Pell Frischmann

Southend-on-Sea Better Queensway

Impact Report

July 2026

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1. Executive Summary

1.1.1. Southend-on-Sea City Council (SoSCC) commissioned Pell Frischmann to assess the impacts of the Better Queensway highway works during construction. The assessment compares conditions observed in March and April 2025, prior to construction, with equivalent periods in March and April 2026 during the construction phase. The review considers changes in network performance, air quality and community and stakeholder impacts associated with the implementation of the highway works.

1.1.2. The network performance assessment indicates that the highway works resulted in a redistribution of traffic across the local road network, with impacts varying by route and time of day. Journey time and average speed analyses demonstrate that some corridors experienced increased delays and reduced speeds, particularly during the PM peak period, whilst others recorded improved traffic flow conditions compared with baseline levels. Traffic count surveys undertaken across the study area support these findings and indicate that traffic has redistributed in response to the closure of routes and temporary traffic management arrangements, with reductions observed on parts of the Queensway corridor and corresponding increases on alternative routes including Chichester Road, Southchurch Avenue, Woodgrange Drive, Chancellor Road and Bournemouth Park Road. The most pronounced impacts were observed during the earlier stages of construction, with evidence suggesting that traffic conditions became more stable as road users adapted to the revised network configuration. Overall, impacts on network performance were localised rather than widespread across the study area.

1.1.3. The air quality assessment does not identify widespread adverse environmental impacts associated with the works. Whilst changes in NO_2 concentrations varied across monitoring locations, reflecting the redistribution of traffic, these effects were generally localised. Monitoring locations closest to the Better Queensway works did not indicate evidence of significant adverse air quality impacts attributable to the scheme. Furthermore, $PM_{2.5}$ and PM_{10} concentrations were consistently lower during the construction period than during the baseline period. Although air quality can be influenced by wider factors including meteorological conditions, background pollution levels and changes in vehicle fleet composition, the analysis does not indicate a deterioration in air quality at the monitored locations during the construction period. Recorded concentrations of NO_2, $PM_{2.5}$ and PM_{10} remained below the relevant air quality objective thresholds throughout the assessment period.

1.1.4. The review of community and stakeholder impacts found that the principal effects related to temporary changes in accessibility, travel conditions, customer activity and traffic patterns. Business experiences varied, with some reporting concerns regarding accessibility and trading conditions whilst others identified benefits associated with altered traffic flows and increased passing trade. Residents and community stakeholders primarily raised concerns regarding congestion, travel disruption, parking availability and access to local facilities during particular phases of the works. However, access to businesses, homes, schools, places of worship and community facilities was maintained throughout the construction period wherever practicable through ongoing communication, engagement and mitigation measures.

1.1.5. Overall, the evidence indicates that the Better Queensway highway works have generated temporary and localised impacts consistent with the delivery of a major highway infrastructure project within an urban environment. Whilst disruption has occurred during construction, there is no evidence of widespread or severe adverse impacts across the wider study area. The findings indicate that impacts were managed through phased traffic management, stakeholder engagement and mitigation measures, enabling the continued operation of the transport network, businesses and community facilities throughout the construction period.

1.1.6. From the evidence analysed, it can be concluded that the highway works have been managed effectively to mitigate significant adverse impacts to road users, businesses, residents and the public.

2. Introduction

2.1.1. The Better Queensway project is a major regeneration initiative being delivered by Southend-on-Sea City Council (SoSCC), centred on the transformation of the Queensway corridor and surrounding area. The wider programme seeks to support the delivery of new homes, public spaces and infrastructure improvements, creating a more accessible, connected and sustainable environment within Southend city centre. As part of this programme, significant highway works have been undertaken to reconfigure the existing road network, improve connectivity and support future development opportunities.

2.1.2. The highway works include the removal of the existing Queensway underpass, the creation of a new at-grade road layout, junction improvements, enhanced pedestrian and cycling facilities, drainage and utility infrastructure upgrades, and associated traffic management measures required during construction. These interventions have resulted in changes to traffic conditions across the local highway network as a result of road closures, diversions, lane restrictions and altered access arrangements.

2.1.3. Recognising the scale of these changes and in response to a Notice of Motion agreed by the Council on 19th March, SoSCC has commissioned Pell Frischmann to undertake an assessment and review of the impacts of the highway works on the operation of the transport network and the surrounding community during the construction period. This report considers changes in transport performance, environmental conditions, business operations and resident experience by comparing conditions prior to construction and during the implementation of the highway works.

2.2. Study Scope

2.2.1. The purpose of this report is to evaluate the impacts of the Better Queensway highway works during construction, with a particular focus on the effects of temporary traffic management and changes to the operation of the local road network. The assessment compares conditions observed prior to construction with conditions experienced during the construction period.

2.2.2. The assessment focuses on the periods of March and April 2025, representing baseline conditions prior to the highway works, and March and April 2026, representing conditions during the construction phase. The comparison of these periods provides an indication of how the network and local environment have responded to the implementation of the scheme.

2.2.3. Following this introductory chapter, the report is structured into the following sections:

- Chapter 3: Baseline Conditions
- Chapter 4: Network Performance Impacts
- Chapter 5: Air Quality Impacts
- Chapter 6: Community and Stakeholder Impacts
- Chapter 7: Conclusion

2.3. Methodology

2.3.1. The assessment has been undertaken using a before-and-during approach, comparing conditions observed prior to the implementation of the Better Queensway highway works with conditions recorded during the construction period. This approach enables changes in transport performance and environmental conditions to be identified and assessed in the context of the highway interventions and associated traffic management arrangements.

2.3.2. Network performance analysis has been undertaken using data obtained from SoSCC's STRATOS Urban Traffic Management and Control (UTMC) system together with traffic count surveys undertaken at key junction locations across the study area. The assessment considers journey times, average vehicle speeds and traffic volumes, enabling changes in traffic conditions and travel patterns to be assessed using complementary measures of network performance. The STRATOS dataset consists of five-minute interval observations covering the entirety of March and April in both 2025 and 2026. These

data have been aggregated and reviewed across AM and PM peak periods to identify network-wide trends and localised impacts. Average speed values have been derived from observed journey times and route lengths to provide an additional indicator of traffic flow conditions and congestion. To supplement this analysis, traffic count surveys have been reviewed at five key junctions, comparing conditions observed in October 2025 prior to the implementation of the principal highway works with surveys undertaken in June 2026 during construction. Whilst the traffic count surveys cover different periods to the STRATOS dataset, they provide a useful indication of how traffic volumes and route choice have changed in response to the Better Queensway highway works and associated traffic management arrangements.

2.3.3. Air quality analysis has been undertaken using monitoring data collected at locations across the wider city area and available from Earthsense. Comparisons between baseline and construction-period conditions have been used to identify changes in pollutant concentrations and assess how traffic redistribution may have influenced local environmental conditions. The monitoring locations included in the assessment are situated at varying distances from the Better Queensway works area. Monitoring sites located closest to the scheme are considered likely to provide the most direct indication of any local air quality effects associated with the highway works and associated traffic management arrangements, whilst sites located further from the works provide a broader indication of changes in traffic distribution and wider network conditions across Southend-on-Sea.

2.3.4. The assessment of community and stakeholder impacts has been informed by a review of stakeholder correspondence, community engagement records, project communications, notification letters and other evidence provided by SoSCC. In the absence of user perception surveys, these sources have been used to identify key themes relating to accessibility, travel conditions, business activity, community impacts and stakeholder experiences during construction. The assessment considers the experiences of businesses, residents and community stakeholders separately whilst recognising the interrelationship between transport conditions, accessibility and stakeholder impacts.

3. Baseline Conditions

3.1.1. The Better Queensway highway works are being delivered within a busy urban environment that forms an important gateway into Southend city centre. The area accommodates a range of transport movements, including strategic traffic travelling along the A127 and A13 corridors, local traffic accessing residential and commercial areas, public transport services, pedestrians and cyclists. As a result, changes to the operation of the network have the potential to influence travel patterns across a wide geographic area.

3.1.2. Prior to the commencement of construction works, traffic movements through the area were facilitated by the previous Queensway highway layout, including the Queensway underpass and associated junction arrangements. These routes formed a key component of the local highway network, accommodating movements between the A127, the city centre and surrounding neighbourhoods.

3.1.3. The baseline conditions presented in this report are represented by observed data collected during March and April 2025. These data provide a reference point against which conditions during the construction phase can be assessed. The use of observed baseline information allows the impacts of the highway works to be evaluated using real-world travel, congestion and air quality conditions rather than modelled forecasts.

3.2. Overview of Scheme and Traffic Changes

3.2.1. To facilitate construction of the Better Queensway highway improvements, a series of temporary traffic management measures were introduced during late 2025 and early 2026. These included road closures, lane restrictions, diversion routes and changes to local access arrangements affecting both vehicles and public transport services. Temporary measures were implemented in phases to enable the safe progression of construction activities while maintaining access to residential properties, businesses and community facilities wherever practicable.

3.2.2. The principal changes included alterations to traffic movements through Queensway, temporary diversions via alternative routes, modifications to junction operations and the closure of sections of the highway network required for utility diversions and construction activities. These interventions resulted in a redistribution of traffic across the wider network and form the basis for the assessments presented in the subsequent chapters of this report.

3.2.3. The following chapters evaluate the extent to which these temporary changes influenced journey times, congestion, air quality, business activity and the experiences of local residents during the construction period.

4. Network Performance Impacts

4.1. Chapter Overview

4.1.1. This chapter presents an assessment of network performance across the study area using observed transport data provided by SoSCC. The assessment considers journey times, average vehicle speeds and traffic volumes to understand how the Better Queensway highway works have influenced traffic conditions and travel patterns during the construction period. Collectively, these indicators provide an evidence-based assessment of changes in network operation, traffic flow and route choice associated with the temporary traffic management arrangements introduced to facilitate the works.

4.1.2. Journey time and average speed analyses have been undertaken using data obtained from SoSCC's STRATOS Urban Traffic Management and Control (UTMC) system. The dataset covers two comparable time periods, representing conditions prior to the implementation of the Better Queensway highway works (March and April 2025) and during the construction period (March and April 2026). Data was recorded at five-minute intervals throughout both months, providing a comprehensive and high-resolution dataset for assessing changes in network performance. Journey times provide an indication of the travel conditions experienced by road users, whilst average speeds provide additional context regarding traffic flow and congestion levels across the network. Both measures have been derived from the same STRATOS dataset and should therefore be considered together when assessing changes in network operation during the construction period. Journey time and average speed data have been analysed for the following routes:

- 207: Borough Boundary – Airbourne Close
- 202: Airbourne Close – Cuckoo Corner
- 170: Cuckoo Corner – Victoria Gateway
- 203: Queensway Underpass
- 205: Chalkwell Park Sign – Chalkwell Avenue
- 206: Chalkwell Avenue – Western Esplanade
- 204: Chalkwell Park Sign – Victoria Gateway

4.1.3. It should be noted that data for the Queensway Underpass (Link 203) was unavailable for the March and April 2026 analysis period. During the construction phase of the Better Queensway works, the route was recorded within the One.Network system as closed in accordance with the traffic management permits associated with the highway works. STRATOS uses information from One.Network when collecting and reporting network performance data and, as a result, did not collect data for Link 203 whilst the closure flag was active. Consequently, a directly comparable dataset is not available for this route and it has therefore been excluded from the comparative assessment presented within this chapter. Arrangements are currently being explored to update the relevant One.Network and permit records to enable future reporting of this route where appropriate.

4.1.4. To supplement the STRATOS analysis, traffic count surveys have also been reviewed at five key junctions across the study area. These surveys compare traffic volumes recorded in October 2025, prior to the implementation of the principal highway works, with equivalent surveys undertaken in June 2026 during construction. The traffic count data provides additional insight into how vehicle movements have redistributed across the network in response to the closure of routes, diversion arrangements and changes to network operation associated with the scheme. Traffic volume surveys have been analysed at the following junction locations:

- Victoria Avenue – Queensway
- Queensway – Chichester Road
- Queensway – Chancellor Road
- Queensway – Southchurch Avenue
- Southchurch Road – Southchurch Avenue

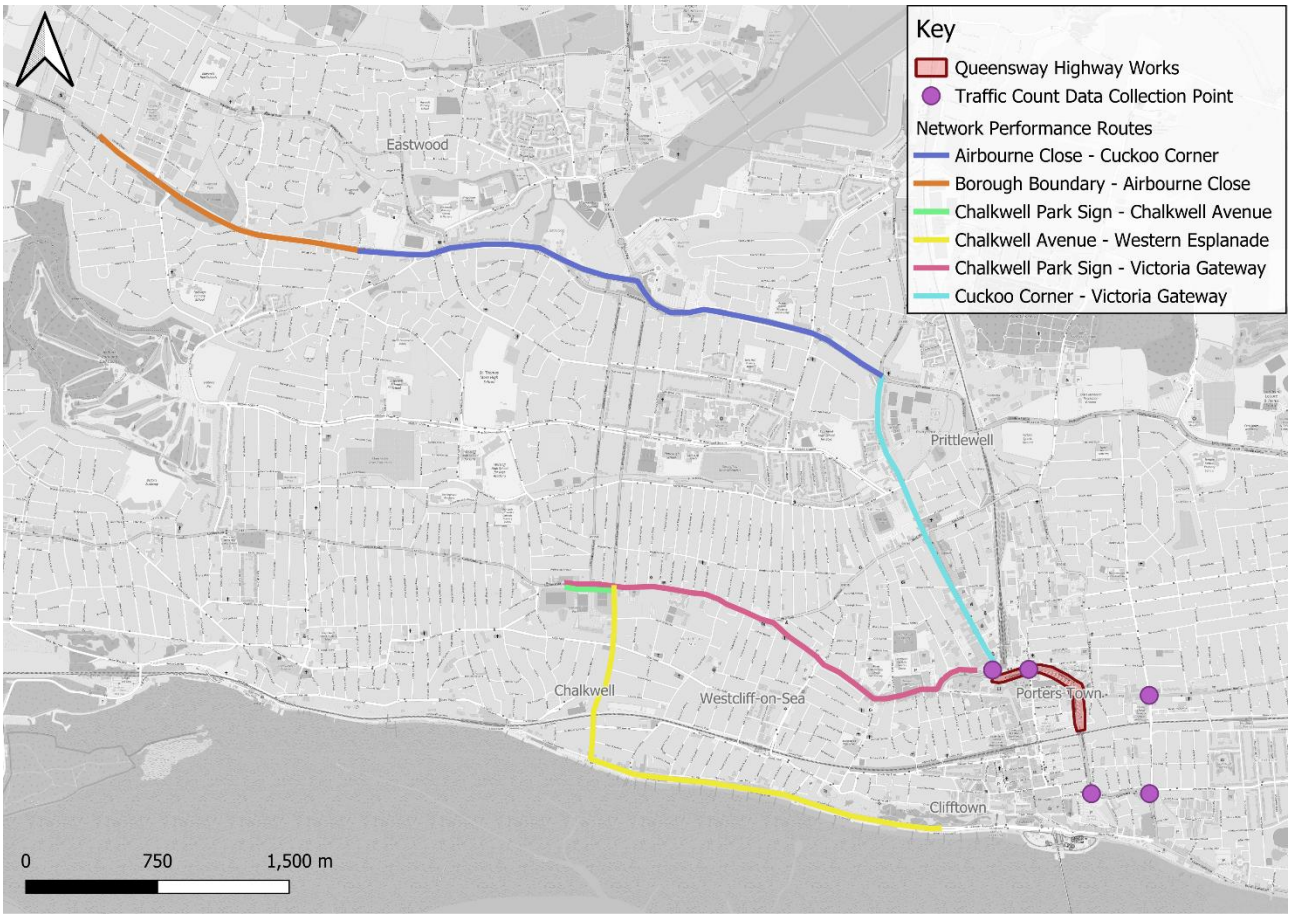
4.1.5. These locations were selected to capture changes in traffic movements on the Queensway corridor and surrounding highway network, providing an indication of how vehicle flows have redistributed in response to the Better Queensway highway works and associated traffic management arrangements. The traffic count data has been used alongside the journey time and average speed analyses to provide a broader understanding of changes in network performance and travel patterns during the construction period.

4.1.6. The locations of the analysed routes and traffic count sites are shown in Figure 4.1.

4.1.7. The analysis presented in this chapter is based on a before-and-during comparison, allowing changes in network performance and traffic distribution to be assessed in the context of the temporary traffic management measures introduced to facilitate the Better Queensway highway works. Results are presented at a link level across key routes, enabling the identification of both network-wide trends and localised impacts.

4.1.8. The following sections assess changes in journey times, average speeds and traffic volumes during the construction period relative to pre-construction conditions before presenting an overall review of network performance across the study area.

Figure 4.1: Network Performance Route Locations



4.2. March 2025 / March 2026 Network Performance Changes

4.2.1. The comparison between March 2025 and March 2026 (shown in Table 4.1 and Table 4.2 below) indicates that the earlier stages of the Better Queensway works resulted in a redistribution of traffic flows across the network, with the impacts varying by route and time of day.

4.2.2. On the A127 corridor, the section between Borough Boundary and Airbourne Close experienced the most notable improvements in network performance. Journey times reduced by up to 113 seconds during the PM peak, whilst average speeds increased by up to 5.7 mph. These results indicate significantly improved traffic flow conditions on this section of the network during the construction

period. Conversely, the Airbourne Close to Cuckoo Corner and Cuckoo Corner to Victoria Gateway links experienced more mixed results. Whilst both links recorded journey time reductions during parts of the AM peak, increases in journey time were observed during the PM period, reaching up to 28 seconds and 35 seconds respectively. These changes equated to reductions in average speed of up to 1.2 mph and 2.4 mph, suggesting that redistributed traffic placed additional pressure on these intermediate sections of the corridor, particularly during the afternoon peak.

4.2.3. A similar pattern is evident on the A13 corridor, where impacts were generally more localised. The Chalkwell Avenue to Western Esplanade link recorded increased journey times during the PM peak, reaching 46 seconds at 16:00 and 40 seconds at 17:00. Correspondingly, average speeds reduced by up to 2.1 mph, indicating a deterioration in traffic flow conditions and increased congestion along this route. In contrast, the remaining A13 links recorded relatively minor changes in both journey times and average speeds, suggesting that the effects of traffic redistribution were concentrated on specific sections of the corridor rather than occurring uniformly across its full length.

4.2.4. Overall, the March results suggest that the network was still adapting to the construction-phase traffic management arrangements. Whilst some sections experienced improved conditions characterised by shorter journey times and higher average speeds, other routes experienced increased delays and lower operating speeds as traffic redistributed across the network. The most pronounced impacts were observed during the PM peak period, when traffic demand was highest and congestion effects were most evident.

Table 4.1: Change in Journey Time (seconds) March 2025 - March 2026*

Link	From	To	Hour beginning						
			7	8	9	15	16	17	18
A127									
207	Borough Boundary	Airbourne Close	-29	-89	-55	-80	-113	-108	-61
202	Airbourne Close	Cuckoo Corner	-13	-16	-28	-8	+28	+16	-20
170	Cuckoo Corner	Victoria Gateway	-1	-3	+29	+35	+26	+1	+20
A13									
205	Chalkwell Park Sign	Chalkwell Avenue	-1	+2	+2	+2	-3	-1	-1
206	Chalkwell Avenue	Western Esplanade	-3	-3	+1	+26	+46	+40	+2
204	Chalkwell Park Sign	Victoria Gateway	-3	-8	-9	+15	-19	+14	+3

*All values show the change in journey time (seconds) between March 2025 and March 2026. Negative values indicate journey time savings; positive values indicate increased journey times.

Table 4.2: Change in Average Speed (mph) March 2025 - March 2026*

Link	From	To	Hour beginning						
			7	8	9	15	16	17	18
A127									
207	Borough Boundary	Airbourne Close	+3.0	+3.3	+3.4	+4.7	+5.7	+5.5	+4.5
202	Airbourne Close	Cuckoo Corner	+1.0	+0.9	+1.7	+0.4	-1.2	-0.7	+1.2
170	Cuckoo Corner	Victoria Gateway	+0.2	+0.3	-2.2	-2.4	-1.9	-0.1	-1.9
A13									
205	Chalkwell Park Sign	Chalkwell Avenue	+0.6	-0.7	-0.6	-0.4	+0.6	+0.1	+0.3
206	Chalkwell Avenue	Western Esplanade	+0.2	+0.2	0.0	-1.2	-2.1	-1.9	-0.1
204	Chalkwell Park Sign	Victoria Gateway	+0.3	+0.4	+0.4	-0.5	+0.6	-0.5	-0.1

*All values show the change in average speed (mph) between March 2025 and March 2026. Positive values indicate an increase in average speed, while negative values indicate a decrease in average speed.

4.3. April 2025 / April 2026 Network Performance Changes

4.3.1. The comparison between April 2025 and April 2026 (shown in Table 4.3 and Table 4.4 below) indicates a more stable pattern of network performance than was observed in March, with journey time and

average speed results suggesting that road users had begun to adapt to the revised network configuration and temporary traffic management arrangements. Across much of the study network, reductions in journey times were accompanied by increases in average speeds, indicating improved traffic flow conditions relative to the baseline period.

4.3.2. On the A127 corridor, the Borough Boundary to Airbourne Close link continued to demonstrate notable improvements in performance. Journey times reduced by up to 77 seconds during the PM peak, whilst average speeds increased by up to 4.7 mph, indicating that traffic flow conditions on this section remained more favourable than prior to the implementation of the highway works. Elsewhere on the A127, conditions were generally more balanced. The Airbourne Close to Cuckoo Corner link displayed a mixed pattern, with journey time increases of up to 19 seconds and 22 seconds at certain times of day accompanied by corresponding reductions in average speed of up to 1.2 mph. However, periods of reduced journey time were also associated with modest speed increases, suggesting that congestion remained localised rather than persistent throughout the day. Similarly, the Cuckoo Corner to Victoria Gateway link recorded journey time reductions during much of the PM peak, accompanied by increases in average speed of up to 1.5 mph, indicating improved operating conditions compared with the March period.

4.3.3. On the A13 corridor, the most significant improvement was observed on the Chalkwell Park Sign to Chalkwell Avenue link. Journey times reduced consistently throughout the day, generally by between 14 and 21 seconds, whilst average speeds increased by between 8.2 mph and 10.5 mph. These results indicate substantially improved traffic flow conditions on this route during the construction period. In contrast, the Chalkwell Avenue to Western Esplanade link continued to experience some localised congestion during the PM peak, with journey time increases of up to 26 seconds accompanied by reductions in average speed of up to 1.3 mph. However, outside these periods, changes were generally modest and suggest that network performance remained broadly comparable with baseline conditions. The Chalkwell Park Sign to Victoria Gateway link also recorded only minor variations in both journey times and average speeds, indicating relatively stable operating conditions throughout the assessment period.

4.3.4. Overall, the April results suggest that the network had entered a more settled period of operation compared with March. Whilst some localised areas of congestion and delay remained, particularly on sections of the A13 during the PM peak, many routes experienced improved journey times and corresponding increases in average speed. Taken together, the results indicate that traffic patterns had begun to stabilise as road users adapted to the temporary highway arrangements associated with the Better Queensway works.

Table 4.3: Change in Journey Time (seconds) April 2025 - April 2026*

Link	From	To	Hour beginning						
			7	8	9	15	16	17	18
A127									
207	Borough Boundary	Airbourne Close	-57	-59	-38	-73	-77	-50	-25
202	Airbourne Close	Cuckoo Corner	+19	-5	-18	+22	-9	-4	+10
170	Cuckoo Corner	Victoria Gateway	+5	+9	-12	-11	-17	-9	+2
A13									
205	Chalkwell Park Sign	Chalkwell Avenue	-14	-17	-16	-21	-21	-20	-17
206	Chalkwell Avenue	Western Esplanade	-5	-12	-8	+26	+11	+2	-11
204	Chalkwell Park Sign	Victoria Gateway	+3	-1	-3	-6	+1	-3	-4

**All values show the change in journey time (seconds) between April 2025 and April 2026. Negative values indicate journey time savings; positive values indicate increased journey times.

Table 4.4: Change in Average Speed (mph) April 2025 - April 2026*

Link	From	To	Hour beginning						
			7	8	9	15	16	17	18
A127									
207	Borough Boundary	Airbourne Close	+2.9	+4.3	+3.7	+4.1	+4.7	+3.8	+3.3
202	Airbourne Close	Cuckoo Corner	-1.2	+0.3	+1.2	-1.1	+0.4	+0.2	-0.9
170	Cuckoo Corner	Victoria Gateway	-0.5	-0.9	+1.1	+0.9	+1.5	+1.0	-0.2
A13									
205	Chalkwell Park Sign	Chalkwell Avenue	+8.2	+9.5	+7.4	+8.5	+9.8	+9.8	+10.5
206	Chalkwell Avenue	Western Esplanade	+0.3	+0.8	+0.5	-1.3	-0.6	-0.1	+0.7
204	Chalkwell Park Sign	Victoria Gateway	-0.2	0.0	+0.1	+0.2	0.0	+0.1	+0.2

* All values show the change in average speed (mph) between April 2025 and April 2026. Positive values indicate an increase in average speed, while negative values indicate a decrease in average speed.

4.4. Combined March - April Review

4.4.1. Reviewing the March and April results together, the analysis indicates a progression from the earlier stages of the Better Queensway highway works towards a more stable pattern of network performance, with less variance between the pre-construction and construction journey times, as road users adapted to the revised network configuration and temporary traffic management arrangements. The journey time and average speed analyses present a consistent picture of changing traffic conditions across the study network, with improvements in journey time generally corresponding with increases in average speed, whilst increased journey times were accompanied by reductions in speed.

4.4.2. In March, changes in network performance were more variable and reflected the initial redistribution of traffic across the local highway network following the implementation of construction-phase traffic management measures. The most notable improvements were observed on the Borough Boundary to Airbourne Close section of the A127, where journey times reduced by up to 113 seconds and average speeds increased by up to 5.7 mph. In contrast, intermediate sections of the A127 and parts of the A13 experienced increased journey times and lower average speeds, indicating localised congestion where traffic demand had shifted onto alternative routes. These effects were most evident during the PM peak period, when demand across the network was highest.

4.4.3. By April, network performance appeared to have become more balanced and stable. Several routes that experienced pressure during March recorded improvements in both journey times and average speeds, suggesting that road users had begun to adapt to the revised traffic arrangements. This was particularly evident on the Cuckoo Corner to Victoria Gateway section of the A127 and on the Chalkwell Park Sign to Chalkwell Avenue section of the A13, where reduced journey times were accompanied by corresponding increases in average speed. Whilst some localised congestion remained, particularly on the Chalkwell Avenue to Western Esplanade link during the PM peak, the extent and magnitude of adverse impacts were generally lower than those observed in March.

4.4.4. Across both months, the PM peak remained the period most affected by the highway works, with the greatest increases in journey times and the most notable reductions in speed occurring during the afternoon period. This suggests that the network continued to experience capacity pressures where traffic was redistributed onto specific corridors and junctions. However, the results also demonstrate that these impacts were largely localised and did not occur uniformly across the wider network.

4.4.5. Overall, the combined analysis indicates that the Better Queensway works have resulted in a redistribution of traffic across the network rather than a widespread deterioration in performance. Whilst some routes experienced increased congestion and delay during the earlier stages of construction, other routes benefited from improved traffic flow conditions. The results suggest that the most pronounced impacts occurred during March 2026, with increasing evidence of network adaptation and stabilisation by April 2026 as road users adjusted to the temporary highway arrangements associated with the scheme.

4.5. Traffic Volume Comparison

4.5.1. The tables in this section present one-hour peak traffic volumes in the morning and evening peaks.

Victoria Avenue – Queensway

4.5.2. Table 4.5 indicates a notable reduction in traffic volumes on the principal Queensway approaches between October 2025 and June 2026. The largest decreases are observed on the A13 Queensway (East) approach, where inbound and outbound movements reduced by up to 351 vehicles and 336 vehicles respectively during the peak periods. Similar reductions are evident on the A127 Victoria Avenue and A13 Queensway (West) approaches, suggesting that traffic demand through this part of the network was lower during the construction period than prior to the implementation of the highway works.

4.5.3. The reductions on the main highway approaches are partially offset by increased activity associated with movements to and from the railway station, where inbound movements increased by 17 vehicles during the AM peak and 37 vehicles during the PM peak. Overall, the results suggest that traffic has been redistributed away from the Queensway corridor, resulting in lower traffic volumes at this gateway junction during the construction phase.

Table 4.5: Victoria Avenue – Queensway Traffic Volume Comparison

Arm	Movement	No. vehicles					
		Oct-25		Jun-26		Difference	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
A127 Victoria Ave	In	654	719	551	546	-103	-173
	Out	764	806	585	681	-179	-125
Station Car Park	Out	8	15	6	21	-2	+6
Railway Station	In	48	36	65	73	+17	+37
A13 Queensway (West)	In	768	995	645	815	-123	-180
	Out	672	623	487	468	-185	-155
A13 Queensway (East)	In	890	890	539	596	-351	-294
	Out	916	1196	722	860	-194	-336

Queensway – Chichester Road

4.5.4. The most significant changes across all surveyed locations are observed at the Queensway-Chichester Road junction (shown in Table 4.6 below). Traffic volumes on the inbound A13 Queensway (East) arm reduced to zero in both peak periods during June 2026. This reflects the closure of the Queensway underpass during the construction period and therefore represents the removal of a key traffic route rather than a reduction in underlying travel demand. Consequently, inbound flows reduced by 566 and 543 vehicles compared with the October 2025 baseline in the AM and PM peak respectively.

4.5.5. The closure of the underpass appears to have resulted in substantial traffic redistribution onto alternative routes, particularly Chichester Road. Inbound traffic on Chichester Road increased by 327 vehicles during the AM peak and 408 vehicles during the PM peak, representing the largest increases recorded at this junction. These results indicate that vehicles which would previously have travelled through the Queensway underpass were diverted onto the surrounding highway network, with Chichester Road acting as an important alternative route during construction.

Table 4.6: Queensway - Chichester Road Traffic Volume Comparison

Arm	Movement	No. vehicles					
		Oct-25		Jun-26		Difference	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Short Street	In	133	101	105	128	-28	+27
	Out	193	103	57	134	-136	+31
A13 Queensway (East)	In	566	543	0	0	-566	-543
	Out	760	784	463	732	-297	-52
Chichester Road	In	226	222	553	630	+327	+408
	Out	316	217	223	171	-93	-46
A13 Queensway (West)	In	1067	950	688	852	-379	-98
	Out	751	720	532	603	-219	-117
Railway Station	In	43	53	46	57	+3	+4
	Out	70	45	21	27	-49	-18

Queensway – Chancellor Road

4.5.6. Changes at the Queensway-Chancellor Road junction displayed in Table 4.7 indicate a redistribution of traffic rather than a substantial overall increase or decrease in demand. Traffic volumes on the A1160 Queensway (North) arm remained broadly comparable between the two survey periods, with only minor changes recorded across most movements. In contrast, movements associated with the eastern Queensway arm and Chancellor Road show more noticeable increases during the construction period.

4.5.7. The largest increases were recorded on Chancellor Road inbound movements, which increased by 92 vehicles during the AM peak and 134 vehicles during the PM peak. Similarly, outbound movements from the eastern Queensway arm increased by 114 vehicles and 135 vehicles respectively. These results suggest that traffic has been redistributed through the local network in response to the highway works, with Chancellor Road accommodating a greater proportion of vehicle movements than prior to construction.

Table 4.7: Queensway - Chancellor Road Traffic Volume Comparison

Arm	Movement	No. vehicles					
		Oct-25		Jun-26		Difference	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
A1160 Queensway (North)	In	413	580	412	564	-1	-16
	Out	163	186	160	158	-3	-28
A1160 Queensway (East)	In	639	412	690	402	+51	-10
	Out	493	807	607	942	+114	+135
Seaway Car Park Exit	In	22	28	28	39	+6	+11
Chancellor Road	In	294	433	386	567	+92	+134
	Out	647	400	727	436	+80	+36

Queensway – Southchurch Avenue

4.5.8. Table 4.8 displays that the Queensway-Southchurch Avenue junction experienced notable increases in traffic volumes on several arms between October 2025 and June 2026, suggesting that the surrounding local road network has accommodated additional traffic movements during the construction period. The largest increases were observed on the Southchurch Avenue (North) and Woodgrange Drive approaches. Southchurch Avenue (North) outbound movements increased by 154 vehicles during the AM peak and 191 vehicles during the PM peak, whilst Woodgrange Drive recorded increases across all movements, including outbound increases of 85 vehicles during the AM peak and 124 vehicles during the PM peak. These results suggest that a greater proportion of traffic is utilising local routes to access and circulate around the area as a consequence of the temporary highway arrangements.

4.5.9. Traffic volumes on the Queensway arm also increased substantially, with inbound movements rising by 112 vehicles during the AM peak and 148 vehicles during the PM peak, whilst outbound movements increased by 62 vehicles and 14 vehicles respectively. In contrast, the Southchurch Avenue (South) arm experienced relatively minor changes, with modest reductions in several movements and a small increase of 17 vehicles on the inbound approach during the PM peak. Overall, the results indicate that traffic has redistributed across the surrounding local road network, with increased activity on Queensway, Woodgrange Drive and the northern section of Southchurch Avenue suggesting these routes have become more important in accommodating traffic movements during the construction phase.

Table 4.8: Queensway - Southchurch Avenue Traffic Volume Comparison

Arm	Movement	No. vehicles					
		Oct-25		Jun-26		Difference	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Southchurch Avenue (North)	In	302	220	371	311	+69	+91
	Out	242	250	396	441	+154	+191
Woodgrange Drive	In	361	276	503	324	+142	+48
	Out	249	379	334	503	+85	+124
Southchurch Avenue (South)	In	481	352	437	369	-44	+17
	Out	498	619	476	594	-22	-25
Queensway	In	493	806	605	954	+112	+148
	Out	648	406	710	420	+62	+14

Southchurch Road – Southchurch Avenue

4.5.10. The results in Table 4.9 indicate a significant redistribution of traffic through the Southchurch Road corridor during the construction period. The largest increases were observed on Bournemouth Park Road, where traffic volumes increased by up to 139 vehicles during the AM peak and 216 vehicles during the PM peak. The Southchurch Avenue arm also recorded notable increases, particularly during the PM peak, indicating that these routes accommodated additional traffic during the construction phase.

4.5.11. Conversely, substantial reductions were recorded on the A13 Southchurch Road approaches. In particular, inbound movements on the western approach reduced by up to 383 vehicles during the PM peak, whilst outbound movements decreased by up to 177 vehicles during the AM peak. These results suggest that traffic patterns have shifted away from sections of Southchurch Road and onto alternative routes within the surrounding network, reflecting the wider redistribution of traffic associated with the Better Queensway highway works.

Table 4.9: Southchurch Road - Southchurch Avenue Traffic Volume Comparison

Arm	Movement	No. vehicles					
		Oct-25		Jun-26		Difference	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Bournemouth Park Rd	In	222	242	305	320	+83	+78
	Out	256	255	395	471	+139	+216
A13 Southchurch Rd (East)	In	472	353	402	339	-70	-14
	Out	362	517	187	202	-175	-315
Southchurch Avenue	In	360	277	395	434	+35	+157
	Out	295	267	338	302	+43	+35
A13 Southchurch Rd (West)	In	337	496	119	113	-218	-383
	Out	478	329	301	231	-177	-98

4.6. Overall Traffic Volume Review

4.6.1. Reviewing the traffic count results across the five survey locations, the analysis indicates that the Better Queensway highway works have resulted in a clear redistribution of traffic across the local highway network rather than a widespread increase or decrease in overall traffic demand. The most significant changes are concentrated around the Queensway corridor, where movements have adjusted in response to the closure of the Queensway underpass and the implementation of temporary traffic management arrangements. Significant reductions in traffic volumes were observed on several Queensway approaches, most notably at the Queensway-Chichester Road junction, where movements on the A13 Queensway (East) arm reduced to zero following closure of the underpass. These reductions were accompanied by corresponding increases on alternative routes, indicating that traffic has been diverted onto the surrounding local road network rather than removed entirely from the study area.

4.6.2. The results suggest that Chichester Road, Southchurch Avenue, Woodgrange Drive, Chancellor Road and Bournemouth Park Road have all accommodated higher traffic volumes during the construction period, reflecting their role as alternative routes for movements previously using the Queensway corridor. In particular, substantial increases on Chichester Road and at the Southchurch Road-Southchurch Avenue junction indicate that traffic patterns have adjusted to the revised network configuration and diversion arrangements. Conversely, several approaches on Victoria Avenue and Queensway recorded notable reductions in traffic volumes, demonstrating that demand has been redistributed across a wider area rather than concentrated on a single corridor.

4.6.3. These findings are consistent with the journey time and average speed analyses presented earlier in this chapter. Locations experiencing increased traffic volumes generally correspond with areas where localised increases in journey times and reductions in average speeds were observed, whilst routes with lower traffic volumes often experienced improved traffic flow conditions. The traffic count data therefore provides further evidence that the principal transport impacts of the Better Queensway works relate to changes in route choice and traffic distribution rather than a widespread deterioration in network performance.

4.6.4. Overall, the traffic volume analysis indicates that the local highway network has adapted to the temporary changes associated with the Better Queensway works by redistributing traffic across alternative routes. Whilst this has resulted in localised increases in traffic activity on certain corridors, the evidence does not indicate network-wide congestion or substantial growth in overall traffic demand. Instead, the results support the wider conclusion that the highway works have altered how traffic moves through the study area, with impacts varying by location and route according to the temporary network arrangements in place during construction.

5. Air Quality Impacts

5.1.1. This chapter assesses the extent to which the Better Queensway highway works have influenced local air quality conditions during the construction period. The assessment focuses on key traffic-related pollutants, including nitrogen dioxide (NO_2), particulate matter with a diameter of less than 2.5 micrometres ($PM_{2.5}$) and particulate matter with a diameter of less than 10 micrometres (PM_{10}), using monitoring data collected at locations across the wider Southend area.

5.1.2. Changes in air quality can occur as a result of alterations to traffic volumes, vehicle speeds, congestion levels and route choice. The temporary traffic management measures introduced to facilitate the Better Queensway works, including road closures, lane restrictions and diversion routes, have resulted in redistributing traffic across the local highway network and consequently influenced emissions at different locations. As such, the air quality assessment provides an important complementary perspective to the journey time and congestion analyses presented in Chapters 4 and 5.

5.1.3. The assessment adopts a before-and-during approach, comparing the baseline air quality data recorded during March and April 2025, prior to the implementation of the highway works, with equivalent periods in March and April 2026 during construction. The analysis is presented for both AM and PM peak periods to identify whether the temporary changes to the highway network have resulted in any discernible changes in pollutant concentrations. The locations of the data collection points are displayed in Figure 5.1 below.

5.1.4. As shown in Figure 5.1, the air quality monitoring locations included within this assessment are situated at varying distances from the Better Queensway highway works. Monitoring locations on Short Street and Sutton Road are located closest to the Queensway corridor and associated construction activities and are therefore considered likely to provide the most direct indication of any local air quality effects associated with the scheme and its temporary traffic management arrangements. Monitoring locations on Bournemouth Park Road and Chalkwell Avenue are located further from the works area but remain relevant as indicators of wider network conditions and potential changes in traffic distribution resulting from the highway works. Accordingly, whilst all monitoring locations have been considered within the assessment, particular attention should be given to the results observed at the sites closest to the scheme when interpreting potential localised air quality impacts.

Figure 5.1: Air Quality Data Collection Point Locations

5.1.5. It should be recognised that air quality concentrations can be influenced by a range of factors beyond traffic conditions, including meteorological conditions such as wind speed, rainfall and temperature, as well as wider background pollution levels. Air quality outcomes may also be influenced by longer-term changes in vehicle fleet composition, including the increasing proportion of lower-emission and electric vehicles, which may affect pollutant concentrations independently of changes associated with the Better Queensway works. However, the assessment compares equivalent months and peak periods in consecutive years, helping to reduce the influence of seasonal variation and provide a reasonable basis for understanding how air quality conditions have changed during the implementation of the Better Queensway highway works.

5.2. Air Quality Objectives

5.2.1. To provide context for the results presented in this chapter, observed pollutant concentrations have been considered against the relevant UK air quality objectives. The values presented in Table 5.1 and Table 5.2 below provide context for the pollutant concentrations assessed within this chapter. Review of the monitoring data used in this assessment indicates that recorded concentrations of NO_2, $PM_{2.5}$ and PM_{10} remained well below the relevant air quality objectives throughout the assessment period. Consequently, the analysis presented within this chapter focuses on understanding relative changes between baseline and construction-period conditions rather than identifying exceedances of statutory air quality thresholds.

Table 5.1: NO_2 Air Quality Objectives

Pollutant	Averaging Period	Objective Value (µg/m³)	Comments
NO_2	Annual Mean	40	UK Air Quality Objective
	1-Hour Mean	200	Not to be exceeded more than 18 times per year

Table 5.2: PM_{10} and $PM_{2.5}$ Air Quality Objectives

Pollutant	Averaging Period	Objective Value (µg/m³)	Comments
PM_{10}	Annual Mean	40	UK Air Quality Objective
	1-Hour Mean	50	Not to be exceeded more than 35 times per year
$PM_{2.5}$	Annual Mean	20	UK Air Quality Objective

5.3. NO_2 Levels

5.3.1. Nitrogen dioxide (NO_2) has been selected for detailed analysis as a primary indicator of traffic-related air pollution within the study area. NO_2 is predominantly emitted from vehicle exhausts, particularly diesel engines, and therefore provides a measure of the impact of traffic volumes and congestion on local air quality. Concentrations of NO_2 typically increase during peak travel periods, when higher traffic demand and stop–start conditions lead to elevated emission levels.

5.3.2. As such, analysing NO_2 enables an assessment of how changes to the highway network, including those associated with the Better Queensway scheme, influence emissions across different locations and times of day. Variations in NO_2 levels can be used to identify areas where traffic has intensified or reduced, supporting the interpretation of wider network performance and traffic redistribution effects.

5.3.3. Elevated NO_2 concentrations are associated with adverse health outcomes, including respiratory irritation, reduced lung function and the exacerbation of conditions such as asthma. Long-term exposure has also been linked to increased risks of cardiovascular and respiratory disease. The analysis of NO_2 is therefore important not only for understanding transport-related impacts, but also for assessing potential implications for public health and overall environmental quality. Nitrogen dioxide can also contribute to wider air quality issues through its role in atmospheric chemistry. NO_2 reacts in the atmosphere to form other pollutants, including ozone (O_3) and secondary particulate matter, which can affect air quality over a wider area and contribute to adverse environmental and health impacts. As a result, monitoring changes in NO_2 concentrations provides an indication not only of local traffic-related emissions but also of potential broader air quality effects.

5.4. March 2025 / March 2026 NO_2 Level Changes

5.4.1. The comparison of March 2025 and March 2026 (as shown in Table 5.3) indicates a mixed pattern of change in NO_2 concentrations across the study area, reflecting the redistribution of traffic associated with an earlier phase of the Better Queensway works. In general, reductions in NO_2 are observed during the AM peak period across several locations, particularly on Bournemouth Park Road and Chalkwell Avenue, where decreases of up to -16.2 µg/m³ and -18.2 µg/m³ respectively are recorded. This suggests a reduction in traffic volumes or improved flow conditions on these links during the morning peak.

5.4.2. However, the PM peak period presents a more variable picture. Certain locations, such as Short Street and Bournemouth Park Road, show increases in NO_2 concentrations at 17:00 and 18:00 (up to +3.9 µg/m³), indicating localised increases in traffic or congestion. In contrast, Chalkwell Avenue shows consistent reductions throughout the day, suggesting that this corridor may have experienced a sustained decrease in traffic demand.

5.4.3. Overall, the March results indicate that the highway works led to a redistribution of traffic flows, with reductions in emissions in some areas and increases in others, particularly during the more congested afternoon peak period.

Table 5.3: Change in NO_2 Levels (µg/m³) March 2025 – March 2026*

Link	Road	Hour beginning						
		7	8	9	15	16	17	18
1428	Sutton Road	+1.3	-4.4	-4.8	+1.2	-5.2	-0.2	+0.1
1492	Short Street	-1.8	-5.6	-4.4	+4.6	-4.3	+3.2	-3.7
1496	Bournemouth Park Road	-7.1	-12.3	-16.2	-1.5	+1.1	+3.9	+3.6
1513	Chalkwell Avenue	-16.1	-17.9	-18.2	-4.8	-7.3	-7.0	-8.7

* All values show the change in NO_2 concentration (µg/m³) between March 2025 and March 2026. Negative values indicate an improvement in air quality (lower NO_2 concentrations), while positive values indicate a deterioration in air quality (higher NO_2 concentrations).

5.5. April 2025 / April 2026 NO_2 Level Changes

5.5.1. The April comparison (as shown in Table 5.4) demonstrates a more balanced and generally improved pattern of NO_2 concentrations across the network, suggesting that traffic patterns have begun to stabilise following disruption observed in March. Reductions in NO_2 are again evident across several locations, particularly during the AM peak, with notable decreases on Bournemouth Park Road and Chalkwell Avenue (up to -13.0 µg/m³ and -15.9 µg/m³ respectively), indicating continued lower emission levels relative to the baseline.

5.5.2. During the PM peak, the pattern remains mixed but with fewer pronounced increases compared to March. While some localised rises are evident, such as on Short Street and Sutton Road at 15:00, these are generally modest in magnitude. In contrast, Chalkwell Avenue continues to show consistent reductions across most time periods, reinforcing the indication of reduced traffic impact along this route.

5.5.3. Overall, the April results suggest that the network has better adapted to the changes associated with the Better Queensway works, with NO_2 concentrations generally stabilising and, in many cases, reducing relative to pre-construction conditions. However, some localised increases persist, indicating that traffic redistribution continues to place pressure on specific routes and times of day, particularly during the PM peak.

Table 5.4: Change in NO_2 Levels (µg/m³) April 2025 – April 2026*

Link	Road	Hour beginning						
		7	8	9	15	16	17	18
1428	Sutton Road	-1.1	-0.8	+1.0	+6.2	-0.1	-4.3	+0.3
1492	Short Street	+2.9	-7.4	-4.8	+6.7	+2.7	+1.8	-0.2
1496	Bournemouth Park Road	+1.8	-10.0	-13.0	-1.3	-4.5	-2.8	+1.3
1513	Chalkwell Avenue	-11.3	-14.1	-15.9	-0.2	-3.3	-4.0	-7.8

* All values show the change in NO_2 concentration (µg/m³) between April 2025 and April 2026. Negative values indicate an improvement in air quality (lower NO_2 concentrations), while positive values indicate a deterioration in air quality (higher NO_2 concentrations).

5.6. Combined March / April Review

5.6.1. Reviewing the March and April results together, the analysis indicates a transition from a period of disruption to a more stable pattern of NO_2 concentrations across the study area, reflecting the network's adjustment to the Better Queensway highway works.

5.6.2. In March, changes in NO_2 concentrations were more variable, with noticeable reductions during the AM peak across several locations alongside localised increases during the PM peak. This pattern suggests that, during the earlier stages of the works, traffic was redistributed unevenly across the network,

leading to reduced emissions on some corridors while increasing pressure on others, particularly in the afternoon period when demand is highest.

5.6.3. By April, this pattern becomes more balanced, with more consistent reductions in NO_2 concentrations observed across a number of monitoring locations, particularly during the AM peak. While some increases remain in the PM period, these are generally smaller in magnitude and more localised compared to March, indicating that traffic flows stabilised and adapted to the altered network configuration.

5.6.4. Notably, certain routes, such as Chalkwell Avenue, show sustained reductions in NO_2 across both months, suggesting a longer-term decrease in traffic demand or improved flow conditions along these corridors. In contrast, locations such as Short Street and parts of the Sutton Road corridor exhibit continued variability, highlighting areas where traffic redistribution has resulted in fluctuating emission levels.

5.6.5. Across both months, the PM peak remains the period of greatest change and variability in NO_2 concentrations, indicating that the network continues to experience capacity pressures during periods of highest demand. This aligns with the findings from the journey time and congestion analyses, which identify the afternoon peak as the most sensitive to traffic redistribution and delay. Notably, the monitoring locations closest to the Better Queensway works (Short Street and Sutton Road) continued to exhibit a mixed but generally localised pattern of change, suggesting that any air quality effects associated with the highway works were limited in extent rather than widespread across the wider monitoring area.

5.6.6. Overall, the combined analysis demonstrates that the Better Queensway works have resulted in a redistribution and rebalancing of traffic-related emissions across the network. While impacts in March led to localised increases in NO_2 in some areas, the April results suggest that the network is adapting, with more stable and, in many cases, reduced NO_2 concentrations relative to pre-construction conditions, alongside continued localised pressures at specific routes and times of day. Notwithstanding the localised variations observed, recorded NO_2 concentrations remained below the relevant air quality objective thresholds throughout the assessment period.

5.7. PM2.5 and PM10 Levels

5.7.1. Particulate matter ($PM_{2.5}$ and PM_{10}) has been selected for analysis as it provides an important indicator of the wider air quality effects associated with road traffic and construction activity. Unlike NO_2, which is primarily emitted from vehicle exhausts, particulate matter is produced from a range of sources including vehicle exhaust emissions, tyre and brake wear, road surface abrasion, and the resuspension of dust by passing traffic. As a result, $PM_{2.5}$ and PM_{10} provide a broader measure of the environmental impacts associated with changes in traffic conditions and vehicle movements.

5.7.2. The distinction between $PM_{2.5}$ and PM_{10} relates to particle size. PM_{10} includes particles with a diameter of less than 10 micrometres, whilst $PM_{2.5}$ represents finer particles measuring less than 2.5 micrometres. These finer particles are of particular concern as they can work deeper into the respiratory system and remain suspended in the atmosphere for longer periods. Changes in traffic volumes, congestion levels and vehicle operating conditions can influence concentrations of both particle types, although levels may also be affected by external factors such as weather conditions, background pollution levels and localised dust generation. Changes in vehicle fleet composition, including increasing uptake of electric vehicles, may also influence particulate matter concentrations over time, although non-exhaust emissions such as tyre wear, brake wear and road surface abrasion remain important sources of particulate pollution.

5.7.3. Analysing $PM_{2.5}$ and PM_{10} concentrations therefore provides an additional perspective on how the Better Queensway highway works may have influenced local environmental conditions. While changes in particulate matter do not always correspond directly with changes in traffic flow, trends in PM concentrations can help identify areas where traffic redistribution, vehicle activity or other transport-related factors may be affecting air quality.

5.7.4. Elevated concentrations of particulate matter are associated with a range of adverse health effects. Exposure to $PM_{2.5}$ and PM_{10} has been linked to respiratory and cardiovascular diseases, reduced lung function and increased risk of premature mortality, particularly among vulnerable groups such as children, older people and those with existing health conditions. Due to their small size, the finest particulate matter (particularly $PM_{2.5}$) can penetrate deep into the lungs and enter the bloodstream, where it may be transported throughout the body and contribute to a range of wider health effects. Consequently, the assessment of particulate matter is an important component of understanding both the transport and public health implications of the Better Queensway scheme.

5.8. March 2025 / March 2026 PM25 and PM10 Level Changes

5.8.1. The comparison of March 2025 and March 2026 (as shown in Table 5.5 and Table 5.6) indicates a consistent reduction in both $PM_{2.5}$ and PM_{10} concentrations across all monitoring locations and time periods, suggesting an overall improvement in particulate air quality during the Better Queensway works. Unlike the more varied pattern observed for NO_2 concentrations, particulate matter levels show a uniform downward trend, with reductions evident throughout both the AM and PM peak periods.

5.8.2. For $PM_{2.5}$, the greatest reductions are generally observed during the morning peak period. Bournemouth Park Road records the largest decreases, reaching -6.0 µg/m³ at 07:00, while Chalkwell Avenue, Short Street and Sutton Road also show substantial reductions of between approximately -4.0 and -5.7 µg/m³. During the PM peak, reductions remain evident across all sites, although the magnitude of change is generally smaller, typically ranging between -0.3 and -2.8 µg/m³. This suggests that while particulate concentrations remained lower than baseline conditions throughout the day, the most pronounced improvements occurred during the morning period.

5.8.3. A similar pattern is evident for PM_{10} concentrations, although the reductions are generally larger in magnitude. Bournemouth Park Road again records the greatest improvements, with reductions reaching -8.9 µg/m³ at 07:00. Significant decreases are also observed at Chalkwell Avenue and Short Street, where PM_{10} concentrations are consistently between approximately -7.0 and -8.3 µg/m³ lower than in March 2025 during the AM peak. As with $PM_{2.5}$, reductions continue throughout the afternoon period, although at a lower magnitude, indicating that particulate levels remained below pre-construction conditions across the study area.

5.8.4. Overall, the March results suggest that the Better Queensway works have not led to an increase in particulate matter concentrations at the monitored locations. Instead, the data indicates a widespread reduction in both $PM_{2.5}$ and PM_{10} levels relative to the 2025 baseline. While particulate matter is influenced by a range of factors including weather conditions and background air quality, the observed reductions are consistent with the wider findings from the journey time, congestion and NO_2 assessments, which indicate that traffic has been redistributed across the network rather than generating significant increases in local environmental impacts.

Table 5.5: Change in PM2.5 Levels (µg/m³) March 2025 – March 2026*

Link	Road	Hour beginning						
		7	8	9	15	16	17	18
1428	Sutton Road	-4.4	-4.1	-3.4	-1.2	-0.8	-0.3	-1.0
1492	Short Street	-5.4	-4.9	-4.2	-1.9	-1.7	-1.2	-2.0
1496	Bournemouth Park Road	-6.0	-5.3	-4.9	-2.8	-2.4	-2.1	-2.7
1513	Chalkwell Avenue	-5.7	-5.5	-5.3	-2.1	-1.8	-1.6	-2.2

*All values show the change in PM2.5 concentration (µg/m³) between March 2025 and March 2026. Negative values indicate an improvement in air quality (lower PM2.5 concentrations), while positive values indicate a deterioration in air quality (higher PM2.5 concentrations).

Table 5.6: Change in PM10 Levels (µg/m³) March 2025 – March 2026*

Link	Road	Hour beginning						
		7	8	9	15	16	17	18
1428	Sutton Road	-5.8	-5.3	-4.6	-1.3	-0.9	-0.1	-1.1
1492	Short Street	-7.8	-7.0	-6.7	-2.9	-2.7	-1.9	-3.2
1496	Bournemouth Park Road	-8.9	-8.0	-7.9	-4.3	-3.8	-3.3	-4.4
1513	Chalkwell Avenue	-8.3	-8.0	-8.3	-2.9	-2.9	-2.6	-3.7

*All values show the change in PM10 concentration (µg/m³) between March 2025 and March 2026. Negative values indicate an improvement in air quality (lower PM10 concentrations), while positive values indicate a deterioration in air quality (higher PM10 concentrations).

5.9. April 2025 / April 2026 PM25 and PM10 Level Changes

5.9.1. The comparison of April 2025 and April 2026 (as shown in Table 5.7 and Table 5.8)shows a continued and widespread reduction in both $PM_{2.5}$ and PM_{10} concentrations across all monitored locations and time periods. The reductions observed in April are generally greater in magnitude and more consistent throughout the day than those recorded in March, indicating that particulate air quality has improved further as traffic patterns have adapted to the network changes associated with the Better Queensway works.

5.9.2. For $PM_{2.5}$, all monitoring locations recorded reductions across every observed hour. The largest decreases are evident at Short Street, Bournemouth Park Road and Chalkwell Avenue, where concentrations are up to -6.9 µg/m³, -7.0 µg/m³ and -6.8 µg/m³ lower respectively during the morning peak period. Unlike the March results, substantial reductions continue throughout the afternoon peak, with most locations recording decreases of between -4.2 and -6.3 µg/m³. This indicates that improvements in fine particulate concentrations are not limited to specific times of day but are evident throughout the network across both peak periods.

5.9.3. The PM_{10} results show an even more pronounced pattern of improvement. Significant reductions are recorded across all locations and hours, with Bournemouth Park Road showing the greatest decreases, reaching -10.6 µg/m³ during the PM peak. Similarly, Short Street and Sutton Road record reductions of up to -10.1 µg/m³ and -8.6 µg/m³ respectively. The consistency of these reductions throughout the day suggests that concentrations of coarse particulates remained substantially below baseline levels across the study area during the construction period.

5.9.4. Overall, the April results indicate that particulate matter concentrations have reduced consistently and considerably when compared with pre-construction conditions. The more uniform pattern of reductions relative to March suggests that the network has entered a more stable operating condition following the initial adjustment period associated with the highway works. While particulate concentrations remain influenced by external factors such as meteorological conditions and background pollution levels, the observed reductions align with the broader findings from the journey time, congestion and NO_2 assessments, indicating that traffic redistribution associated with the Better Queensway scheme has not resulted in increased particulate pollution at the monitored locations and may have contributed to improved local air quality conditions.

Table 5.7: Change in PM2.5 Levels (µg/m³) April 2025 – April 2026*

Link	Road	Hour beginning						
		7	8	9	15	16	17	18
1428	Sutton Road	-6.4	-6.0	-5.6	-5.4	-5.0	-4.9	-4.3
1492	Short Street	-6.9	-6.2	-5.5	-5.0	-4.9	-4.9	-4.2
1496	Bournemouth Park Road	-7.0	-6.5	-6.5	-6.3	-6.0	-5.6	-4.9
1513	Chalkwell Avenue	-6.7	-6.8	-6.6	-5.1	-5.0	-5.2	-4.8

*All values show the change in PM2.5 concentration (µg/m³) between April 2025 and April 2026. Negative values indicate an improvement in air quality (lower PM2.5 concentrations), while positive values indicate a deterioration in air quality (higher PM2.5 concentrations).

Table 5.8: Change in PM10 Levels (µg/m³) April 2025 – April 2026*

Link	Road	Hour beginning						
		7	8	9	15	16	17	18
1428	Sutton Road	-8.8	-8.6	-8.5	-8.6	-8.1	-8.0	-7.0
1492	Short Street	-10.1	-9.5	-8.9	-8.3	-8.2	-8.3	-7.3
1496	Bournemouth Park Road	-10.2	-9.9	-10.3	-10.6	-10.1	-9.4	-8.4
1513	Chalkwell Avenue	-9.5	-9.9	-10.1	-7.8	-7.7	-8.2	-7.7

*All values show the change in PM10 concentration (µg/m³) between April 2025 and April 2026. Negative values indicate an improvement in air quality (lower PM10 concentrations), while positive values indicate a deterioration in air quality (higher PM10 concentrations).

5.10. Combined March / April Review

5.10.1. Reviewing the March and April results together, the analysis indicates a consistent reduction in both $PM_{2.5}$ and PM_{10} concentrations across all monitored locations during the construction period when compared with the before highway works conditions. Unlike NO_2, which exhibited some localised increases associated with traffic redistribution, particulate matter concentrations showed a uniformly downward trend throughout both months, suggesting an overall improvement in particulate air quality across the study area.

5.10.2. In March, reductions in $PM_{2.5}$ and PM_{10} were evident across all monitoring sites, although the magnitude of change was generally greater during the AM peak than the PM peak. By April, these reductions had become more pronounced and consistent throughout the day, indicating that particulate concentrations remained substantially below pre-construction levels across both peak periods. This suggests that any initial disruption associated with the Better Queensway works did not result in increased particulate emissions at the monitored locations and that air quality conditions had stabilised as the network adjusted to the revised traffic arrangements.

5.10.3. Overall, the combined assessment indicates that the Better Queensway works have not resulted in adverse impacts on particulate air quality at the monitored locations. Instead, both March and April show evidence of reduced $PM_{2.5}$ and PM_{10} concentrations relative to baseline conditions, supporting the broader conclusion that traffic redistribution associated with the scheme has occurred without generating widespread increases in transport-related air pollution. The consistent reductions observed at both the monitoring locations closest to the works and those located further afield suggest that the observed changes are not indicative of adverse localised particulate impacts resulting from the Better Queensway scheme.

5.10.4. It should, however, be recognised that particulate matter concentrations can be influenced by a range of factors beyond traffic conditions, including meteorological conditions, background pollution levels and other local environmental influences. In addition, longer-term changes in vehicle fleet composition, including growth in electric vehicle ownership, may also influence air quality trends and should be considered when interpreting the results. Whilst these wider factors may influence observed concentrations, the comparison of equivalent months and peak periods in consecutive years helps to reduce the influence of seasonal variation and provides a reasonable basis for assessing changes during the construction period. In addition, recorded $PM_{2.5}$ and PM_{10} concentrations remained below the relevant air quality objective thresholds throughout the assessment period.

6. Community and Stakeholder Impacts

6.1.1. This chapter provides a qualitative assessment of the impacts of the Better Queensway highway works on businesses, residents and the wider community during the construction period. The assessment draws upon stakeholder correspondence, engagement records, project communications, notification letters and other evidence provided by SoSCC, together with the findings of the transport and air quality assessments presented in the preceding chapters.

6.1.2. The delivery of the Better Queensway highway improvements has required a range of temporary traffic management measures, including road closures, lane restrictions, diversions and changes to access arrangements. Whilst access through the network has been maintained wherever practicable, these measures have altered established travel patterns and accessibility conditions across parts of the study area. As a result, businesses, residents and community facilities have experienced varying degrees of disruption during different phases of the construction programme.

6.1.3. The impacts experienced by businesses and residents are not necessarily the same and have therefore been considered separately within this chapter. The following sections examine the principal issues identified through stakeholder feedback, including changes to accessibility, travel conditions, customer activity and community access, together with the engagement, communication and mitigation measures implemented by SoSCC throughout the construction period.

6.1.4. This chapter also considers the extent to which the impacts identified have been temporary, localised and manageable within the context of a major highway infrastructure project taking place within a busy urban area.

6.2. Business Impacts

6.2.1. The Better Queensway highway works have resulted in temporary impacts on business operations associated with changes to accessibility, travel patterns and traffic conditions during the construction period. The phased implementation of road closures, lane restrictions, diversions and other traffic management measures altered established vehicle movements across parts of the study area, creating changing accessibility conditions as different stages of the works progressed. Businesses located within and adjacent to the works area therefore experienced varying impacts depending on their location and the specific traffic management arrangements in place at the time.

6.2.2. The evidence reviewed indicates that customer accessibility and footfall were among the principal concerns raised by local businesses. In particular, businesses located on Southchurch Road West reported that trading conditions became more challenging during certain phases of the works, with some traders expressing concerns regarding reduced customer activity and the impact of altered traffic patterns on passing trade. Whilst several businesses acknowledged the influence of wider economic factors affecting trading performance, correspondence suggests that disruption associated with the highway works was considered to have contributed to these challenges.

6.2.3. The highway works also had the potential to affect servicing arrangements, delivery routes, staff travel and vehicle access. However, the traffic management documentation reviewed indicates that diversion routes and alternative access arrangements were implemented throughout the construction period, and no evidence was identified to suggest that businesses became inaccessible as a result of the works. Access to premises was maintained wherever practicable through phased construction activities, signed diversion routes and temporary access arrangements.

6.2.4. Throughout the construction period, SoSCC undertook a programme of engagement and communication with local businesses to provide advance notice of works, explain traffic management arrangements and identify opportunities to minimise disruption where practicable. Engagement was undertaken through notification letters, direct correspondence, stakeholder meetings, newsletters and ongoing discussions with affected businesses and business representatives. Businesses were provided with information regarding road closures, diversion routes, temporary access arrangements and key

construction milestones, enabling them to plan for changes to customer access, servicing arrangements and staff travel.

6.2.5. The evidence reviewed also demonstrates that opportunities were provided for businesses to raise concerns and provide feedback as traffic management arrangements evolved. In response to issues raised, SoSCC engaged with affected businesses and considered a range of potential mitigation measures intended to support accessibility and customer activity. Business feedback was also used to inform the ongoing review of traffic management arrangements and other measures designed to minimise disruption where practicable throughout the construction programme.

6.2.6. Business feedback relating to the traffic management arrangements was mixed and demonstrates that impacts were not experienced uniformly across the study area. Whilst some businesses reported concerns regarding customer accessibility, footfall and trading conditions, evidence gathered during the northbound Queensway diversion trial indicates that several businesses on Southchurch Road West reported increased footfall and supported the continuation of the diversion arrangement, citing additional passing trade and improved customer activity. These contrasting experiences suggest that changes in traffic patterns created both challenges and opportunities for businesses depending on their location and customer base.

6.2.7. Overall, the available evidence suggests that the principal business impacts related to changes in accessibility, customer travel patterns, servicing arrangements and footfall associated with temporary traffic management measures. The effects identified were generally localised and varied according to location and the phase of construction underway at the time. Whilst some businesses reported adverse effects associated with accessibility and trading conditions, others identified positive outcomes linked to altered traffic flows and increased customer activity. The evidence further demonstrates that SoSCC maintained an ongoing programme of communication, engagement and mitigation throughout the works, helping to manage disruption and maintain access wherever practicable during the construction period.

6.3. Resident Impacts

6.3.1. The Better Queensway highway works have resulted in temporary impacts on residents and community stakeholders through changes to travel conditions, accessibility and local access arrangements during the construction period. The implementation of road closures, diversions and other temporary traffic management measures altered established travel patterns across parts of the study area, requiring residents to adapt to revised routes and access arrangements as different phases of the works progressed.

6.3.2. The evidence reviewed indicates that concerns raised by residents primarily related to traffic delays, congestion, parking availability and access to local destinations. These concerns were particularly evident during periods of significant road closures and diversion activity, when residents reported changes to established travel routes and longer journey times when travelling to work, accessing services or visiting family and friends. Feedback from public transport operators also indicated that congestion on parts of the network affected bus service reliability, which may have influenced the travel experience of residents reliant on public transport for day-to-day journeys.

6.3.3. The assessment also identified concerns relating to access to community facilities during the construction period. Communications relating to All Saints Church highlighted concerns that temporary road closures and changes to parking availability could make access more difficult for worshippers, particularly elderly and disabled members of the congregation. Concerns were also raised regarding the potential impact on church activities and the ability of visitors to park close to the facility during certain phases of the works.

6.3.4. Similarly, engagement with Porters Grange Primary School identified the importance of maintaining safe and convenient access for pupils, parents and staff throughout the construction programme. Discussions focused on changes to local access arrangements, school travel patterns and road safety considerations associated with construction activity and temporary traffic management measures.

Measures were considered to support safe access, including ongoing liaison with the school and the promotion of nearby crossing facilities.

6.3.5. Throughout the construction period, SoSCC implemented a programme of resident and community engagement to inform stakeholders of upcoming works and traffic management changes. This included resident information events, public drop-in sessions, newsletters, project updates, direct correspondence and targeted notification letters distributed to households and community facilities affected by changes to access arrangements and traffic conditions. These communications provided information regarding the purpose of the works, anticipated timescales, diversion routes and opportunities for residents to raise questions or concerns.

6.3.6. SoSCC also undertook targeted engagement with community organisations and facilities likely to be affected by specific phases of the works. This included liaison with All Saints Church regarding accessibility and parking provision and continued engagement with Porters Grange Primary School regarding access arrangements and road safety considerations. The evidence reviewed indicates that concerns raised through these discussions were considered throughout the development and implementation of mitigation measures.

6.3.7. A range of mitigation measures were implemented to maintain accessibility during construction. These included maintaining pedestrian access through affected areas, preserving access to community facilities wherever practicable, identifying alternative parking opportunities and providing advance notice of road closures and changes to local access arrangements. Traffic management arrangements and diversion routes were also monitored throughout the works, allowing conditions to be reviewed and adjusted where necessary in response to stakeholder feedback and observed network performance.

6.3.8. Overall, the available evidence suggests that the principal impacts on residents and community stakeholders related to temporary changes in travel conditions, accessibility and the need to adapt to revised traffic arrangements during construction. Whilst these impacts resulted in inconvenience for some residents, the evidence indicates that access to homes, schools, places of worship and community facilities was maintained throughout the construction period. The impacts identified were generally localised and temporary in nature, reflecting the challenges commonly associated with the delivery of a major highway infrastructure project within a busy urban environment.

6.4. Overall Assessment

6.4.1. The Better Queensway highway works have resulted in temporary impacts on businesses, residents and community stakeholders through changes to accessibility, travel conditions and traffic patterns during the construction period. The phased implementation of road closures, diversions and other traffic management measures altered established movements across parts of the study area, creating a changing operating environment for those living, working and travelling within the affected area.

6.4.2. The evidence reviewed indicates that the impacts of the works were not experienced uniformly. Some businesses reported concerns regarding customer accessibility, footfall and trading conditions, whilst residents raised concerns relating to congestion, travel disruption, parking availability and access to local destinations and community facilities. However, the impacts identified were generally localised and varied according to location, the phase of construction underway and the specific traffic management arrangements in place at the time.

6.4.3. The assessment also demonstrates that access to businesses, homes, schools, places of worship and community facilities was maintained throughout the construction period wherever practicable. Whilst some stakeholders were required to adapt to alternative routes, revised access arrangements or temporary parking changes, no evidence was identified to suggest widespread loss of access as a result of the works. Furthermore, some stakeholders reported beneficial effects associated with altered traffic flows, including instances of increased footfall and customer activity at certain business locations.

6.4.4. The evidence reviewed further demonstrates that SoSCC implemented an ongoing programme of communication, engagement and mitigation throughout the construction period. This included

stakeholder correspondence, public information events, targeted engagement with affected businesses and community facilities, advance notification of traffic management changes and the monitoring and review of arrangements in response to feedback and observed network conditions. These activities helped to ensure that concerns raised by stakeholders were considered throughout project delivery and that mitigation measures could be implemented or refined where practicable.

6.4.5. Overall, the available evidence suggests that the Better Queensway highway works have generated temporary and localised impacts consistent with the delivery of a major highway infrastructure project within a busy urban environment. Whilst disruption has occurred during certain phases of construction, there is no evidence of widespread or severe adverse impacts across the wider study area. The findings indicate that impacts have been managed through ongoing engagement, communication, access arrangements and mitigation measures, enabling businesses, residents and community facilities to continue operating throughout the construction period.

7. Conclusion

7.1.1. Pell Frischmann has been commissioned by SoSCC to write this impact report and undertake an assessment of the effects of the Better Queensway highway works during the construction period, with consideration given to journey times, congestion, air quality, business operations and residents' quality of life. The assessment has been informed by observed transport and environmental data together with a review of stakeholder correspondence, engagement records, project communications and traffic management documentation.

7.1.2. The network performance assessment indicates that the highway works resulted in a redistribution of traffic across the local road network during the construction period. Changes in journey times and average speeds varied by location and time of day, with some routes experiencing increased delay and reduced speeds, particularly during the PM peak period, whilst other routes experienced improved traffic flow conditions. Traffic count surveys further demonstrate that traffic patterns adjusted in response to the temporary highway arrangements, with reductions in traffic volumes observed on parts of the Queensway corridor and corresponding increases on alternative routes within the surrounding network. Together, the results suggest that the principal transport impacts of the works related to changes in route choice and traffic distribution rather than a widespread deterioration in network performance. Overall, the evidence indicates that network impacts were localised and that traffic conditions became increasingly stable as road users adapted to the revised network configuration and temporary traffic management arrangements.

7.1.3. The air quality assessment does not identify widespread adverse environmental impacts associated with the highway works. Whilst changes in NO_2 concentrations varied across monitoring locations, reflecting changes in traffic distribution, these effects were generally localised. Monitoring locations closest to the Better Queensway works, including Short Street and Sutton Road, did not indicate evidence of significant adverse air quality impacts attributable to the scheme. Furthermore, $PM_{2.5}$ and PM_{10} concentrations were found to be consistently lower during the construction period than during the baseline period. Although the observed changes may also have been influenced by wider factors including meteorological conditions, background pollution levels and changes in vehicle fleet composition, the assessment indicates that the temporary highway works have not resulted in a deterioration in air quality at the monitored locations. Importantly, recorded concentrations of NO_2, $PM_{2.5}$ and PM_{10} remained below the relevant air quality objective thresholds throughout the assessment period.

7.1.4. The review of community and stakeholder impacts indicates that the principal effects of the works related to temporary changes in accessibility, travel conditions, customer activity and traffic patterns. Business feedback demonstrated a mixed experience, with some businesses reporting concerns regarding accessibility and trading conditions whilst others identified benefits associated with altered traffic flows and increased passing trade. Residents and community stakeholders primarily raised concerns regarding congestion, travel disruption, parking availability and access to local facilities during particular phases of the works. However, the evidence reviewed indicates that access to businesses, homes, schools, places of worship and community facilities was maintained throughout the construction period wherever practicable, supported by ongoing communication, engagement and mitigation measures.

7.1.5. Overall, the evidence indicates that the Better Queensway highway works have generated temporary and localised impacts consistent with the delivery of a major highway infrastructure project within an urban environment. Whilst disruption has occurred during certain phases of construction, the impacts identified were generally associated with changes to travel behaviour and accessibility rather than the complete loss of access or severe deterioration in environmental conditions. Whilst localised adverse effects have been experienced, there is no evidence to suggest widespread or severe impacts across the wider study area. The overall findings indicate that impacts have been managed through phased traffic management, stakeholder engagement and mitigation measures, enabling the continued operation of the transport network, businesses and community facilities throughout the construction period.

7.1.6. From the evidence analysed, it can be concluded that the highway works have been managed effectively to mitigate significant adverse impacts to road users, businesses, residents and the public.