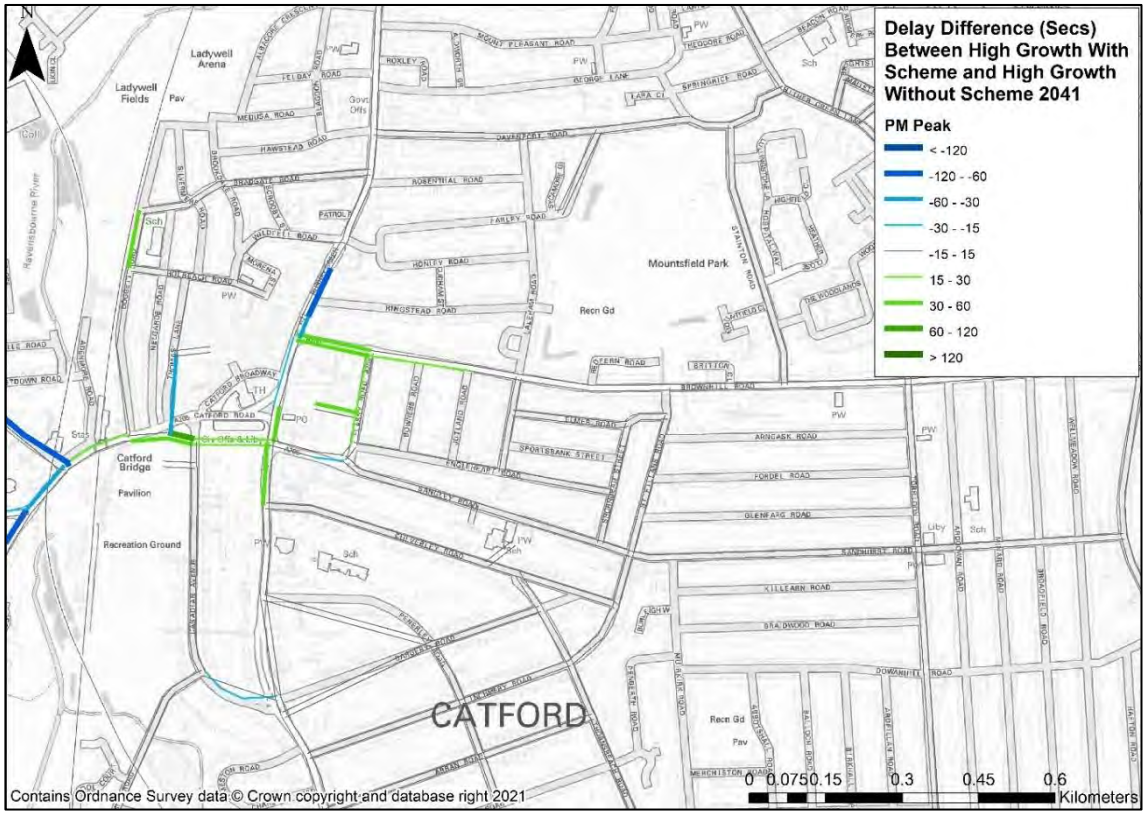


Figure 5-31: 2041 With Scheme minus Without Scheme Low Growth Delay - AM Peak

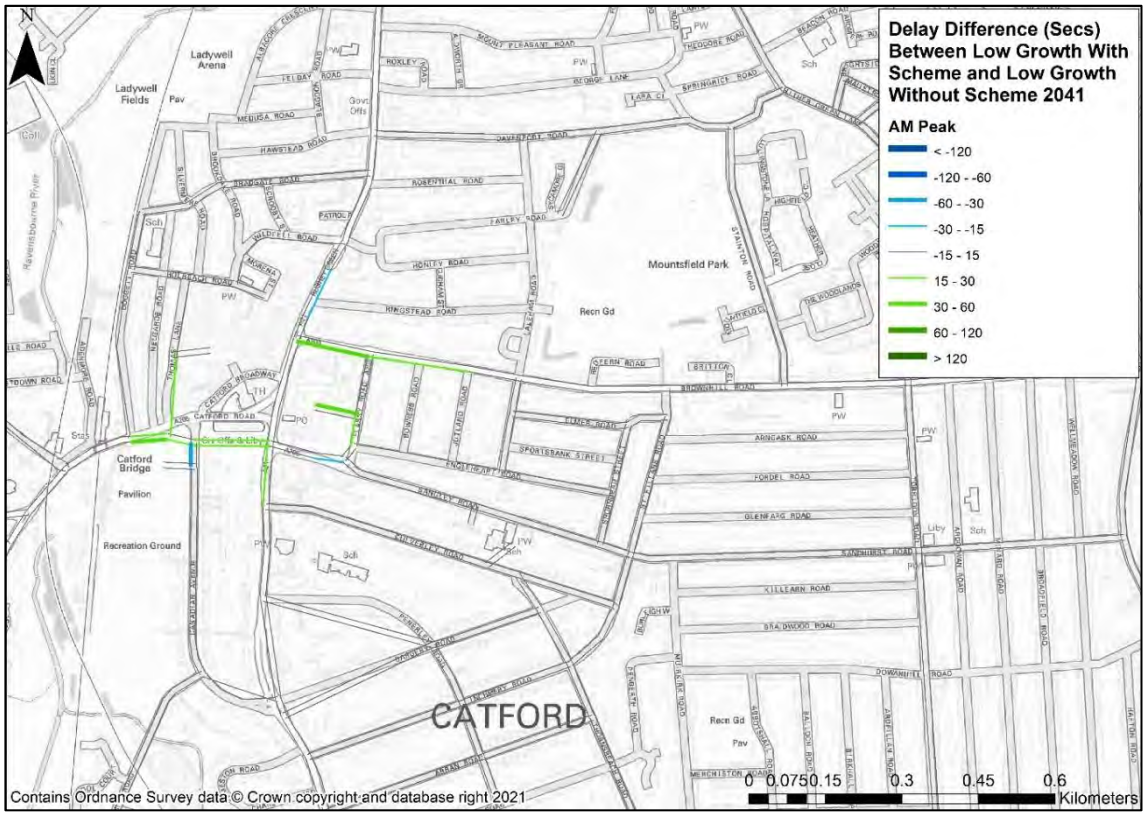
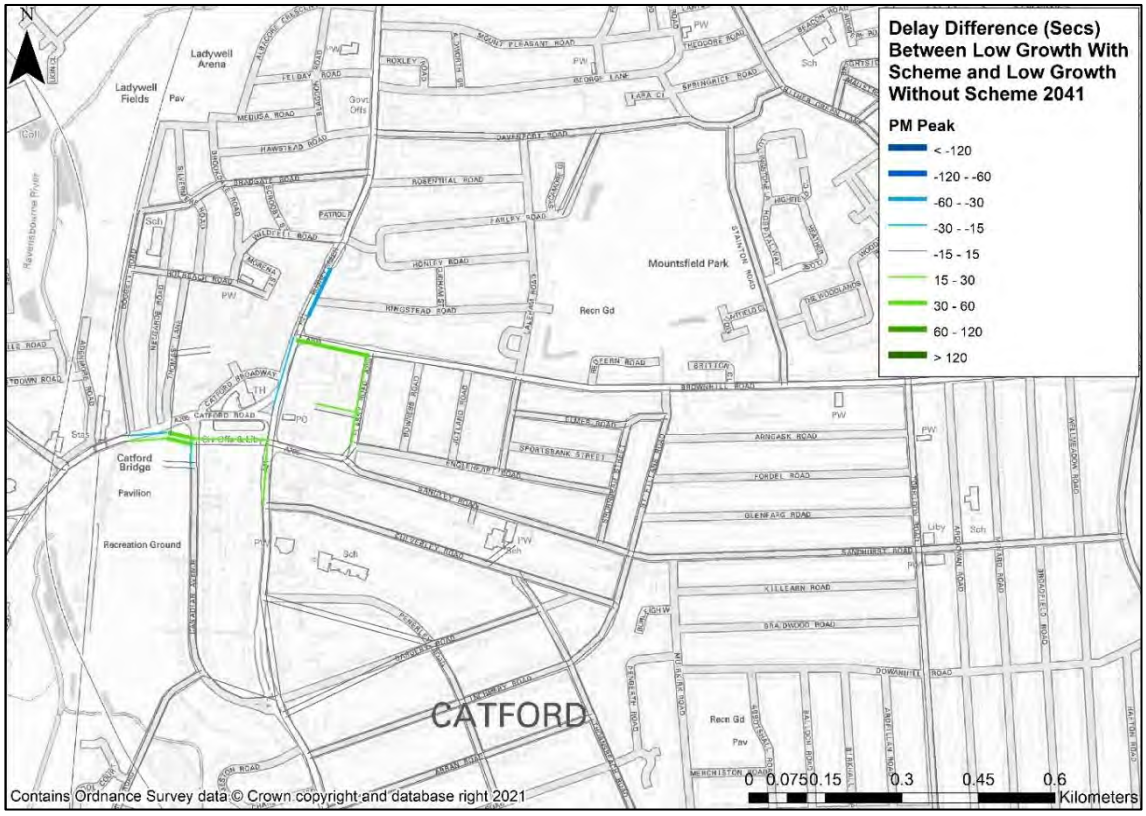


Figure 5-32: 2041 With Scheme minus Without Scheme Low Growth Delay - PM Peak



6. Summary

6.1.1 This report has described the approach to testing the Catford Town Centre scheme using the Catford highway assignment model derived from LoHAM, and the results obtained under the core growth, and high and low growth sensitivity tests. The sensitivity tests can be considered a proxy for the uncertainty that is inherent in all transport model forecasts, as well as any minor variable demand model impacts which are not represented, or any subsequent improvements to the base year model. Some of these variables will be considered in later stages of the scheme development.

6.1.2 The core growth results demonstrate that the impact of the scheme is relatively local, with increases in flow on the anti-clockwise movements within the existing gyratory, and some local re-routeing as a result of increased options for routeing through the area.

6.1.3 Junction delay generally increases as a result of the scheme, however more efficient routeing for some traffic on movements such as the A21 southbound through the gyratory means that some trips are forecast to experience an reduction in journey time through the area. For other movements, such as the A21 northbound, the routeing impact is neutral.

6.1.4 The high and low growth sensitivity tests demonstrate a level of stability in the results produced by the model and give confidence that the conclusions are reliable. They also give confidence that outputs used to undertaken subsequent economic assessment in TUBA are likely to produce sensible results.

Appendix A Assessment of the Need for Variable Demand Modelling

Introduction

An assessment to determine the need for variable demand modelling has been undertaken for the Catford Town Centre scheme in order to determine the most suitable modelling approach in proportion to the anticipated scheme effects.

The Catford model utilises disaggregated matrices from LoHAM which in turn uses TfL's LTS model for its variable demand model response. The local nature of the scheme suggests that its impact will be restricted to local re-routeing of traffic. This appendix reports on the work undertaken to demonstrate the scale of the variable demand impact observed in LTS.

Approach

In order to carry out the assessment, the following methodology was undertaken. For the purposes of this assessment, LTS was run for a single model year only, 2041.

1. The LTS 2041 Reference Case was run without the scheme present to provide a reference case to compare against.
2. A 2041 LTS scenario was run with the scheme included.
3. TfL's CHAMP process was used to convert the highway matrices to LoHAM for both LTS scenarios.
4. The LoHAM matrices were converted into Catford zoning.
5. Highway assignments were run with the scheme with both the Reference Case and with scheme matrices.
6. Comparisons were undertaken between:
   a. LTS Top-Line Statistics;
   b. SATURN matrix demand; and
   c. with scheme flows.

Results

The first comparison of the impacts of variable demand modelling was carried out using the LTS Top-Line Statistics. This tool presents the differences between the two scenarios at a high level. The total trips by mode for the two scenarios within Greater London and for the whole model is shown in Table A-1 and Table A-2. The tables show the variable demand model is having a negligible impact on trips by mode in the model.

Table A-1: LTS Top Line Stats - Total Trips - To/From/Intra GLA

			Change from Run1 to Run2	
Mode	**A241rf09**	**A241ct01**	**Absolute**	**Percentage**
Car	6,136,030	6,136,437	408	0.0%
PT	10,419,545	10,417,976	-1,569	0.0%
Slow	5,684,175	5,685,455	1,281	0.0%
All	22,239,749	22,239,868	119	0.0%

Table A-2: LTS Top Line Stats - Total Trips – Whole Model

			Change from Run1 to Run2	
Mode	**A241rf09**	**A241ct01**	**Absolute**	**Percentage**
Car	6,136,030	6,136,437	408	0.0%
PT	10,419,545	10,417,976	-1,569	0.0%
Slow	5,684,175	5,685,455	1,281	0.0%
All	22,239,749	22,239,868	119	0.0%

The resulting differences in the highway matrices assigned to the network following the conversion to LoHAM and then subsequently the Catford model zoning are shown in Table A-3 for the AM Peak, Interpeak and PM Peak time periods. The differences are presented for the Lewisham area only to show impacts on the immediate area around the scheme.

The matrix differences again show that the variable demand response is minimal, with the range of differences for origins and destinations between 0.1% and 0.2%. Across all London Boroughs, the variable demand response is strongest within Lewisham Borough. This is expected given the schemes sits within this borough.

Table A-3: SATURN Matrix Differences – Fixed vs Variable Demand

AM Peak		**Interpeak**		**PM Peak**	
Total Origin % Change	**Total Destination % Change**	**Total Origin % Change**	**Total Destination % Change**	**Total Origin % Change**	**Total Destination % Change**
0.2%	0.1%	0.1%	0.1%	0.1%	0.1%

The resulting differences in flow between the 2041 fixed matrix assignments and 2041 variable demand assignments with the scheme in place can be seen in Figure A-1 to Figure A-3. The Interpeak model shows little to no difference, while the AM Peak and PM Peak models show some localised differences in flows. The localised nature of the differences in flow indicate the changes are due to the assignment itself as opposed to more strategic changes which would be expected if the variable demand response was significant.

Figure A-1: 2041 AM Peak With Scheme - Variable vs Fixed Demand Flow Difference

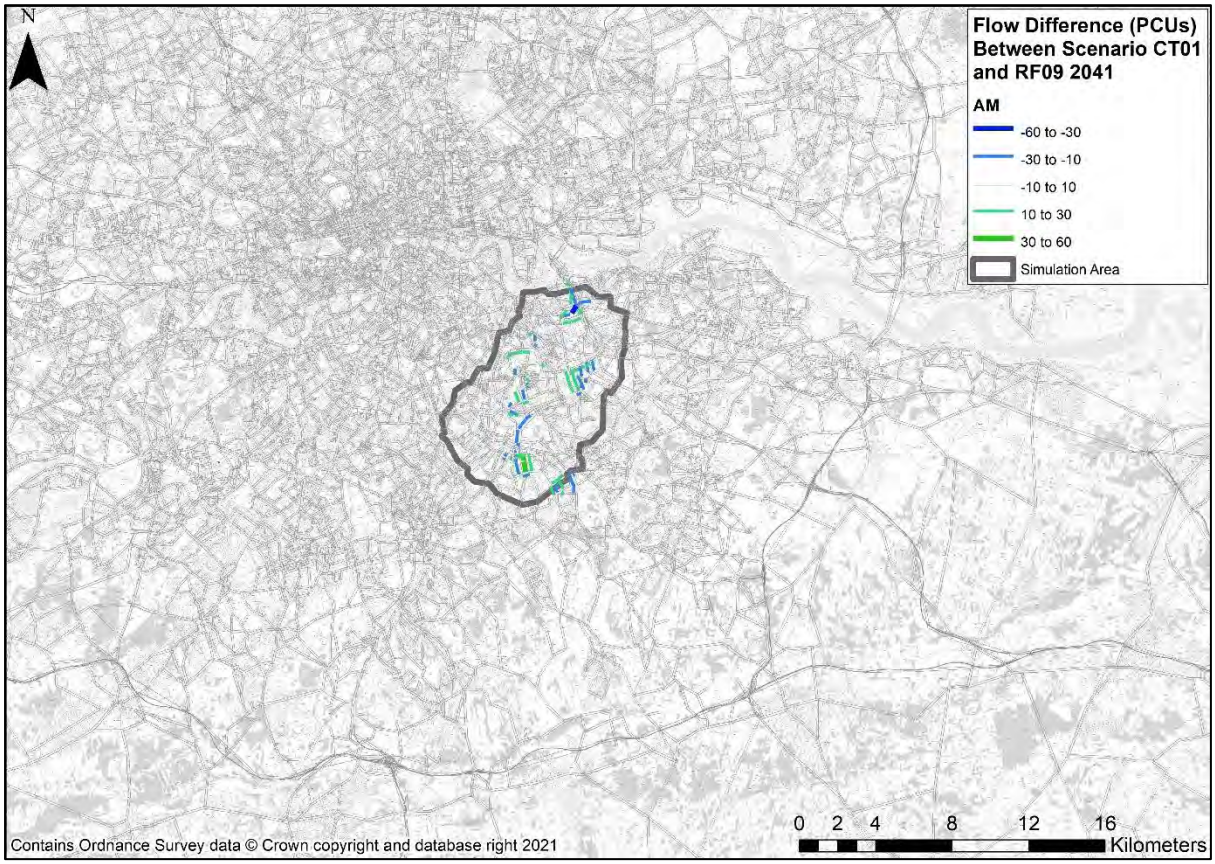


Figure A-2: 2041 Interpeak With Scheme - Variable vs Fixed Demand Flow Difference

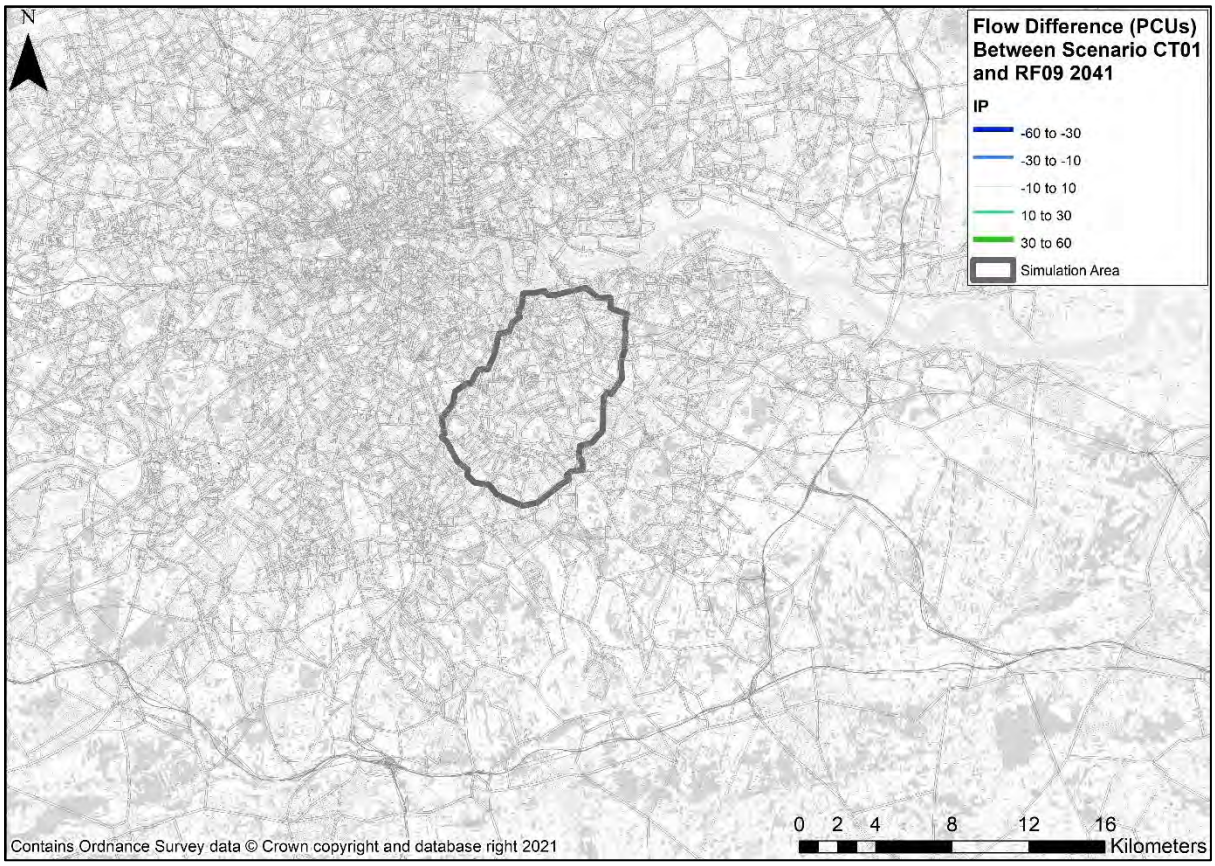
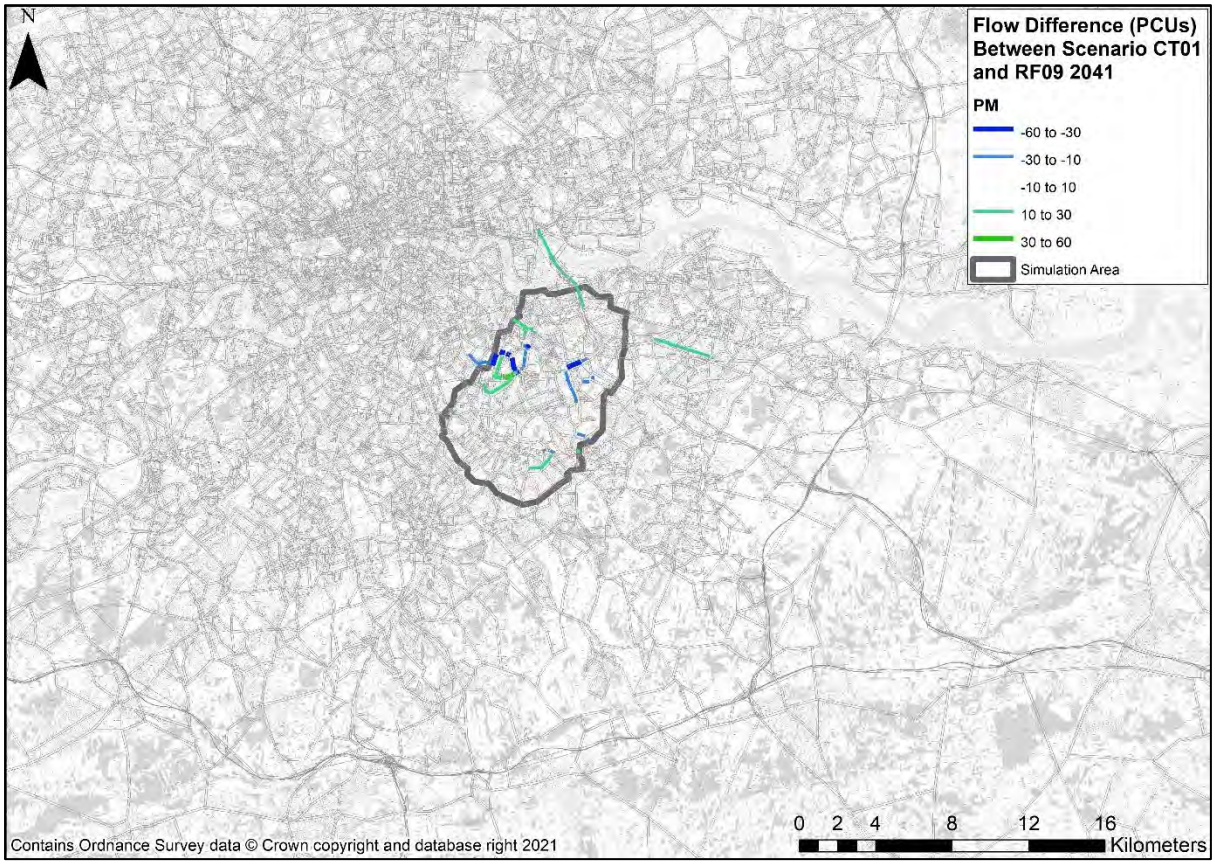


Figure A-3: 2041 PM Peak With Scheme - Variable vs Fixed Demand Flow Difference



Conclusions

The variable demand model impacts of the scheme do not appear to have a significant impact on the travel patterns or demand for this scheme, and are likely to fall within the range of model error. The results from the Top-Line Statistics, assignment matrix differences and flow difference plots suggest the use of a variable demand model is not required for the assessment of this scheme and the use of fixed demand matrices is appropriate.

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