national highways

A19 / A1058 Coast Road junction improvement

Three-year post-opening project evaluation

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Foreword

National Highways is the government-owned company that operates, maintains, and improves England's motorways and major A roads. Our roads help our customers get to their destination safely – and in the time they expect to. Road safety is, and will always be, our number one priority. We are committed to reducing the number of people killed or seriously injured on our roads.

As Chief Customer and Strategy Officer, I want to know that developments on our network are meeting their objectives and are putting the needs of drivers first. Post Opening Project Evaluations (POPEs) are a vital part of that assessment. POPEs are undertaken for all our major projects to understand how traffic changes, due to a project being in place, the environmental and safety impacts and how a project supports the economy.

We work to a five-year funding cycle, a radical new approach to road investment first introduced in 2015 which saw the government committing £15.2 billion in the period from 2015 to 2021. The A19/A1058 Coast Road junction improvement project was officially opened during this period, in March 2019.

The A19/A1058 Coast Road junction improvement was implemented to improve historically significant traffic delays at the junction viewed as a blocker for further development of the area. The project was designed to remove A19 through-traffic from the A19 roundabout, to relieve congestion (particularly at peak times) and improve safety at the junction. At three years after opening, we have observed journey time improvements on the A19 across all time periods (morning, inter-peak and evening peaks) and in both directions compared to the before the project.

Average speeds have increased on A19/A1058 junction and over the wider A19 corridor. Average journey times improved by more than seven minutes in the morning peak in the northbound direction; there was more than four minutes saving in the evening peak for the southbound direction. The largest reliability of journey improvement was observed northbound in the morning peak, with reliability for A19 road users improving in both directions and in all peak periods compared to before.

Overall, the junction improvement has contributed to addressing congestion and improving journey time reliability on the A19, complementing other recent investments, such as that at Testo’s junction. The introduction of A19 free-flow movements has also helped to improve journey quality and likely to have eased driver stress.

We have observed a reduction in the rate and number of personal injury collisions and an improvement on the impact of casualties in the project extent and surrounding area. At three-year evaluation stage the project has met its safety objective.

Access for local residents and users has improved with the introduction of segregated walking and cycling facilities to adjacent employment and retail facilities. Three-year economic evaluation suggests the project is on track to deliver ‘high’ value for money, which was forecast in the business case for the project.

Elliot Shaw

Chief Customer and Strategy Officer

March 2025

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1. Executive summary

The A19/A1058 Coast Road junction improvement is situated in North Tyneside in the north-east of England. The project involved lowering the A19 under the existing A19/A1058 junction in a cutting as part of a fully grade-separated three-level interchange, referred to as a triple-decker interchange, to provide a free-flowing link. New slip roads were also introduced to connect the roundabout to the newly realigned A19, and the Middle Engine Lane railway bridge was widened to accommodate these slip roads. Facilities for walkers and cyclists were improved through the construction of two new shared-use bridges to provide a dedicated pathway over the A1058 slip roads, with other upgrades also included. The improvements were implemented over nearly three years, with the project opening to traffic in March 2019.

Historically, there have been significant traffic delays at this junction, and it was seen as a blocker to further development of the area, particularly the Cobalt and Silverlink estates. The project was designed to remove A19 through-traffic from the A19 roundabout, to relieve congestion (particularly at peak times) and improve safety at the junction. A further justification for the project was to support growth in North Tyneside through delivering increased capacity and connectivity necessary to accommodate predicted traffic growth over the 10-15 year horizon.

Based on analysis of journey times three years after opening, we have observed improvements on the A19 across all time periods (morning, inter-peak and evening peaks)[1] and in both directions compared to the before situation. In the northbound direction, average journey times improved by more than seven minutes in the morning peak; whilst in the southbound direction the greatest improvement was observed in the evening peak, representing more than four minutes saving. Average speeds also increased at the A19/A1058 junction and over the wider A19 corridor. The reliability of journeys for A19 road users has also improved in both directions and in all peak periods compared to before. The largest reliability improvement was observed northbound in the morning peak. Overall, the junction improvement has contributed to addressing congestion and improving journey time reliability on the A19, complementing other recent investments, such as that at Testo's junction.

There has been a reduction in the rate and number of personal injury collisions (PICs) on both the project extent and the surrounding network since the project opened for traffic. On the project extent, there was an annual average reduction of nine PICs with the average collision rate decreasing from 52 PICs per hundred million vehicle miles (hmvm) to 23 PICs per hmvm. This equates to travelling an additional three million vehicles miles before a collision occurs. On the surrounding network, a reduction was observed in the number of PICs of 94, with the collision rate reducing by 30 PICs per hmvm since the project has been open to traffic. There was a positive reduction across all the fatal and weighted injuries (FWI)[2] and

[1] morning (8-9am), inter-peak (10am-3pm) and evening peaks (5-6pm)

[2] The FWI weights collisions based on their severity. A fatal collision is 1, a serious collision is 0.1 and a slight collision is 0.01. The combined measure is added up. A full number is the equivalent to a fatality.

killed or seriously injured[3] measures in the wider area, with no changes or a minimal increase observed on the project extent.

The introduction of A19 free-flow movements has also helped to improve journey quality and likely to have eased driver stress.

From site visit observations undertaken one-year opening environmental impacts were mixed. Some impacts, such as air quality, noise and greenhouse gases were 'better than expected,' with the outcomes for landscape and townscape considered worse than expected due to mitigation planting had not established or was in poor condition, reflecting in part poor ground conditions at the time. Follow up discussions and observations since the one-year site visit has confirmed that replacement planting has now established well.

As part of the junction improvement, the scheme has accommodated segregated walking and cycling facilities and, as such, has reduced severance for users / local residents accessing adjacent key employment and retail facilities.

The economic evaluation has highlighted, based on the first three years of operation, that the project is on track to deliver the 'high' value for money forecast in the business case.[4]

The project has successfully delivered reduced delays for through traffic on the A19 at the intersection, as well as improved safety for such journeys.

[3] The number of people killed or seriously injured (KSI) in road traffic collisions. This metric is non-weighted but does not pick up all injuries (slight casualties). KSI rate per hmvm is the rate calculated using the number of people who are killed or seriously injured, and the total miles travelled on a road section or type.

[4] The value for money categories referenced are defined by Department for Transport (DfT) https://www.gov.uk/government/publications/dft-value-for-money-framework

2. Introduction

What is the project and what was it designed to achieve?

Prior to intervention, the A19/A1058 Coast Road junction consisted of a traffic signal controlled, grade separated interchange. The A1058 Coast Road passed over the A19 roundabout on elevated structures, and merge / diverge slip roads provided links to the roundabout below. Historically, this arrangement led to significant traffic delays at the junction, and therefore, it was seen as a blocker to further development of the area, particularly at the adjacent Cobalt and Silverlink estates. The junction also experienced a high collision rate.

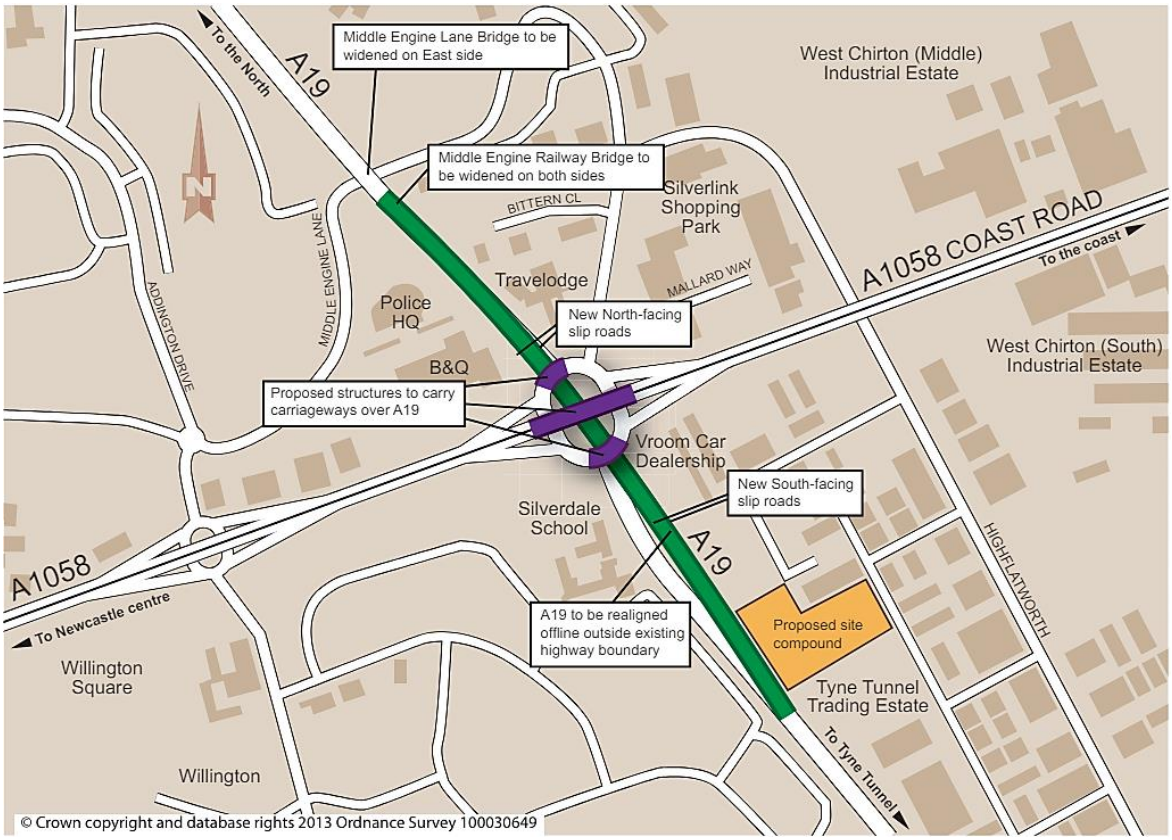
The project was identified by the government in 2012 as a major infrastructure improvement to address the historical congestion and collision constraints. By increasing capacity to meet the needs of predicted traffic growth over the 10-15 year horizon, it was also expected to deliver improved customer experience and connectivity to the Port of Tyne, supporting economic growth in North Tyneside.

Construction to improve the junction commenced in June 2016, with works completing and opening for traffic in March 2019. The project scope, illustrated in Figure 1, is comprised of the following elements:

- Realignment / upgrade of the existing roundabout into a fully grade-separated three-level interchange, referred to as a triple-decker interchange. This involved realigning the A19 at the junction as an underpass, creating free-flow links for road users on both the A19 itself and A1058 Coast Road.
- Construction of new slip roads to connect the roundabout to the realigned A19, which also necessitated the widening of the Middle Engine Lane railway bridge to accommodate the slip roads.
- Construction of three new single span structures to allow the A1058 Coast Road and A19 roundabout to cross over the realigned A19.
- Provision of ancillary infrastructure including a central reserve concrete barrier, drainage, pavements, road lighting, traffic signals, traffic signs, road markings and CCTV.

In addition, two new shared-use bridges were also built to provide a dedicated pathway for walkers and cyclists over the A1058 slip roads.

Figure 1 A19/A1058 Coast Road junction improvement schematic



Source: National Highways A19 Public Consultation - A1058 Coast Road Improvements booklet[5]

The project also complements several other significant improvement projects delivered on the local highway network in the wider study area since 2006, including:

- Second Tyne Tunnel (opened in February 2011)
- A19 Seaton Burn pinch point project (opened in January 2015)
- A1 Coal House to Metro Centre improvement (opened in August 2016)
- A19/A184 Testo's junction improvement (opened in June 2021)
- A19 Downhill Lane junction improvement (opened in March 2022)

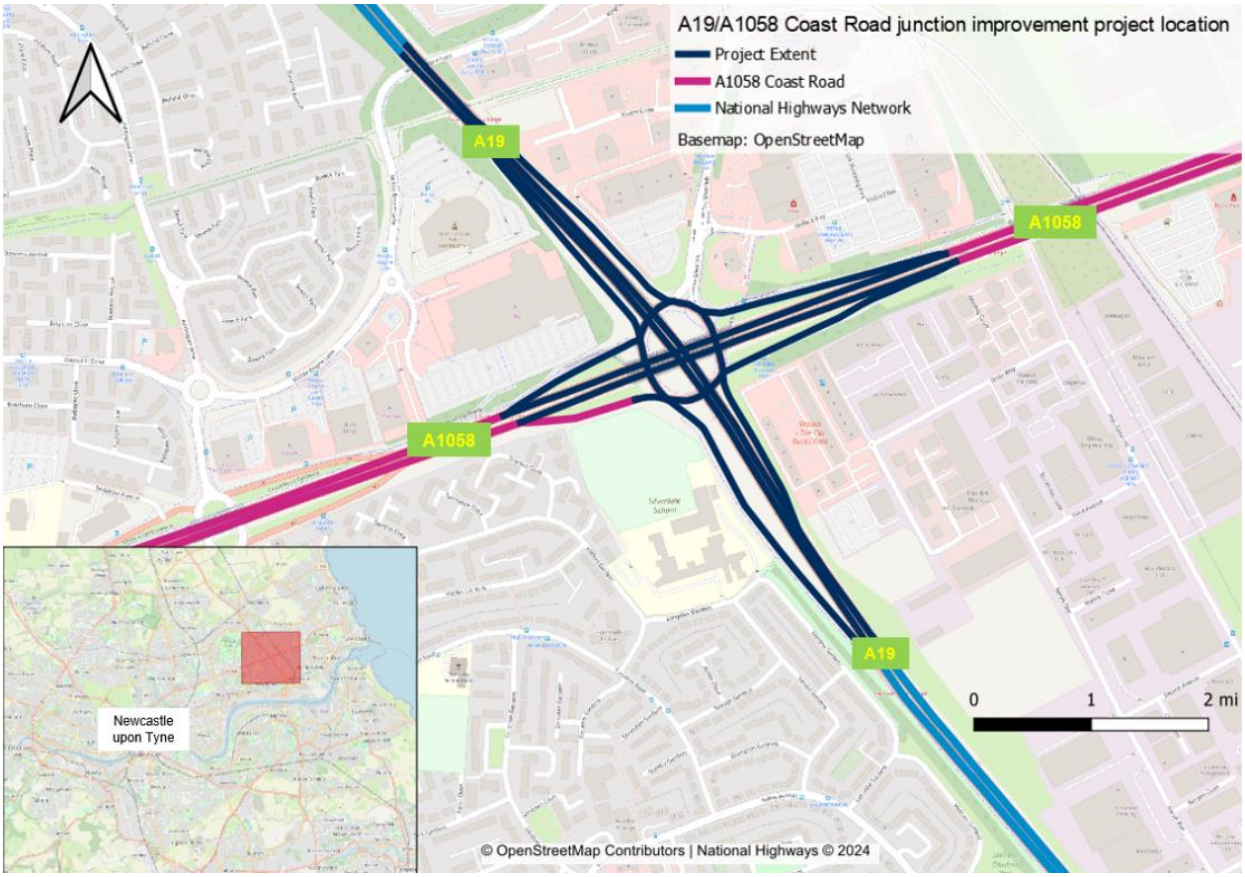
Several of these schemes were taken into consideration when forecasting traffic flows and journey times for the project. The A1 Coal House to Metro Centre improvement was omitted from the forecasts due to likely having a minimal impact on the A19. The delivery of the improvement further reinforces efforts made to improve flow and reliability for road users on the A19, recognising its strategic value as a north-south corridor and ensuring the local highway network has the capacity for future development in the corridor.

5 https://assets.publishing.service.gov.uk/media/5a7c1c95ed915d210ade1a63/N130372_A19_Coast_road_PC_Booklet.pdf

Project location

The A19/A1058 Coast Road junction is situated in North Tyneside in the metropolitan county of Tyne and Wear. Both the A19 and A1058 Coast Road are strategic routes carrying traffic both north-south and east-west respectively. The A19 serves a strategic role within the North East and effectively provides the eastern orbital route around Newcastle upon Tyne. The A1058 Coast Road is a local route that links Newcastle City Centre to the west with the coast at Tynemouth to the east. The A19 and A1058 Coast Road intersect at the Silverlink junction, as shown in Figure 2.

Figure 2 A19/A1058 Coast Road junction improvement project location



Source: National Highways and OpenStreetMap contributors.

How has the project been evaluated?

A post-opening project evaluation (POPE) is carried out for major projects to validate the accuracy of expected project impacts which were agreed as part of the business case for investment. They seek to determine whether the expected project benefits are likely to be realised and are important for providing transparency and accountability for public expenditure, by assessing whether projects are on track to deliver value for money. They also provide opportunities to learn and improve future project appraisals and business cases.

This POPE compares changes in key impact areas including safety, journey reliability and environmental impacts, by observing trends at the A19/A1058 junction before the project was constructed (baseline) and tracking these impacts now the project has opened to traffic. The outturn impacts are evaluated against the expected impacts (presented in the forecasts made during the business case

appraisal stage) to review the project's performance. The evaluation also includes a re-forecast value for money statement based on observed benefits. For more details of the evaluation methods used in this study, please refer to the POPE methodology manual on our website.[6]

As part of this three years after assessment, the customer journey analysis makes use of 2021 quarter 4 data, due to data limitations in 2022 quarter 1. The safety analysis utilises 2022 quarter 1 data, representing three-years post project opening in March 2019. Furthermore, the environmental assessment is informed by inputs from the customer journey and safety analysis, together with a site visit conducted one year after.

[6] pope-methodology-note-2024-v2.pdf (nationalhighways.co.uk)

3. Delivering against objectives

How has the project performed against objectives?

All our major projects have specific objectives which are defined early in the business case process when project options are being identified. The A19/A1058 Coast Road improvement had seven key objectives, primarily related to increasing capacity, improving journey reliability, and improving safety for road users and residents. These objectives are appraised to be realised over 60 years; this evaluation provides early indication if the project is on track to deliver the benefits.

Table 1 summarises the project's performance against each of the objectives, using evidence gathered from this study.

Table 1: Project Objectives and Evaluation summary

Objective	Three-year after evaluation
Reduce congestion and increase reliability of journey times on the strategic corridor.	The project has contributed to a reduction in congestion, leading to improved speeds along the A19 (between Seaton Burn junction and Testo's junction). Journey time reliability for road users on the A19 has also improved for both northbound and southbound trips in all peak periods. The largest improvement was observed northbound in the morning peak (8-9am) with journey times seeing a reduction of over seven minutes compared to before the project.
Complement improvements to the local network of highways, in particular the second Tyne Tunnel project, Seaton Burn pinch point project and Testo's junction improvement project.	The project has complemented a series of improvements implemented in the local highway network, as observed with the improvements in congestion and journey times along a wider section of the A19.
Minimise impacts on both the natural and built environment, including designated landscape / biodiversity features and seek to mitigate impacts on air quality and noise.	As anticipated, the implementation of the scheme has resulted in some impact on the natural landscape and biodiversity, due to the loss of mature vegetation. This has in turn impacted views for nearby residential properties. However, works at the northern end of the project were less significant, reducing the predicted visual impacts for properties there. Mitigation planting was also provided and has now become established. Impacts to air quality and noise were also not as high as predicted in the appraisal.

Objective	Three-year after evaluation
Improve the safety for road users and contribute to the government's current safety strategy targets by addressing poor collision rates.	The project has seen a reduction in the number and rate of personal injury collisions (PICs) on both the project extent and the surrounding network. On the project extent, the average collision rate decreased from 52.4 PICs per hundred million vehicle miles (hmvm) to 22.9 PICs per hmvm. In the surrounding area, a similar trend was observed, with a decline in the annual average rate of PICs per hmvm, from 49.8 before the project to an average of 24.6 at three years after.
Improve safety for residents in the vicinity of the junction.	PICs have reduced at the project, and the enhanced provision for walkers and cyclists will also likely result in safer journeys while moving across the project.
Facilitate integration with other transport modes where applicable.	The project has facilitated improved links for walkers and cyclists to public transport options serving Silverlink shopping park in particular.
Reduce severance by maintaining or providing appropriate facilities for walkers and cyclists crossing and travelling along the route.	The new pedestrian and cycling provision was, for the large part, delivered by the project reducing the severance experienced by walkers and cyclists before the project was built. The new overbridges across the A1058 off slip, crossing points and the removal of A19 strategic traffic from the junction, have improved access to and from Silverlink shopping park and movements across the junction.

4. Customer journeys

Summary

For this POPE study, we have analysed traffic levels from before the project was implemented (2015) and two-years after the project opened (2021), to understand any changes to customer journeys. Due to data limitations, we could not analyse traffic flows three years after the project opened to traffic (2022).

In terms of traffic growth observed in 2021, the project route on the A19 northbound observed growth higher than the regional background traffic levels and other National Highways 'A' Roads. The A1058 Coast Road and the wider local network saw traffic levels lower at three years after compared to before the project. This variance can likely be attributed to the impact of the Covid-19 pandemic and associated travel restrictions since 2020, where traffic levels are recovering at different rates for local and strategic trips and overall traffic volumes still not reaching those observed pre-pandemic.

A key project objective was to reduce congestion and increase journey time reliability on the A19 strategic corridor. The three years after journey times on the A19 (between Seaton Burn junction and Testo's junction) have improved across all time periods and in both directions compared to the before situation. In the northbound direction, average journey times improved the most in the morning peak (over seven minutes), with southbound seeing the greatest improvement in the evening peak (over four minutes). This has also meant the project, alongside other improvements such as that implemented at Testo's junction, has contributed to improving speeds along the A19. Journey times were also forecast to be longer at three years after than what was observed, highlighting the success of the project in removing congestion. The reliability of journeys for road users on the A19 has also improved, in both directions and in all peak periods. The largest improvement was observed northbound in the morning peak with journey times seeing a reduction of over six minutes compared to before the project was implemented.

While the project has been successful in contributing to reduced congestion along the route, the impact of Covid-19 and lower than forecast traffic growth has also likely contributed to the improvements in journey times found at three years after.

How have traffic levels changed?

The following sections examine the changes in traffic flow along the project extent and on roads in its vicinity. We have compared these with the observed national, regional, and local trends. Observed and forecast traffic flows were also compared to understand the extent to which forecast flows were realised.

National and regional

To assess the impact of the project on traffic levels, it is useful to understand the changes within the context of national and regional traffic. To do this, we use Department for Transport (DfT) annual statistics. The data is reported by local authority and road type, recording the total number of million vehicle miles travelled.[7] This data is used as a baseline, and we attribute any growth observed

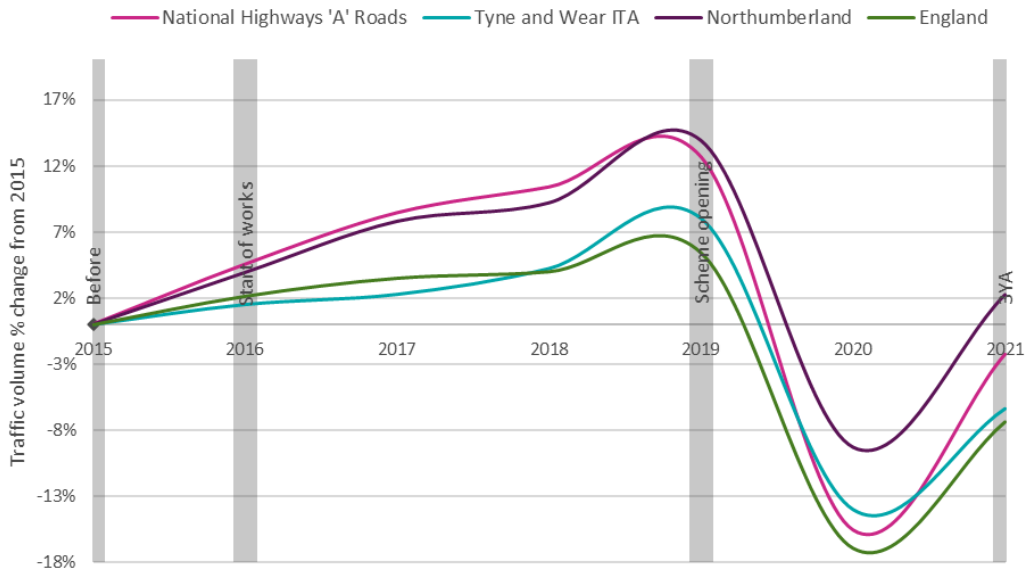
[7] Motor vehicle traffic (miles) by region in Great Britain, annual from 1993 to 2022, Table TRA 8901, DfT

on roads in the project area which is above national and regional trends to the project.

Figure 3 shows the yearly changes in background traffic flow at county, national, and regional levels between 2015 and 2021. Between 2015 (before construction) and 2016 (start of construction), there was traffic growth at all geographical levels, with the lowest growth in Tyne and Wear. Between 2015 and 2019, Tyne and Wear (+8%) and Northumberland (+14%) experienced higher growth in traffic volumes than England (+5%).

All background traffic levels decreased dramatically in 2020, at the start of the Covid-19 pandemic and associated travel restrictions. Figure 3 illustrates the immediate adverse impact the Covid-19 pandemic had on background traffic volumes, which was not considered as part of the appraisal process. Traffic flows have since increased following the pandemic; however, traffic levels are recovering at different rates with both Tyne and Wear and England, experiencing a slower growth rate to that of Northumberland and National Highways 'A' roads. The plot also demonstrates that traffic levels in late 2021 were still not reaching those observed pre-pandemic, particularly within the Tyne and Wear geography.

Figure 3 Changes in national and regional background levels of traffic



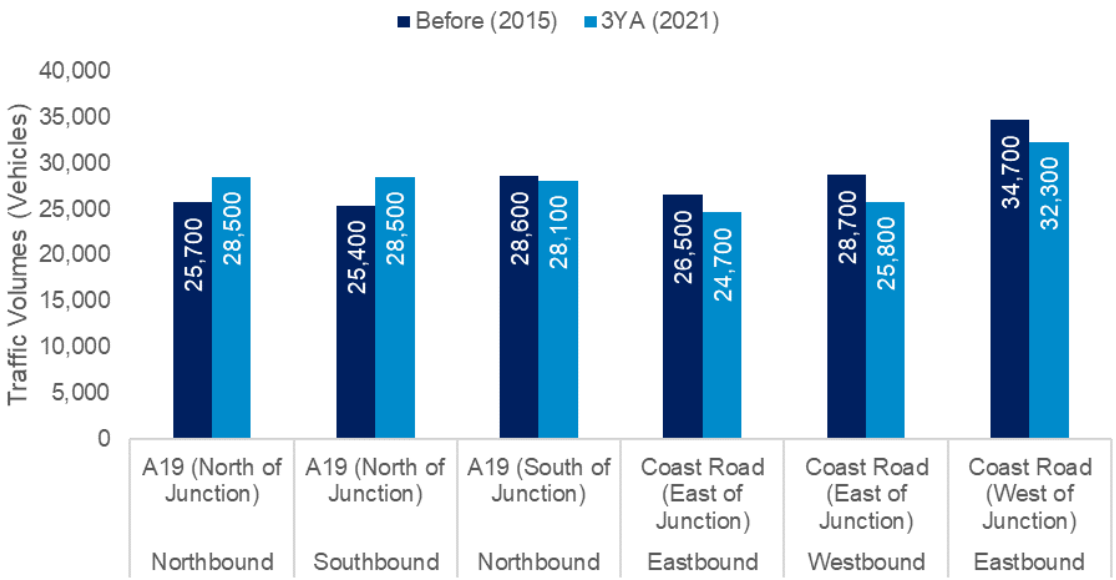
Source: DfT Road Traffic Statistics Table TRA8901.

How did traffic volumes change?

Traffic volumes have been analysed on the project extent and in the wider area before and after the project implementation. As shown in Figure 4, since opening, there has been some variation in average weekday traffic (AWT)[8] volumes along the project extent. Except for the A19 (North of junction), post opening traffic flows were lower than pre-construction levels across all routes analysed. The decline in traffic at three years after ranged from 7% to 10%. These trends align with the national and regional trend data and further emphasise the impact of Covid-19 related restrictions and subsequent traffic behaviours, with less localised trips occurring and traffic flow on the strategic road network (i.e. A19) recovering at a quicker rate.

[8] Average weekday traffic (AWT) is the average number of vehicles in a 24-hour period for a given link, exclusive of weekends and any bank holidays.

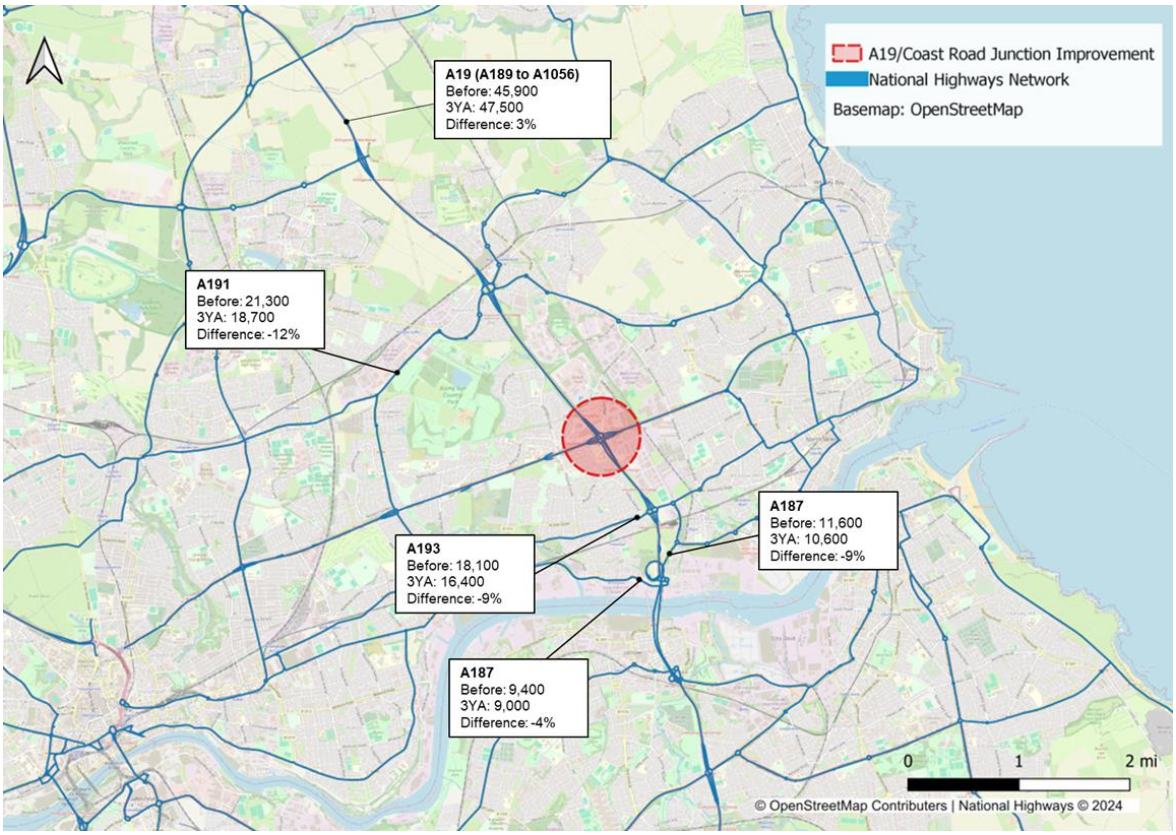
Figure 4 Change in traffic volumes (AWT) volumes for A19/A1058 Coast Road junction project



Source: National Highways (WebTRIS) and Gateshead Council (TADU). Before: September 2015, 3YA: September 2021.

To understand the wider context of traffic flow changes in the local area, 24-hour AWT flows are presented in Figure 5 for key routes north and south of the A19/A1058 junction. At three years after opening, the flows were generally observed to be lower at most locations compared to pre-opening levels. The reduction in traffic flows compared to before the project, ranged from 4% to 12%, with the highest reduction occurring on the A191 to the north-west of the project. In comparison, there was a small increase in traffic flows three years after opening, of 3% on the A19, some six kilometres north of the A19/A1058 junction. Several local developments were either established or being built by 2021 potentially leading to increased local trips egressing and merging onto the A19. One such development was in Backworth Park, which saw the construction of 145 residential dwellings and creation of new access onto the B1317 and Killingworth Avenue.

Figure 5 Comparison of wider area flows, before and after project implementation (two-way AWT)

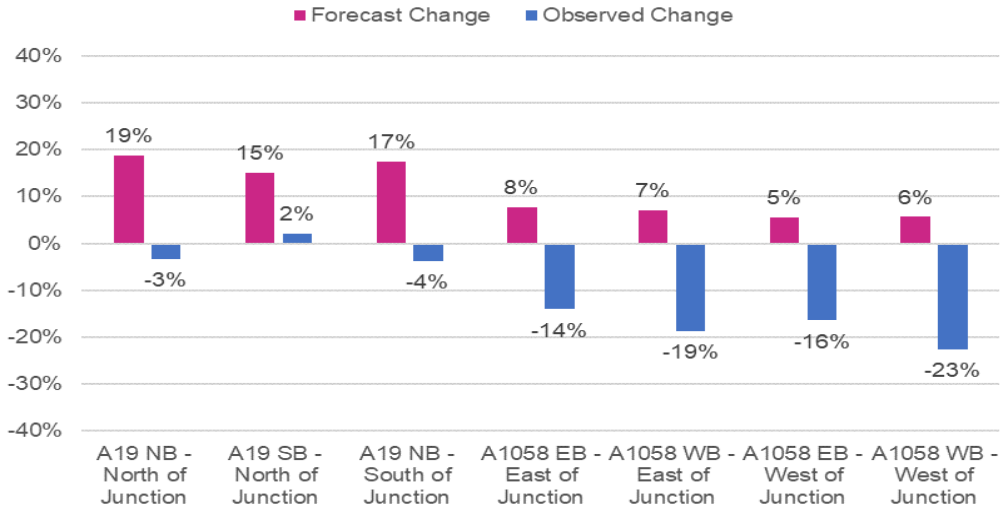


Source: National Highways (WebTRIS) and Gateshead Council (TADU). Before: September 2015, 3YA: September 2021.

Was traffic growth as expected?

The investment decision for this project was supported by a project appraisal which included forecasts about the likely impact on traffic. A comparison of the appraisal forecast and observed outturn changes in traffic volumes is shown in Figure 6.

Figure 6 Forecast change in traffic volumes and observed change in actual traffic volumes[9]



Source: Traffic Forecasting Report, National Highways (WebTRIS) and TADU. Before: 2015 and 3YA: 2021.

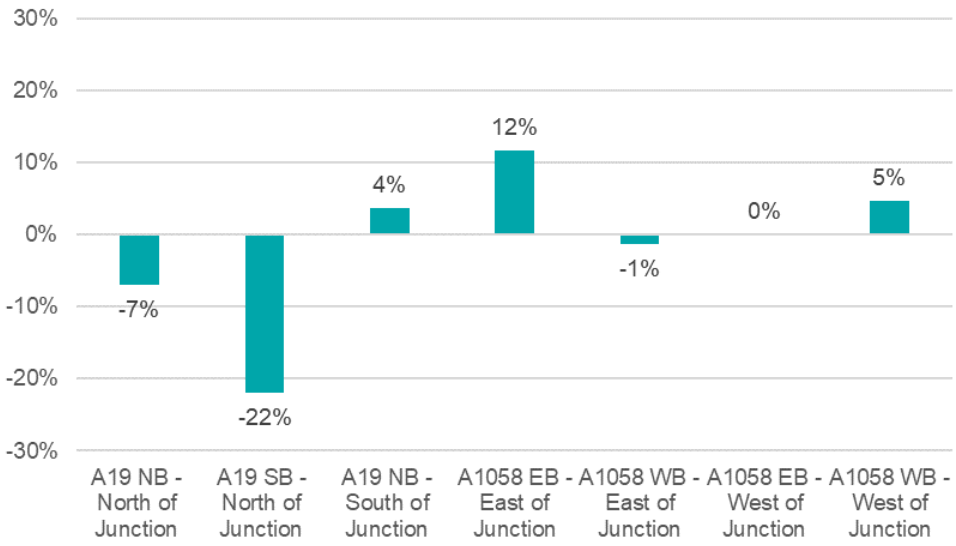
[9] Graph shows the forecast change in Average Annual Daily Traffic (AADT) volumes (forecasted with-project flows for 2021 vs forecasted without project 2015 flows) and observed change in actual traffic flows (in 2015 vs in 2021).

The projected growth within the project's extent varies from 5% to 19%. The forecast traffic flows supporting the business case expected a greater growth rate on the A19, resulting in an overall average of 17%. The observed data shows that traffic has decreased in all project sections except for the southbound direction of the A19, north of the junction. Three years after opening, the reduction of traffic ranged from 3% to 4% on the A19 and 14% to 23% on the A1058 Coast Road. The largest decline in traffic was observed along the A1058 Coast Road (east and west of the junction).

As with the assessment of trend data (Figure 3), Figure 6 illustrates that local trips at three years after were still recovering from the Covid-19 pandemic and the restrictions imposed, which had a significant impact on traffic levels, particularly in 2020. The observed three years after traffic flows along the A19 also did not reach the expected level of change as forecast in the Traffic Forecasting Report (TFR).

To understand the accuracy of the pre-opening forecasts, we compared the forecast pre-opening flows and observed flows from 2015 in Figure 7. The forecast flows were generally lower than the observed flows. The largest difference is in the southbound direction of the A19, north of the junction, which was 22% lower in the observed before data.

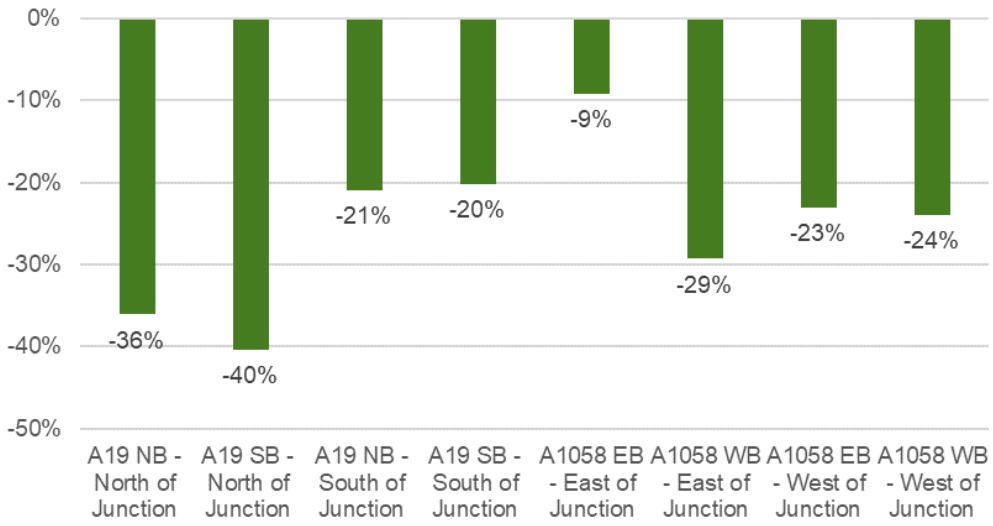
Figure 7 Comparison of forecast vs observed traffic flows (2015 baseline)



Source: Traffic Forecasting Report, National Highways (WebTRIS) and TADU. Before: 2015.

Figure 8 presents the difference between the forecast and observed traffic volumes for 2021. The observed 2021 flows were 9% to 40% lower than the forecast. In general, the forecast growth rates significantly exceeded the observed rates. The post evaluation concludes that it is likely that the Covid-19 pandemic travel restrictions and subsequent travel behaviour changes impacted post-opening forecast travel flows, and it is not possible to determine whether the model was not able to represent the impact of the project.

Figure 8 Comparison in forecast vs observed traffic flows (2021 post-opening)



Source: Traffic Forecasting Report, National Highways (WebTRIS) and TADU. 3YA: 2021.

Relieving congestion and making journeys more reliable

One of the project's primary objectives was to reduce congestion and increase reliability for journey times on the A19 strategic corridor. The analysis of journey times and speeds has been used as a proxy to indicate the impact of the project on congestion. The extent to which journey times vary from the expected average journey time also provides an indication of journey reliability.

Forecast journey time changes were taken from the TFR and compared with observed journey times (TomTom) collected before and after opening. Journey times between Testo's junction and Seaton Burn roundabout were used as the basis for the analysis (Figure 9).

The journey time analysis route includes multiple junctions that have been upgraded between the 2015 and 2021, which coincides with the analysis period for this POPE and are likely to have contributed to some of the journey time savings observed in this section. The junction upgrades include:

- Testo's junction improvement (*opened in June 2021*) - consisted of a 141-metre span flyover, new local road connections and public rights of way.
- Holystone interchange improvement (*opened in December 2017*) - the roundabout was widened, providing four lanes on the eastern side and five lanes on the western side. The A191/A186 approaches and A19 slip roads were widened so that each provide three lanes onto the Holystone interchange.

The time periods presented in this section correlate to the three weekday peak periods as presented in the TFR. These include:

- morning peak (8-9am)
- inter-peak (10am-3pm)
- evening peak (5-6pm)

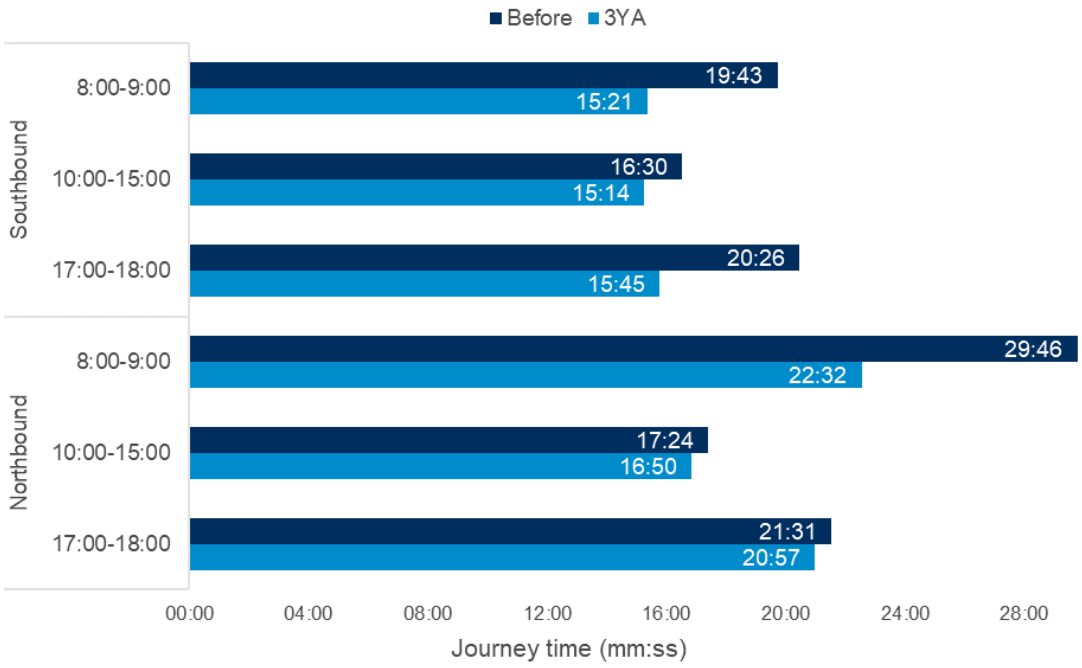
Figure 9 Journey time analysis route

Source: Satellite navigation (TomTom)

Did the project deliver journey time savings?

Three years after opening, journey times were reduced across all time periods and in both directions, suggesting that the project has contributed to a reduction in congestion along the route (Figure 10). Some of this change will inevitably be impacted by reduced traffic flows on the route influenced by the Covid-19 pandemic.[10]

Figure 10 Change in average journey times northbound and southbound (before vs three years after)



Source: Satellite navigation (TomTom). Before: September and October 2015, 3YA: September and October 2021.

[10] For this evaluation, it was not possible to undertake a counterfactual analysis owing to the nature of the improvement (junction) and variance in speed limits on the immediate network.

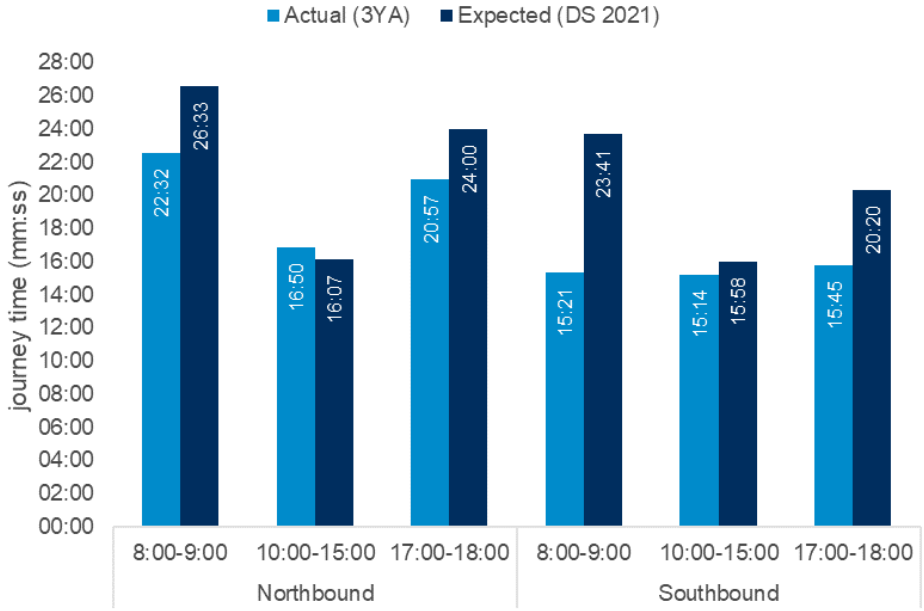
In the northbound direction, average journey times were improved by over seven minutes in the morning peak and by circa 30 seconds in the inter-peak and evening peak. In the southbound direction, average journey times also improved at three years after in all time periods. In the morning and evening peak, journey times reduced by over four minutes, whilst an approximate one-minute journey time saving was observed in the inter-peak.

Were journey time savings in line with forecast?

A comparison has been made between the observed journey times three years after and the forecast journey times in the TFR. The forecast journey times are referenced as 'expected' in this section. The expected journey times shown in Figure 11 have been calculated by interpolating the forecast journey times, to present the same year as the observed journey times, which is 2021.

In Figure 11**,** the observed journey times three years after the project opening were generally lower compared to the expected times, with the inter-peak northbound being the exception to this trend.

Figure 11 Actual versus expected journey times



Source: Satellite Navigation (TomTom) and TFR. 3YA: September and October 2021, DS 2021: interpolated from forecast 2018 and 2023.

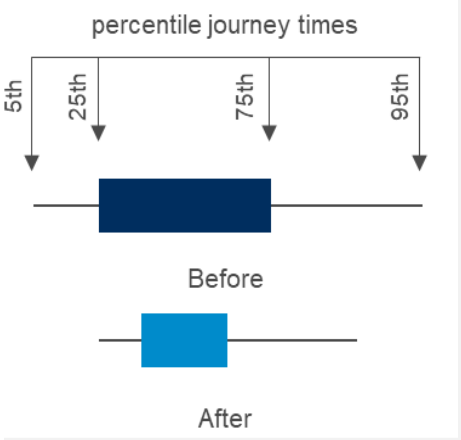
Did the project make journeys more reliable?

Congestion can make journey times unreliable. If the time taken to travel the same journey each day varies substantially, journey times are unreliable, and the road user is less confident in planning how long their journey will take them. If journey times do not vary, the road user can be more confident in the time their journey will take and allow a smaller window of time to make that journey.

An objective of the project was to increase journey time reliability on the A19 strategic corridor. To measure this, we examined how much journey times vary from the average journey time, on any day or time-period. The distribution of journey times is a good indication of how much journey times vary as illustrated in the box and whisker diagrams below.

An explanation of the metrics shown in the box-and-whiskers diagrams is provided in Figure 12.

Figure 12 What does a box plot show?



The lowest point is the 5th percentile, this means 5% of journeys take less than this amount of time to complete. The highest point is the 95th percentile, this means 95% of journeys take less time than this to complete.

The length of the box shows how the journey times vary between the 25th and 75th percentile (the journey time 25% and 75% of journeys are faster than). The narrower the box, the less variable, and hence more reliable, the journey.

The journey time reliability is depicted in Figure 13 and

Figure 14.

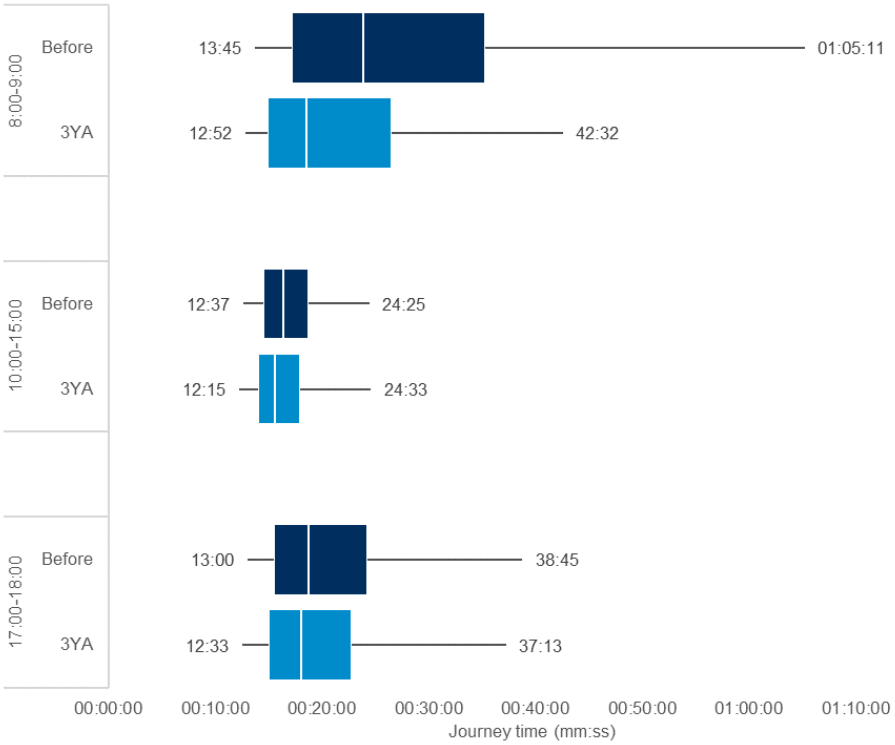
For road users northbound (Figure 13), reliability of journeys compared to before the project during all peak periods, has improved. The largest improvement occurred in the morning peak (six-minute improvement compared to before). Similarly, the variability in journey times was reduced during the inter-peak and evening peak periods. Southbound (

Figure 14), all the main time periods also saw an improvement in journey reliability compared to before, with the largest improvement observed during the evening peak (close to four minutes). We can therefore conclude that the project has led to journeys becoming more reliable for road users.

The longest journey times are depicted by the 95th percentile (the line extending to the right of the boxes). For road users northbound, the longest journey times reduced during the morning and evening peaks compared to before, with the morning peak observing times declining by approximately 22 minutes. Southbound, the longest journeys during all peak periods also saw considerable improvements in journeys times, with the evening peak seeing a reduction of over 16 minutes.

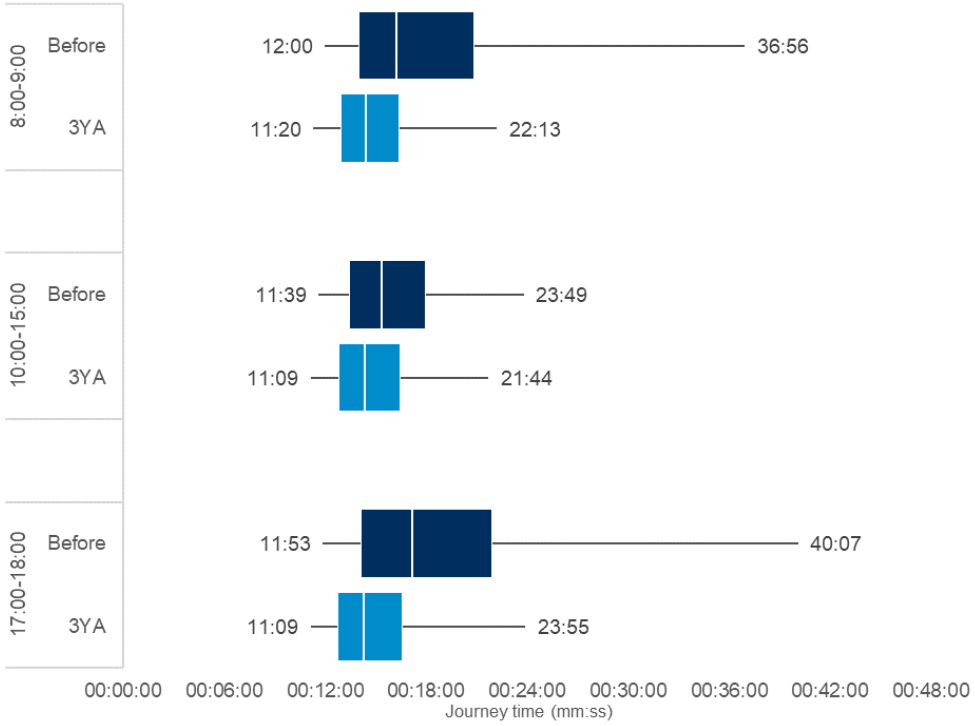
The shortest journey times (depicted by the 5th percentile) in both directions during all time periods observed a reduction. This highlights that the journey time route has experienced quicker journeys post introduction of the project.

Figure 13 Journey time reliability northbound (time taken to drive through the route hh:mm:ss)



Source: Satellite Navigation (TomTom) Traffic Analytics. Before: September and October 2015, 3YA: September and October 2021.

Figure 14 Journey time reliability southbound (time taken to drive through the route mm:ss)



Source: Satellite Navigation (TomTom) Traffic Analytics. Before: September and October 2015, 3YA: September and October 2021.

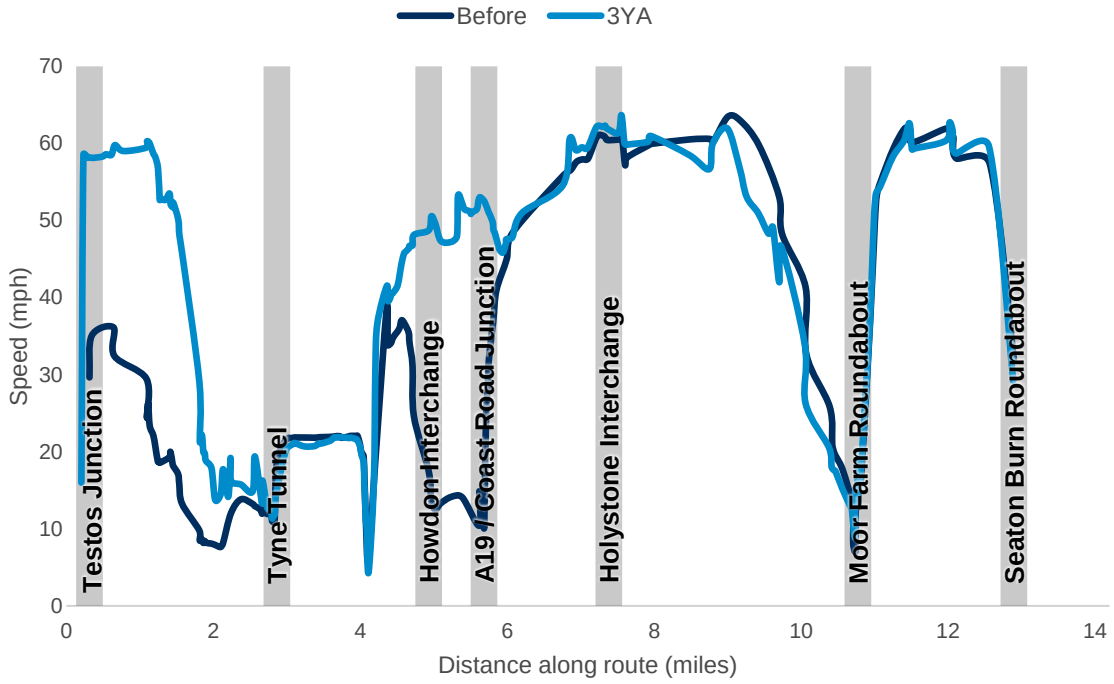
How did the project impact road user's speeds?

In combination with the journey time analysis, speed measurements can help to determine whether the project has succeeded in achieving its objective to reduce congestion on the A19 strategic corridor.

Figure 15 Illustrates the average journey speeds A19 northbound in the AM peak It demonstrates that compared to before, the project's implementation has contributed to significant improvements in vehicle speeds between the Howdon interchange (to the south of the scheme) and the A19/A1058 Coast Road junction, with speeds increasing from 10mph to levels reflecting the spend limit (50mph). This highlights that the A19/A1058 Coast Road junction upgrade to a triple decker interchange has been successful in making speeds for road users on the A19 more consistent, achieved through reducing unnecessary queueing.

Average speeds through the Testo's junction were also shown to improve with a 25mph increase observed. This is likely the result of a complementary grade separation improvement at the junction, which opened in July 2021, where the A19 was raised to a flyover over the South Tyneside roundabout.[11] Average speeds north of the project extent between the Holystone roundabout and Seaton Burn roundabout were observed to be largely unchanged between 2015 and 2021, noting also a significant delay at the at-grade Moor Farm roundabout.

Figure 15 Average speed over distance (northbound) - AM peak



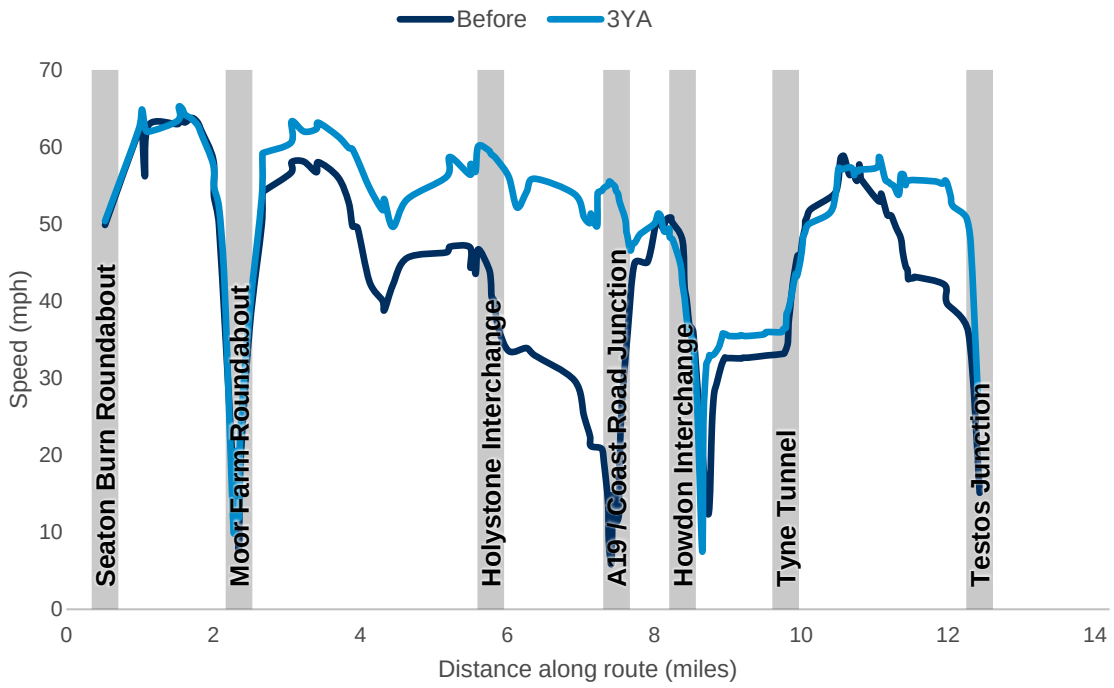
Source: Satellite navigation (TomTom). Before: September and October 2015, 3YA: September and October 2021.

For road users travelling southbound (Figure 16), during the AM peak, average speeds were observed to increase from as early as three miles before reaching the Holystone interchange, through to the A19/A1058 Coast Road junction. This increase of speeds on approach to Holystone interchange were also potentially the

[11] Information about the Testo's junction improvement: https://nationalhighways.co.uk/our-roads/yorkshire-and-north-east/a19-testo-s-junction/#:~:text=Our%20Testo's%20improvements%20aim%20to,it%20above%20the%20existing%20roundabout.

subsequent result of the widening of the roundabout and its approaches in 2016 and 2017.[12] At the A19/A1058 Coast Road junction, speeds increased by over 40mph than before the project was implemented. As with the northbound data, an improvement in speeds was also seen for road users approaching the Testo's junction.

Figure 16 Average speed over distance (southbound) – AM peak



Source: Satellite navigation (TomTom). Before: September and October 2015, 3YA: September and October 2021.

In both directions during the inter-peak and evening peak, road users experienced a similar trend in average speeds to the morning peak, reconfirming the project has achieved its stated objective to reduce congestion and delays for road users along the A19.

[12] Information about the Holystone Interchange improvements: https://my.northtyneside.gov.uk/category/759/a19a191-holystone-interchange

5. Safety evaluation

Summary

The safety objective for this project was to improve the safety performance for all road users, in particular by reducing the number and severity of collisions. To this end, the number of personal injury collisions (PICs)[13] and the rate of these collisions per hundred million vehicle miles (hmvm) were analysed to track a change over time.

There has been a reduction in the rate and number of PICs on both the project extent and the surrounding network. This is based on comparing the first three years of the project being operational with the annual average for the years before the project improvements. On the project extent, the annual average of PICS fell from 13 before the project to four after the project was operational, a reduction of nine PICs.[14] On the surrounding network, there was an average decrease of 94 PICs per year (based on an annual average of 83 PICs observed after the project had opened compared with 177 before the project). If the new junction had not been constructed, we estimate that the number of PICs would be between 67 to 121.

When accounting for the increased volume of road users over this period, the annual average rate of PICs per hmvm has also improved on the project extent and in the surrounding network. On the project extent, the average collision rate decreased to 22.9 PICs per hmvm, this equates to travelling five million vehicle miles before a PIC occurs. Before the project, the collision rate was 52.4 per hmvm, this equates to traveling two million vehicle miles before a PIC occurs. If the junction had not been upgraded, we estimate the collision rate would have remained at 33 PICs per hmvm.

The average number of Killed or Seriously Injured (KSI)[15] collisions did not change on the project extent, with a total of 0.5 before and three after the project became operational. At the same time, there was a significant reduction in the number of slight collisions, down from 36.5 to 8.

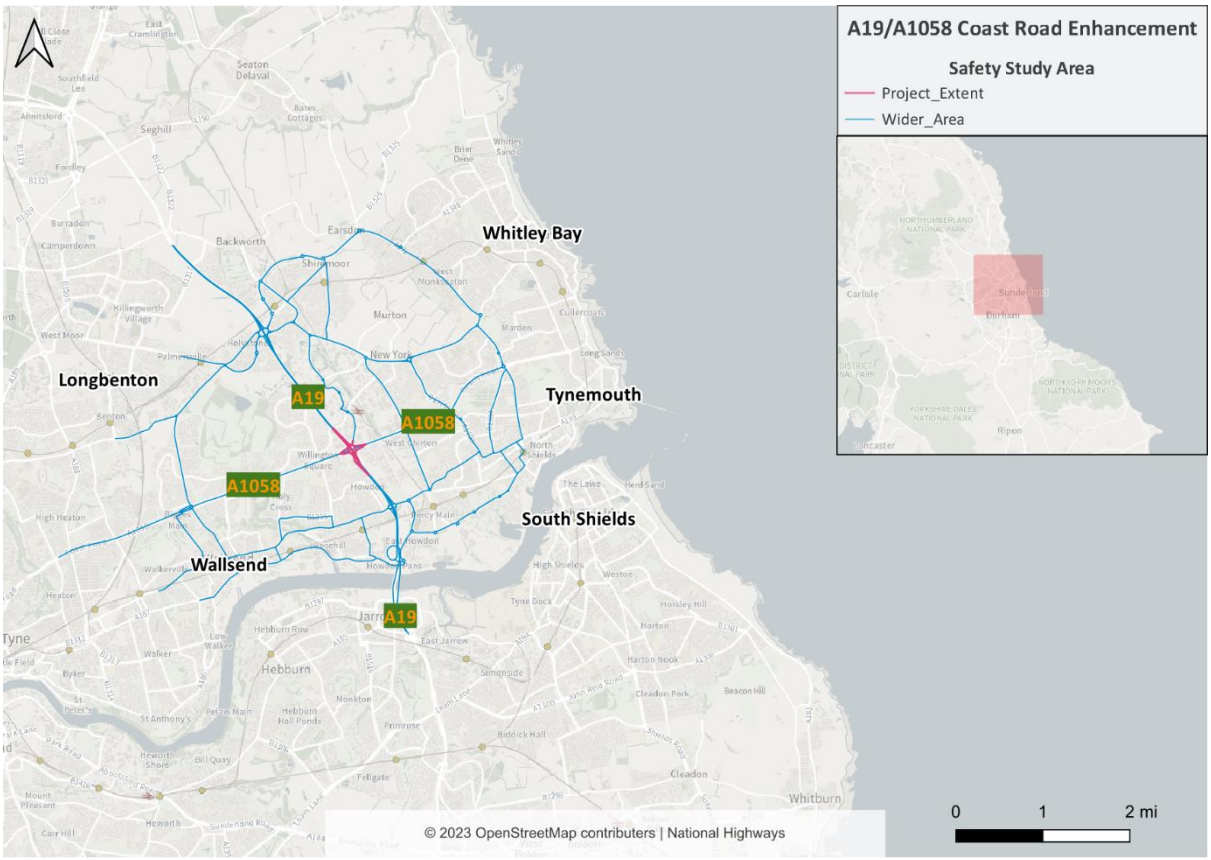
Based on this analysis, the evaluation found there has been a reduction in the number and severity of PICs. At this three-year after evaluation point, the project has met its objective to reduce the number and severity of accidents.[16]

Safety study area

The safety study area is shown in Figure 17. This area represents the extent assessed in the economic appraisal within the business case for the project. We have therefore replicated this for the before and after assessment based on observed data to understand the emerging safety trends and allow comparisons against the forecast benefits.

[13] A collision that involves at least one vehicle and results in an injury to at least one person.
[14] Due to the limited sample size, we have been unable to calculate a counterfactual for the project extent.
[15] The number of people killed or seriously injured (KSI) in road traffic collisions. This metric is non-weighted.
[16] Projects are appraised over a 60-year period. This conclusion is based on the findings at three years after the project opened for traffic.

Figure 17 Safety study area



Source: National Highways.

Road user safety on the project extent

How had traffic flows impacted collision rates?

DfT release road safety data[17] that records incidents on public roads that are reported to the police. This evaluation considers only collisions that resulted in personal injury.

The safety analysis has been undertaken to assess changes over time looking at the trends in the three years before the project was constructed to provide an annual average. We have then assessed the trends from the first 36 months after the road widening and new road link was operational and open for road users. This provides the opportunity to conclude about the safety impact of the project across the following time periods:

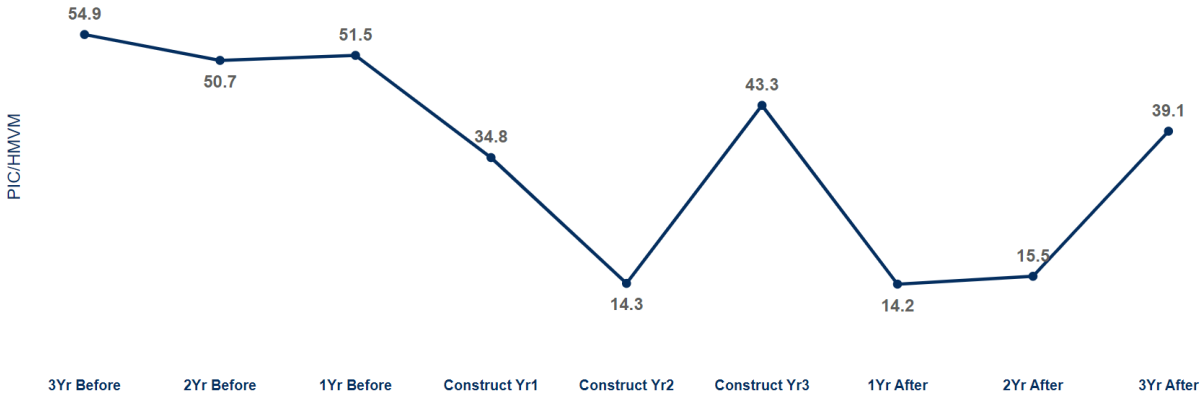
- Pre-construction: 27 June 2013 – 26 June 2016
- Construction: 27 June 2016 – 30 March 2019
- Post-opening: 31 March 2019 – 30 March 2022

To understand potential safety benefits, we consider changes in the volume of traffic and the number of collisions observed. A rate is calculated using the number of PICs and the total miles travelled on a road section or type. The rate is presented as the number of collisions per hundred million vehicle miles (hmvm).

[17] https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data

As shown in Figure 18, the average collision rate three years after had decreased to 22.9 PICs per hmvm, this equates to travelling five million vehicle miles before a collision occurs. Three years before the project, the average collision rate was 52.4 PICs per hmvm, this equates to traveling two million vehicle miles before a collision occurs.

Figure 18 Annual average of collision rate



Source: STATS19 27 June 2013 – 30 March 2022.

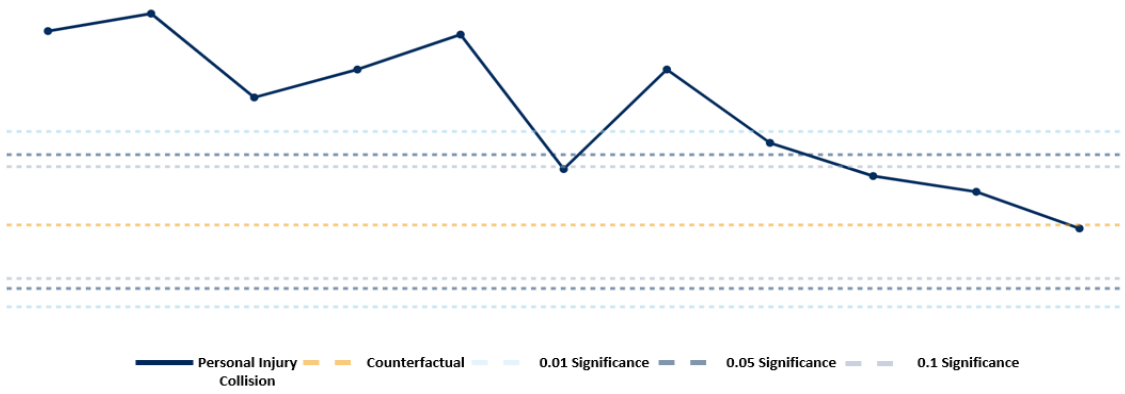
As part of the safety evaluation, we also look to assess what changes in collision rates might have occurred due to factors external to the project over this timeframe. To do this, we estimate the trend in PICs which might have occurred if the road had remained in its previous configuration (this is referred to as a counterfactual – see Figure 19 and POPE methodology manual[18]). This is based on changes in regional safety trends for dual carriageways on the strategic road network with a high volume of road users.

[18] https://nationalhighways.co.uk/media/exypgk11/pope-methodology-note-2024-v2.pdf

Figure 19 What does the counterfactual show?

The counterfactual is an estimation of what we think would occur without the project taking place. We estimate a range of collisions that follow regional trends. The chart shows:

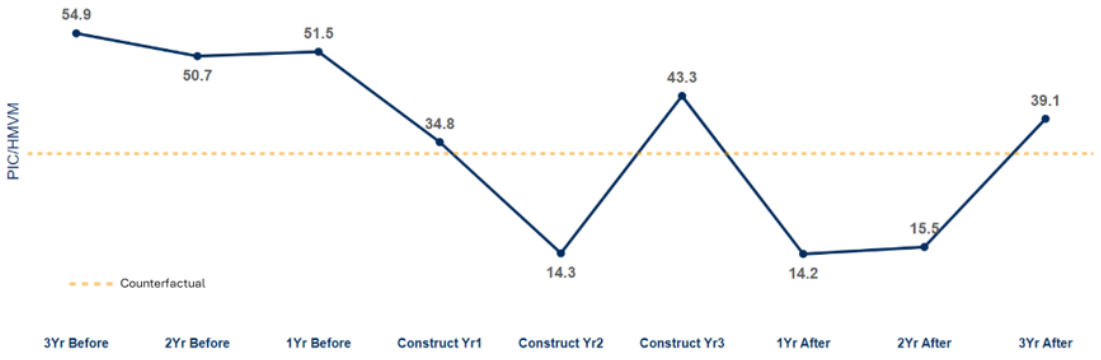
1. Timeseries of personal injury collisions
2. Estimated counterfactual range, which comes from a X^2 hypothesis test on one degree of freedom using a significance level of 0.05. More details can be found in the POPE Methodology Manual.
3. National Highways is developing new statistical methods to compare collision and casualty rates. We anticipate adopting these once the methods are finalised.



Based on this assessment, we estimate that if the new configuration of the A19 had not occurred, the trend in the number of PICs and collision rates would likely have reduced, but not to the extent to what has been observed.

The counterfactual test estimated rate would likely reduce to 33 PICs per hmvm (Figure 20) of collisions without the project. The after annual average collision rate falls below the counterfactual rate (albeit year three after is higher), suggesting that the project could be having a positive impact.

Figure 20 Annual average number of collision rate with counterfactual scenario ranges



Source: STATS19 27 June 2013 – 30 March 2022.

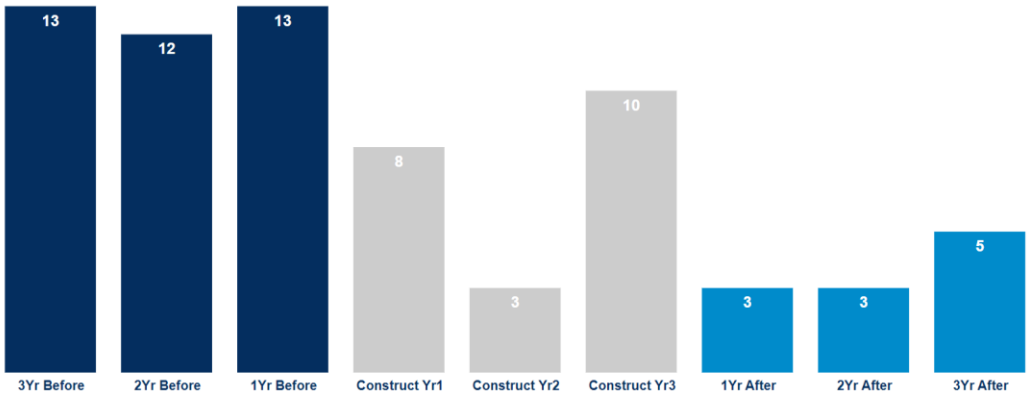
What impact did the project have on road user safety?

The evaluation found the number of PICs on the project extent had decreased. During the first 36 months the project was operational, there were on average four PICs, nine fewer than the average 13 over the three years before the project was constructed (Figure 21).

Personal injury collisions

13	4	9
Before	After	Fewer

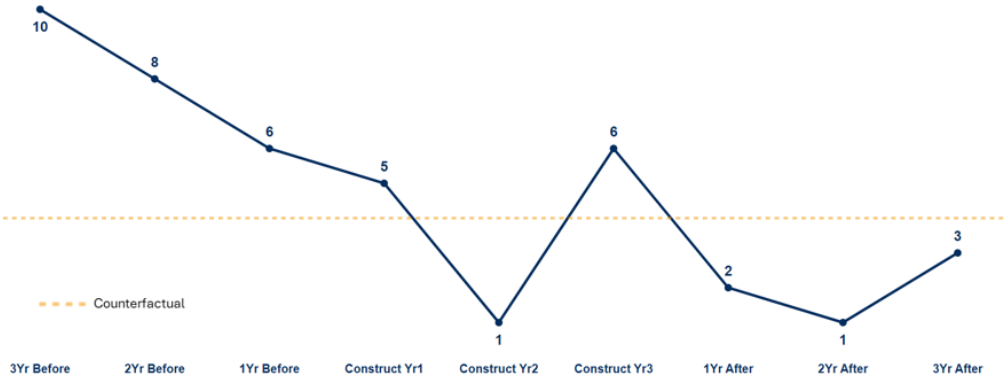
Figure 21 Annual PICs



Source: STATS19 27 June 2013 – 30 March 2022.

A counterfactual test has also been performed which estimates four PICs (shown in yellow) would be expected as shown in Figure 22.[19]

Figure 22 Annual average number of PICs with counterfactual scenario ranges



Source: STATS19 27 June 2013 – 30 March 2022.

Similar to collision rates, collision numbers are also lower than what we would have expected without the project. This is an indication that the project has had a positive impact on safety.

On the surrounding network, there was an average decrease of 94 PICs per year (based on an annual average of 83 PICs observed after the project had opened compared with 177 before the project). If the new junction had not been constructed, we estimate that the number of PICs would be between 67 to 121. A more detailed summary of the safety analysis for the wider area can be found in Appendix A.

[19] Due to the small sample size, we have been unable to perform the normal counterfactual test and estimate the likely range of collisions. We have also been unable to perform statistical significance testing on these results.

What changes in the severity of collisions did we see?

Collisions which result in injury are recorded by severity as either fatal, serious, or slight. The way the police record the severity of road safety collisions changed within the timeframes of the evaluation, following the introduction of a standardised reporting tool – Collision Recording and Sharing (CRASH). This is an injury-based reporting system, and as such severity is categorised automatically by the most severe injury. This has led to some disparity when comparing trends with the previous reporting method, where severity was categorised by the attending police officer.[20] As a consequence, DfT has developed a severity adjustment methodology[21] to enable robust comparisons to be made.

The pre-conversion collision severity has been adjusted, using DfT's severity adjustment factors, to enable comparability with the post-conversion safety trends.[22]

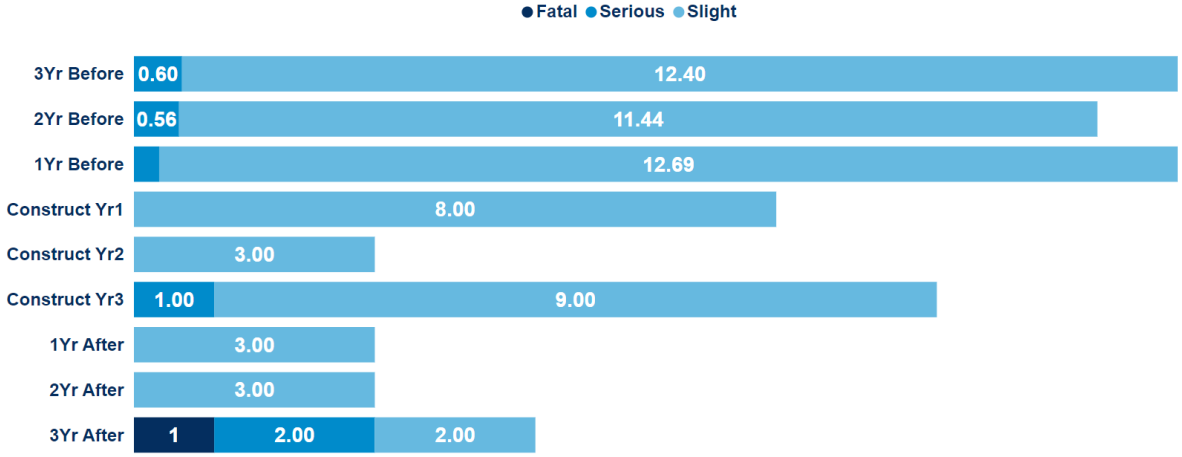
At the three years after stage (Table 2), there was a slight increase in the number of fatal and serious collisions along the project extent; whilst a significant reduction was observed for slight collisions. Figure 23 shows the full breakdown of severity of PICs by project year.

Table 2 Number of PICs by severity within the project extent[23]

	Before	After	Change	Change direction
Fatal	0	1	1	↑
Serious	1.47	2	0.53	↑
Slight	36.53	8	-28.53	↓

Note: Before represents 1-3 year before data; After represents 1-3 year after data; 3 years of construction period not included.

Figure 23 Severity of PICs within the project extent



Source: STATS19 27 June 2013 – 30 March 2022.

[20] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820588/severity-reporting-methodology-final-report.odt

[21] https://www.gov.uk/government/publications/guide-to-severity-adjustments-for-reported-road-casualty-statistics/guide-to-severity-adjustments-for-reported-road-casualties-great-britain#guidance-on-severity-adjustment-use

[22] Collision severities within this report use the 2022 adjustment factor.

[23] Due to the limited sample size, totals of collisions by severity have been presented.

What impact did the project have on casualty severity?

Like other transport authorities across the UK, the key measure we use to assess the safety of roads, is Fatal and Weighted Injuries (FWI). This gives a fatality 10 times the weight of a serious casualty, and a serious casualty 10 times the weight of a slight casualty.[24] In effect, it takes all non-fatal injuries and adds them up using a weighting factor to give a total number of fatality equivalents.[25] This is represented by an annual average and a rate that standardise casualty severities against flow to show the likelihood of a fatality equivalent occurring per distance travelled.

There was a slight increase in the FWI observed annually from 0.2 to 0.4 FWI. This is likely due to the small sample size of collisions collected.

The combined measure showed there was a reduction in the number of million vehicle miles travelled before a FWI[26], and the rate of FWI per hmvm[27] also reduced. This suggests that taking into account changes in traffic, the project is having a positive safety impact on the severity of casualties within the project extent.

We also assess the impact the project had on casualties using the Killed or Seriously Injured (KSI) measure [28], and consider changes in traffic by calculating an average rate for every hmvm travelled.

There has been no change in the 0.5 KSI observed annually. The rate of KSI per hmvm did slightly increase from an average of 2 to 2.8 for every hmvm travelled.

The observations for KSI suggests that the project is having a neutral safety impact on the severity of casualties within the project extent.

Is the project on track to achieve its safety objective?

The safety objective was to achieve improved road safety for all. Despite the small sample size for the project extent, we have observed a reduction in the rate and number of collisions and improvement to the impact on casualties. Observations from the wider safety area support these reductions. We believe that the project has met its safety objective.

The business case forecast was a reduction in PICs as a result of this project, with a saving of 140 collisions over the 60-year appraisal period. Findings at the three years after stage, suggest the project is likely to outperform the appraisal scenario.

[24] The FWI weights collisions based on their severity. A fatal collision is 1, a serious collision is 0.1 and a slight collision is 0.01. So, 10 serious collisions, or 100 slight collisions are taken as being statistically equivalent to one fatality.
[25] Casualty severities within this report use the 2022 adjustment factor.
[26] Before the project, 109 million vehicle miles needed to be travelled before a FWI (0.9 FWI per hmvm). After the project, this decreased to 40 million vehicle miles (2.5 FWI equivalents per hmvm).
[27] hmvm – hundred million vehicle miles.
[28] The number of people killed or seriously injured in road traffic collisions. This metric is non-weighted but does not pick up all injuries (slight casualties). KSI rate per hmvm is the rate calculated using the number of people who are KSI, and the total miles travelled on a road section or type.

6. Environmental evaluation

Summary

The environmental impacts of projects are assessed during the development of projects and consider the environmental sub-objectives within Transport Analysis Guidance (TAG)[29]. The evaluation of environmental impacts compares the predicted impact from appraisal to observed impacts. POPEs provide an opportunity for such findings to be captured early and ensure improvements are made, so the design outcome can be achieved.

The evaluation of environmental impacts of the A19/A1058 Coast Road junction improvement used information on the predicted impacts gathered from the environmental appraisal within the business case, the Environmental Assessment Report (EAR) and compared them with observed impacts from a site visit. The site visit was conducted at one year after the project opened for traffic in July 2020. This was supplemented by updates from the project team to inform the position when this evaluation was completed (2023/2024).

The results of the evaluation are recorded against the environmental and society sub-objectives, with a summary of the outcomes presented in Table 4.

Noise

Forecast impacts

In the environmental appraisal and EAR, background noise was identified as being the main source of noise around the project. Noise levels were expected to change due to the realignment of the A19 and changes in traffic levels. In the short-term, local dwellings were expected to experience a low increase in noise levels, with the changes being negligible. In the long-term, it was expected no dwellings would experience medium or high changes in noise levels. It was recommended to include low noise surfacing in the project design, to mitigate the increase in noise.

Evaluated impacts

The project successfully delivered the realignment of the A19, as part of which, low-noise surfacing was used.[30] From the quantitative assessment of the traffic levels at major road links along the project extent, the traffic levels at three years after were generally lower than forecast. While one road link was considered to be 'as expected,' with lower volumes on three of the road links, we can conclude that the impact of the project on noise was 'better than expected'.

Air quality

Forecast impacts

It was expected that there would be deteriorations in local air quality due to the implementation of the project, alongside some small improvements, reflecting

[29] TAG provides DfT guidance on transport modelling and appraisal.
[30] A new type of surface, Thin Surface Course (TSC) was used in this project, which replaced the hot rolled asphalt (HRA) surface assumed to be in place prior to the improvement project. In comparison, TSC is considered to be quieter.

realignment of the carriageway away from some properties and some reduction in traffic on local roads. An overall increase in total oxides of nitrogen (NOx) emissions was predicted due to the increased volume of vehicle kilometres in the wider area as a result of the project.

In terms of nitrogen dioxide (NO_2) and particulate matter (PM_{10})[31], monitoring results from local authorities and project-specific monitoring were reported. The assessment concluded that the effects of the project on local air quality would be insignificant as the predicted concentrations of both NO_2 and PM_{10} were assessed to be below the relevant annual mean objective values.[32] As the assessment did not find any significant air quality effects, no mitigation was proposed.

Evaluated impacts

For the three years after analysis, a qualitative review was completed considering any local air quality monitoring data and used forecast against available observed traffic flows as a proxy to consider the performance of the original air quality assessment. Traffic data on the A19 north and south of the A1058 Coast Road junction was used. On these roads, traffic flows were found to be lower than expected, but there were more heavy goods vehicles, and speeds were lower.

The Defra Emissions Factors Toolkit (EFT)[33] was applied to calculate NOx emissions for the road links where traffic data were provided. This was then used to evaluate the predicted variance in NO_x emissions between forecasted and observed road traffic data for these road links. The overall effect of these changes is that Nitrogen Oxides (NO_x) emissions were lower than originally expected.

Recent air quality monitoring data was also considered. While there is no current representative local authority monitoring adjacent to the A19, data in the wider area, including on the A1058 Coast Road indicates concentrations of all pollutants are well below the objective value.

Overall, the differences between the forecast and observed traffic data would not change the overall evaluation of significance of the project and the project remains “not significant” for air quality.

Greenhouse gases

Forecast impacts

The environmental appraisal originally predicted that the project would result in an increase in carbon dioxide (CO_2) emissions of 0.154 million tonnes over the 60-year appraisal period. The total value of the change in CO_2 emissions was calculated as a £7.3 million detriment.

It has not been possible to evaluate greenhouse gas emissions as forecast and observed traffic data for all the road links used in the appraisal study area is not available. Instead, a new forecast emission and an observed emission for just the project extent has been calculated as reported below.

[31] PM10 – Particulate Matter of less than 10 micrometres in diameter. **Error! Hyperlink reference not valid.**
[32] https://uk-air.defra.gov.uk/air-pollution/uk-limits.php
[33] Version 12.0.1. Available at: Emissions Factors Toolkit | LAQM (defra.gov.uk).

Evaluated impacts

To calculate the greenhouse gas emissions, the Department for Environment Food and Rural Affair (Defra) Emissions Factors Toolkit (EFT) was used, to replicate the approach for the environmental appraisal for the project. The observed data resulted in lower calculated greenhouse gas emissions than the forecast data, due to lower traffic flows. The results from the calculations are shown in Table 3.

Table 3 Defra EFT calculations (tonnes of CO_2)

Forecast (tonnes of CO_2)	Observed (tonnes of CO_2)	Difference (tonnes of CO_2)
53,411	46,897	-6,514

The total change in emissions caused by the project cannot be evaluated with confidence from the limited data. However, the three-year after evaluation suggests that the project may have led to a slightly smaller increase in CO_2 emissions than was predicted in the Appraisal Summary Table (AST) for the subset of road links evaluated and is therefore 'better than expected.'

Landscape and Townscape

Forecast impacts

The project is in an area which is principally a transit corridor, surrounded by a mix of residential and commercial / industrial land use. Overall, the project was expected to initially have slight adverse impacts on the landscape and townscape. This is due to the removal of vegetation and increased size of the road corridor.

It was expected that at several points along the project route, the removal of vegetation was likely to increase the view of the A19, A1058 and the junction. The areas expected to experience adverse impacts included: Silverdale School and playing fields, recreational facilities including Public Right of Way (ProW) Middle Engine Railway bridleway, recreational grounds, and sites of commercial use.

The mitigation proposed included:

- A planting proposal to replace as much of the vegetation lost as possible to minimise the visual impacts.
- Timber fences to screen views of the works (for example adjacent to the A19 northbound at Melrose Gardens).
- Minimising the area of vegetation cleared to accommodate the construction works.

Evaluated impacts

It was confirmed at three years after that the impacts were broadly 'as expected,' with vegetation clearance occurring along the western side of the A19 and around the A19/A1058 interchange. The removal of the mature vegetation was observed at locations including Silverdale School, Melrose Gardens, Middle Engine Railway bridleway, and the Silverlink shopping park. Mitigation was implemented, with new planting observed and a new longer timber visual screen provided to minimise visual impacts for properties to the south of the junction (see Figure 24). Impacts were greatest around the A19/A1058 interchange where the loss of vegetation had

increased the presence of the road adversely affecting the townscape character and views of the road network. The extent of the project works was reduced, so predicted visual impacts at the northern and southern ends of the project were less than predicted. Poor ground conditions and high levels of failed planting along the A19 were observed during the one year after site visit.

For townscape, poor ground conditions meant that more screen planting had to be removed, resulting in the impact being 'worse than expected'. This has increased the sense of scale and presence of the junction more than expected.

Figure 24 Example of vegetation clearance and timber barrier installation at Melrose Gardens (facing southeast towards A19)

Melrose Gardens (facing southeast towards A19)	Melrose Gardens (facing southeast towards A19)
	
Source: Environmental assessment (July 2013).	Source: One year after site visit (July 2020).

Since the site visit in July 2020, a further visit by the project team and contractor have confirmed that replacement planting has established well.

Overall, the impact of the project on landscape and townscape is therefore considered 'as expected'.

Heritage of historic resources

Forecast impacts

It was expected that that the project was likely to result in a negligible impact to heritage assets in the study area. This is due to the project area not incorporating any national or locally designated historic assets. It was reported that there were no scheduled monuments, registered parks and gardens, conservation areas, world heritage sites or registered battlefields within 1km of the project footprint. There were seven grade II listed buildings within the project area, however with the closest over 700m away from the project, it was likely there would be no inter-visibility from the new infrastructure and therefore no impact on the settings of the buildings

In terms of archaeology, it was considered that there was a low potential for buried archaeology within the project's footprint, with potential for impacts to unknown archaeology to the east of the project where the site compound was proposed. To mitigate the potential impacts to any buried archaeology that may be present within the area of the site compound, a programme of archaeological trial trenching was

agreed with the Archaeology Officer for Tyne and Wear. The effect of the project on cultural heritage was predicted to be ‘neutral’.

Evaluated impacts

During the one year after site visit, it was confirmed that it was unlikely that there were any impacts on the setting of listed buildings or other cultural heritage assets within the study area. This was because of the distance involved and the absence of inter-visibility. The proposed archaeological investigation at the site compound was undertaken and the findings presented in an archaeological report[34]. This found evidence of medieval ridges and furrow cultivation and 19th century mining activity. Overall, we consider that the outcome was ‘as expected’.

Biodiversity

Forecast impacts

The project extent was identified as located in an area where there are no protected habitats located in or surrounding the project. The closest national designated site for wildlife or natural heritage is 4km to the east of the project. To accommodate for the project, it was expected there would be a loss of low-value roadside habitats, for example, woodland. A temporary disturbance was also expected to unmanaged grassland in the area being used for the construction works compound. Mitigation measures included a construction environmental plan to minimise the temporary construction impacts predicted, provision of species-rich grassland and road-side tree planting to mitigate the loss of roadside habitats. Overall, the impact of the project on biodiversity was predicted to be ‘neutral’.

Evaluated impacts

Our one year after site visit confirmed that mature woodland habitats and highway verge was removed to accommodate the project. Impacts were limited to within the proposed project footprint. Mitigation planting had been provided, with evidence of species rich grasslands present, as illustrated in Figure 25, adjacent to the top of the A19 northbound on-slip. During the site visit at one year after, plant failure rates in some plots were higher than expected due to the presence of stony ground conditions (as shown in Figure 26). Since the site visit in July 2020, a further visit by the project team and contractor have confirmed that replacement planting has since established well.

Changes to the tree species mix were also made due to the identification of unsuitable ground conditions and limited depth of topsoil. The site compound was also confirmed to have been restored with a suitable wildflower mix for various species of butterfly. Overall, we can conclude that the impacts were ‘as expected’.

[34] Land at Narvik Way Tyne Tunnel Trading Estate. Archaeological Evaluation Report. Archaeological Services Durham University. July 2016

Figure 25 Species rich grassland beside the top of A19 northbound on-slip

Source: Evaluation site visit, July 2020.

Figure 26 A section of failed planting adjacent to the A19 northbound observed at the one year after site visit

Source: Evaluation site visit, July 2020.

Water environment

Forecast impacts

It was expected that the project would lead to a neutral impact on water quality. The main risk to water quality would be during construction of the project, as part of which the impacts would be managed through a drainage strategy within the wider construction and environmental management plan. During the operation phase, surface water flows would be managed through oversized pipes and a routine maintenance strategy.

In terms of flood risk, the A19 / A1058 junction was identified as sensitive to flooding due to the high levels of traffic, and the new A19 underpass was

highlighted as a risk to flooding. A new warning system was proposed, which included CCTV, signs to monitor and warn for flooding with water level sensors also to be considered. Delivery of the improvement scheme was expected to have a slight / moderate adverse effect on the flood risk.

Overall, the environmental assessment reported that the effects on the water environment (water quality and groundwater) would be 'neutral' except for flood risk, where the new A19 had the potential to be a 'slight to moderate adverse' effect.

Evaluated impacts

The one year after site visit included observing any elements of the project mitigation visible on the surface, including a drive through from the A1058 overbridge. Despite an audit of the drainage network not being within the scope of POPE, the drive-through confirmed that the carriageway drainage appeared to be in place. It was also observed that the additional impermeable surfaces on the A19 were in place, with the project team confirmed that oversized pipes and CCTV had been installed.

At three years after, the project team shared that there had been several incidences of flooding both on the junction and in the junction bowl (the A19 underpass), with the latter being where most of the flooding has occurred. In 2021, there were three cases of flooding and in 2022, six cases had been logged by the project team. Inspections into the issue determined that the flooding was occurring as baskets installed in sump gullies were filling up with detritus very quickly and causing blockages at the low points of the underpass. Subsequently, these baskets were removed and it is understood has been no further issues with flooding.

Although flooding issues occurred from the drainage system design, the overall direct effect of the project on the water environment was 'as expected'.

Physical Activity and Severance

Forecast impacts

One of the objectives for the project was to reduce severance by maintaining or providing appropriate facilities for walkers and cyclists crossing and travelling along the route. It was identified that the severance impacts existed at the A19 roundabout due to congestion and the interaction of A19 through-traffic with local traffic trying to access the Silverlink shopping park. Walkers and cyclists experienced delays and severance impacts as they had to cross the A1058 on and off-slips at grade. A footpath also existed on the A19 northbound between A19 and A1058 junctions, but it was narrow so provided limited capacity for both walkers and cyclists.

The project was expected to introduce several measures to reduce severance including:

- The removal of A19 mainline traffic from the junction
- Widening of the existing path along the A19 northbound carriageway
- New overbridges across the A1058 on and off-slips
- Improvements to the existing pedestrian and cycling facilities around the A19 roundabout

Overall, the environmental appraisal and assessment both reported there would be 'slight beneficial' / minor positive benefits for severance through the introduction of these measures.

Physical activity only formed part of the assessment for the environmental appraisal and was not included in the environmental assessment. The benefits of the project were expected to be derived from the provision of the pedestrian and cycling infrastructure over bridges. However, there were also nearby locations along the routes that were assessed to require travellers to cross the carriageway. It was determined that ultimately, it was unlikely the removal of the need to cross the A1058 slip roads in isolation would lead to a significant shift in mode of travel choice. The appraisal therefore predicted the impacts on physical activity to be 'neutral'.

Evaluated impact

The three years after evaluation confirmed that the new pedestrian and cycling provision was implemented along the A19 and the A1058. In terms of severance, the new provision is likely to have improved access to / from Silverlink shopping park / business park, with pedestrians and cyclists no longer needing to cross the A1058 on and off-slips. Physical activity was expected to remain unchanged as the new and enhanced provision, whilst attractive, would not be significant enough in scale to encourage wider participation in physical activity. Overall, the impacts on severance and physical activity are 'as expected'.

Journey quality

Forecast impacts

Before the project implementation, journeys through and around the A19 / A1058 suffered from poor journey time reliability particularly at peak times of the day during the week. This was due to a combination of high volumes of through traffic on the A19 and traffic wishing to access the Silverlink Retail Park. The consequence of the congestion that resulted from high usage of the junction was an collision rate that was higher than the national average.

The project implementation was likely to reduce the number of north-south vehicle movements using the roundabout junction, which was expected to decrease frustration, stress, fear of accidents and route uncertainty. For pedestrians and cyclists, the provision of improved facilities at the junction and the inclusion of new overbridges, was predicted that whilst journey times for pedestrians will not change significantly, cyclists may experience a slight benefit from the over bridges providing a traffic-free route across the A1058 slip roads. With the proposed alignment of the carriageway being in cutting, it was expected to lead to slight negative benefits to driver views.

It was anticipated that the project would lead to 'slight beneficial / minor positive benefits' to journey quality.

Evaluated impacts

The project has successfully implemented the grade-separated junction and improvements to the non-motorised facilities. Our one year after site visit gathered qualitive evidence on the changes experienced by road users, and quantitative

data on traffic flows and collisions was also obtained to inform changes in driver stress.

In terms of traveller views, these have changed as predicted and as previous views were not of high value, the loss is not considered a significant impact. There is not one set method to quantify driver stress, however, traffic data has suggested that journey time reliability and congestion have improved along the A19 along with the number and severity of accidents. All of these different factors suggest that driver stress has been reduced. Overall, we conclude that the impact to journey quality was broadly 'as expected'.

Overview

The results of the evaluation are summarised against each of the TAG[35] environmental sub-objectives and presented in Table 4. In the table, we report the evaluation as expected if we believe that the observed impacts at three years after are as predicted in the appraisal. We report them as better or worse than expected if we feel the observed impacts are better or worse than expected. Finally, we report impacts as too soon to say if we feel that there is insufficient evidence to draw firm conclusions at this stage.

Table 4 Summary of Environmental findings

Sub Objective	AST Score	Three years after score	Three years after evaluation Summary
Noise	The estimated number of people annoyed in the longer term: Do-minimum: 1,472; Do-something: 1,490. Net Change: 19	Better than expected	Out of the four road links evaluated across the project, three were identified as having a basic noise level change of 'Better than expected' and one was identified as having a basic noise level change 'As expected'.
Air Quality	The predicted net deterioration in NOx emissions was estimated to cost £0.251m in Net Present Value (NPV)	As expected	Lower emissions were predicted than was forecast. This would reduce predicted concentrations compared to the EAR and as pollutant concentrations were already anticipated to be below the objective value, the evaluation of significance is unchanged, and the project remains not significant.
Greenhouse Gases	The project results in a net increase in carbon emissions over the appraisal period, primarily due to the predicted increase in traffic flows.	Better than expected	Based on the limited dataset available, it is possible that the project has led to a smaller increase in CO_2 emissions than was predicted in the AST. We had insufficient data to comment on the wider appraisal study area.

[35] TAG provides guidance on appraising transport options against the Government's objective for transport

Sub Objective	AST Score	Three years after score	Three years after evaluation Summary
Landscape	Slight adverse	As expected	Mature vegetation had been lost and had impacted the views of nearby residential properties. In places, due to the poor ground conditions encountered, this had been worse than expected. However, works at the northern end of the project had been less, reducing the predicted visual impacts there. Mitigation planting had been provided and while at the time of the site visit there was a high failure rate, this has since been replaced and established.
Townscape	Slight adverse	As expected	Poor ground conditions meant that more screen planting was removed. This had increased the sense of scale and presence of the junction more than expected. Since the site visit planting has since been replaced and established.
Heritage of historic resources	Neutral	As expected	The site visit confirmed there had been no impacts on the setting of listed buildings or other cultural heritage assets within the study area. The potential for archaeological remains beneath the site compound were investigated and the findings presented in an archaeological report. No further studies were required.
Biodiversity	Neutral	As expected	The impacts were limited to the project footprint and replacement planting had been provided. The tree planting mix was changed to that originally proposed and there had been a high failure rate. Provided the losses are replaced the overall outcome should still be met.
Water Environment	Neutral, slight / moderate adverse for flood risk	As expected	A new drainage system had been constructed to manage surface water and the risk of flooding. Reported instances of flooding at the A19 underpass led to an amendment to the design and subsequently, no further incidences have been raised.
Physical activity	Neutral	As expected	Improvements were made to existing cycleways, footpaths and bridleways that should improve the environment for users. However, the improvements were not considered to be significant enough in themselves to encourage greater participation in physical activity.

Sub Objective	AST Score	Three years after score	Three years after evaluation Summary
Severance	Slight beneficial	As expected	A19 through traffic now uses an underpass avoiding the need to use the junction. This should help improve journeys for local traffic. New and improved NMU provision was provided which should improve journeys across and around the junction.
Journey quality	Slight Beneficial	As expected	By introducing the underpass, there had been an improvement in journey time reliability, reduction in collisions and also congestion at the project's location. This suggested that driver stress had reduced.

7. Value for money

Summary

As part of the business case, an economic appraisal was conducted to determine the project's value for money. This assessment was based on an estimation of costs and benefits over a 60-year period.

The project was delivered at a cost of £88million, which was about 15% greater than the forecast cost.[36] In the first three years, the project led to reduced delays for through traffic on the A19 at the intersection, as well as improvements to the safety of those journeys. If this trend continues, the project is reforecast to deliver around £135 million of journey time savings and around £10m of safety benefits over the 60-year period.[37]

Value for money was forecasted over a range of possible traffic growth scenarios.[38] These scenarios forecast value for money to range from 'medium' to 'high'.[39] While the appraisal forecast significant traffic growth and improving journey times, the observed data suggested a more modest traffic growth and slower journey times in some time periods in comparison (to the forecast). Nonetheless, the project's value for money remains high. As traffic growth is expected to return to what was forecast when this project was appraised, it is likely that this project is on track to deliver the value for money anticipated over the 60-year life of the project, however this is at the lower end of the expected range of benefits.

Forecast value for money

An economic appraisal is undertaken prior to construction to determine a project's value for money and inform the business case. The appraisal is based on an estimation of costs and benefits. The impacts of a project, such as journey time savings, changes to user costs, safety impacts and some environmental impacts can be monetised. This is undertaken using standard values which are consistent across government. The positive and negative impacts over the life of the project[40] are summed together and compared against the investment cost to produce a benefit cost ratio (BCR). The monetised impacts are considered alongside additional impacts which are not able to be monetised, to allocate the project a 'value for money' category.

Since 2011, we have routinely forecasted benefits over a range of possible traffic growth scenarios in response to the economic downturn.[41]

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[36] Present value of costs in 2010 prices and values.

[37] Based on impacts on the strategic road network. Present value benefits in 2010 prices and values.

[38] See Section 7 – Forecast value for money.

[39] The value for money categories referenced are defined by Department for Transport (DfT) https://www.gov.uk/government/publications/dft-value-for-money-framework.

[40] Typically, project life is taken to be 60 years.

[41] For this project, we undertook a core scenario, which is intended to provide a consistent basis for decision-making given current evidence, and a 'common comparator' to assess all projects and options against. There are significant uncertainties associated with forecasting travel demand. Therefore, we also undertook scenario testing to check whether the intervention is likely to still provide value for money under low demand assumptions and the likely effects of high demand on the scheme impacts.

The monetised benefits forecast by the appraisal which supported the A19/A1058 Coast Road improvement business case are set out in Table 5.[42] We have also included an indication of what proportion of the monetised benefits each impact accounted for and a summary of how we have treated the monetisation of each impact within the updated evaluation.

Table 5 Monetised benefits of the project (£ million)

	Forecast (£M)	% forecast monetised benefits[43]	Evaluation approach
Journey times	198.1	80.3%	Re-forecast for the project area only (not the wider area) using observed before and after traffic flow and journey time data
Vehicle operating costs (VOC)	8.0	3.2%	Monetised benefits assumed as forecast
Journey time and VOC during construction and maintenance	-5.4	-2.2%	Not evaluated (assumed as forecast)
Safety	6.0	2.4%	Re-forecast using observed and counterfactual[44] safety data
Reliability	28.6	11.6%	Not evaluated (assumed as forecast)
Carbon	-7.3	-3.0%	Not evaluated (assumed as forecast)
Noise	-0.4	-0.2%	Not evaluated (assumed as forecast)
Air quality	-0.2	-0.1%	Not evaluated (assumed as forecast)
Indirect tax revenues	4.7	1.9%	Re-forecast using observed and forecast traffic flow and journey time data
Private sector providers (Revenue)	14.7	6.0%	Not evaluated (assumed as forecast)
Total present value benefits (PVB)	**246.8**		

Note: 2010 prices discounted to 2010. Due to rounding, the numbers and percentages may not always add up exactly to the presented totals.

The costs anticipated in the appraisal are set out in Table 6. Based on this information, the project was anticipated to give 'high' value for money over the 60-year appraisal period.

Evaluation of costs

The project was delivered at a cost of £88 million[45], which is greater than the anticipated cost of £77 million (see Table 6). The appraisal also forecasts that the project would result in an increase in maintenance costs over the life of the project. As most of this maintenance is still in the future, the evaluation uses the maintenance costs forecast within the business case.

[42] This table refers to the core scenario. Low and high economic growth scenarios were also reported in the Economic Assessment Report.
[43] Disbenefits are presented as negative numbers and percentages. The total of the positive and negative contributions total to 100%.
[44] We compared observed trends with an estimation of the trends if the road had remained a conventional motorway (i.e. a 'counterfactual').
[45] This is the PVC (present value cost) of the project. This means it is presented in 2010 prices, discounted to 2010 to be comparable with the other monetary values presented.

Table 6 Cost of the project (£ million)

	Forecast (£M)	% of forecast costs	Evaluation approach
Construction costs	76.68	99%	Current estimate of project cost
Maintenance costs	1.04	1%	Not evaluated (assumed as forecast)
Total present value costs (PVC)	**77.72**		

Note: 2010 prices discounted to 2010. Due to rounding, the numbers and percentages may not always add up exactly to the presented totals.

Evaluation of monetised benefits

Once a project has been operating for three years, the post evaluation captures updates to the construction costs and a reforecast for the trajectory of benefits for the 60-year project life. It is not proportionate to replicate modelling undertaken at the appraisal of a project or to monitor benefits over the entire lifecycle, so we take an assessment based on the trends observed over the first three years of operation and estimate the trend over the project life, based on these observations. This provides a useful indication and helps to identify opportunities for optimising benefits. In instances where it was not feasible to robustly compare forecast and observed impacts, the findings have been presented with relevant caveats.

Monetised journey time benefits

As can be seen in Table 5, monetised benefits were primarily driven by forecast reductions in journey times over the modelled period compared to a 'do-minimum' scenario, for example, what would be expected to happen if the intersection was not built. Journey time benefits represented 90% of the overall benefit. In this section of our study, we have compared the 'after' journey times to the 'before' times as an estimate of what journey times are likely to have been without the project. This does not allow for any deterioration in journey times that may have occurred due to growth in background traffic levels. In addition, the assessment has focused on the project extent rather than the wider impact area.[46]

The forecasts generally over estimated traffic increase.[47] The business case would have been based on growth assumptions developed before Covid-19 and do not take account of changes to traffic patterns observed in recent years.

The overall impact on vehicle hours on the project section in the third year was estimated to be positive[48] although lower than that estimated for the original forecasts. Without further intervention, journey time benefits are unlikely to remain on track to be realised. This is likely to be due to a combination of reasons including:

[46] Without the scheme, growth in traffic would have led to increased journey times by the three years after assessment year. Using before times as a proxy would not include these traffic growth effects on speed.
[47] Refer to Section 4 for further details.
[48] A benefit of 336,000 vehicle hours in the third year.

- Lower than forecast levels of traffic assumed primarily to be due to the impacts of Covid-19.
- Lower than forecast time savings at the junction in most time periods, since the original assessment was based on forecast traffic flows higher than the observed flows, which led to forecasts junction delays in the do-minimum scenarios greater than observed.
- The appraisal assumed the project would deliver journey time savings for both those using the junction and those using the surrounding road network, where congestion would be eased by the junction improvements. The evaluation has not monitored the journey time impact on the surrounding roads and can only directly quantify a proportion of the journey times. Our findings relating to the project area are very different from those forecast for that area. We therefore did not feel we had sufficient confidence in the forecasts to use them as the basis of an estimate of the outturn impact in the wider area.

If the trends observed at the third year continue over the 60-year period, without any further action to optimise benefits, the monetised impact on journey times, for those using the road, would be £135million.[49] This figure only reflects journey time trends observed on the project area, not the surrounding road network which would have been considered in the appraisal.

We acknowledge that the monetised value presented above is conservative by not reflecting any impact on the wider road network, which when included could support an improvement in the reforecast value for money category.

Other reforecast impacts

We reforecast total safety benefits to be £10 million. This figure relates to the benefit at the junction over 60 years. The reforecast is slightly higher than the appraisal forecast (£6 million). The observed personal injury collision (PIC) savings are slightly greater than those forecast in the appraisal.

Indirect tax revenues are the benefit to the government (and therefore society) of the additional tax income from the additional fuel consumed due to increased speeds and distances travelled. This was forecast to be positive because more vehicles were forecast and they were forecast to be travelling at higher speeds and therefore using more fuel and paying more tax. We have reforecast that the impact would be smaller than expected, an increase in tax revenues (£3 million). The impact is smaller because our evaluation has shown that there was not as much traffic growth as forecast.

Impacts assumed as forecast

Vehicle operating costs refer to the fuel and other costs borne by the user (such as the wear and tear on vehicles). This generally increases with increased distance travelled. For this study, due to limitations of the assessment approach these could not be reforecast and were assumed to remain as forecast as a small benefit of £8m.

[49] This is against observed before times used as a proxy for what the journey time is likely to have been if the intersection had not been improved.

The evaluation does not reforecast the monetary value of noise and carbon benefits[50], and instead these were reported as forecast. For noise and carbon impacts, this assumption is conservative because lower than forecast traffic flows are likely to mean that these impacts are better than forecast.[51]

The evaluation has not been able to reforecast additional private sector revenue, which derived from additional traffic re-routing to use the tolled Tyne Tunnel. Private sector revenue has been retained as forecast. It is likely that this assumption overestimates this benefit, given the lower traffic growth observed is likely to have contributed to lower additional toll revenue.

Journey times and vehicle operating costs during construction are not evaluated and therefore assumed as forecast. Furthermore, as the vast majority of maintenance costs are still in the future and therefore unknown, these were therefore also retained as forecast as our best estimate.

Journey reliability

At the business case stage, the monetised value of journey time reliability benefits for this project were calculated using a simplified method[52] in line with the appraisal guidance at the time.

As part of this study, journey time reliability has been re-evaluated with outputs presented in the Customer Journeys section. The results show an improvement in journey time reliability from the before scenario to the three years after scenario. Monetised journey time reliability benefits, however, could not be recalculated since we have no method to deal with the non-standard approach taken to monetisation in the original forecasting. For the purposes of this analysis, reliability benefits have been retained as forecast.

Overall value for money

This project was forecast to represent ‘high’ value for money, with a low-growth – high-growth scenario range of ‘medium’ to ‘high’ value for money. Overall, this evaluation has indicated that this project provides ‘high’ value for money.

[50] We do not have a method for reforecasting the monetised impact of noise or carbon impacts. These were a small contribution to the monetised benefits of the project, in total representing 3% of the present value benefits, and therefore the impact of assuming as forecast is unlikely to impact on the value for money rating of the project.
[51] Refer to section 6 for further detail on noise and greenhouse gas impacts.
[52] Function based on the estimated change in standard deviation in travel time.

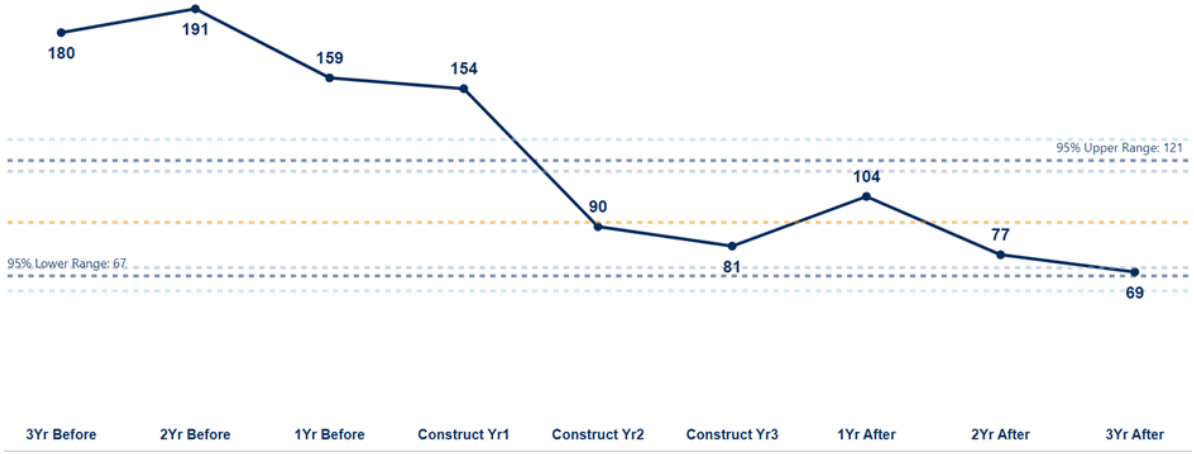
Appendix A

A.1 Road user safety on the wider area

How had traffic flows impacted collision rates in the wider area?

The evaluation has identified a decrease in the rate of collisions per hundred million vehicle miles (hmvm). Three years before, there was an annual average of 49.8 PICs per hmvm. Three years after, there was a decrease to an annual average of 24.6 PICs per hmvm (Figure 27). The counterfactual test undertaken found that the collision rate would likely have been between 24-44 personal injury collisions per hmvm. The after annual average collision rate falls just within the counterfactual range of 24-43 collisions per hmvm.

Figure 27 Annual average number of collision rate with counterfactual scenario ranges



Source: STATS19 27 June 2013 – 30 March 2022.

This indicates we have observed a reduction in the rate that PICs occur than predicted.

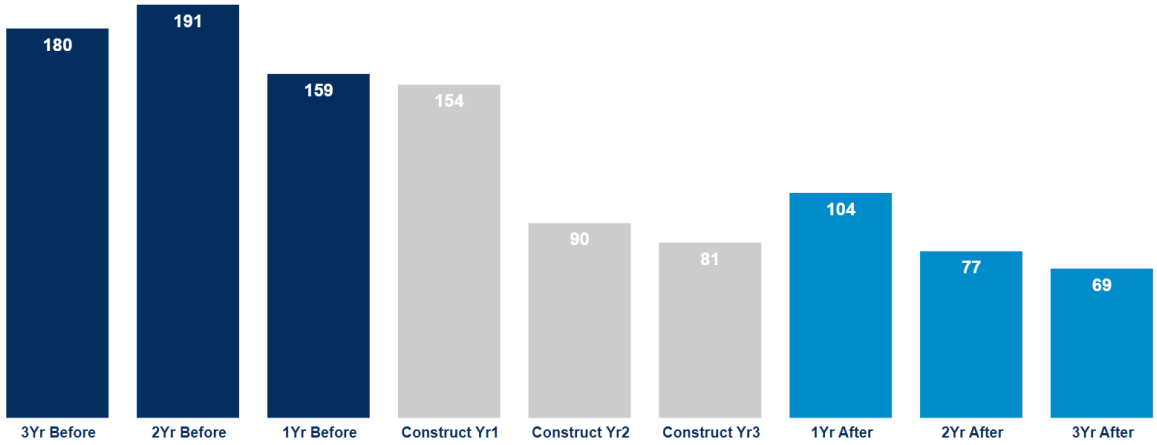
What impact did the project have on safety for the wider area?

Before the project, an annual average of 177 collisions were observed. After the project, this had fallen to an average of 83, a decrease of 94 (Figure 28).

Personal injury collisions

177	83	94
Before	After	Fewer

Figure 28 Annual PICs in wider area

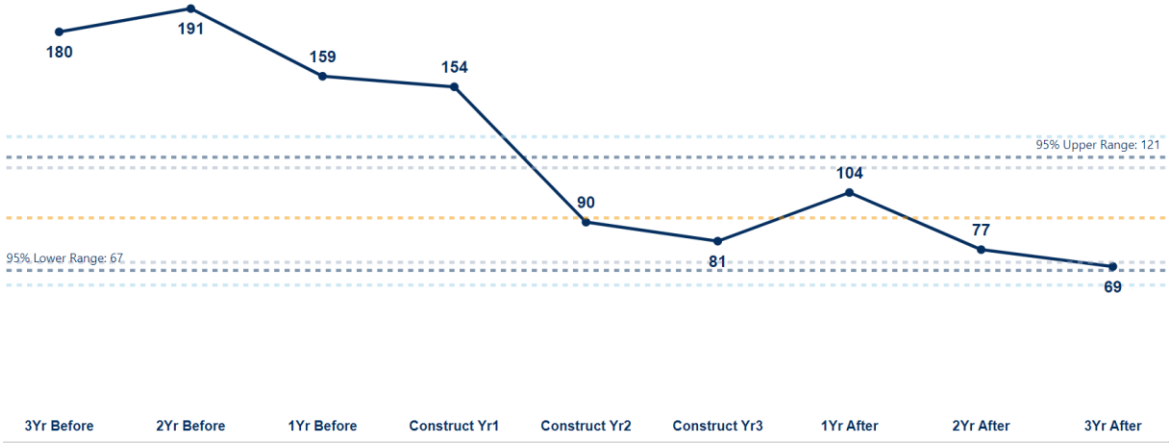


Source: STATS19 27 June 2013 – 30 March 2022.

The after annual average falls within outside the counterfactual range of between 67-121 PICs per year (

Figure 29).[53]

Figure 29 Observed and expected range of PICs in wider area (annual average)



Source: STATS19 27 June 2013 – 30 March 2022.

What changes in the severity of collisions did we see?

See Annex A.2 for information on when police forces transitioned to a new method in how severity of incidents is recorded.

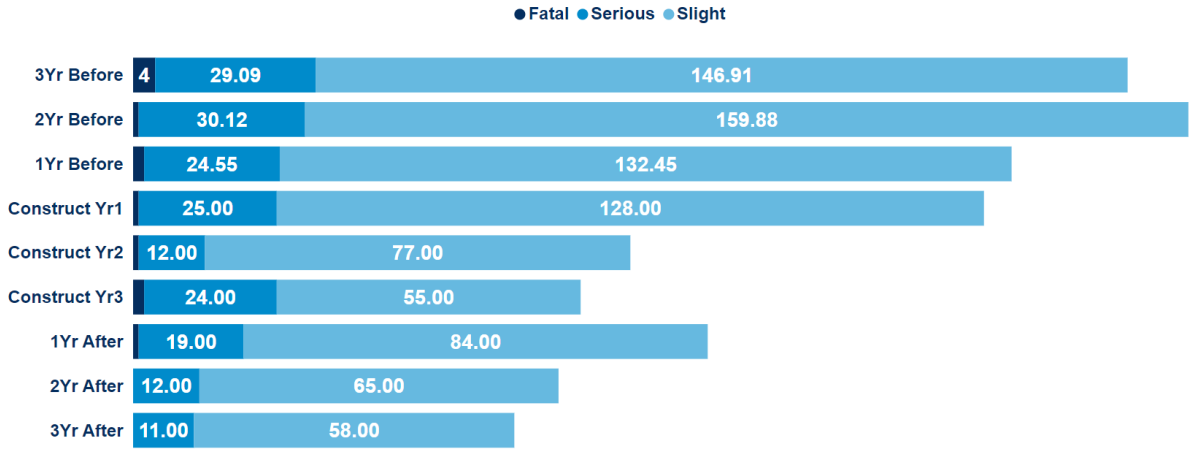
After the project, there was a reduction severity across all three categories (Table 7). The predicted collision reduction for the wider area was six fewer fatal collisions over the 60-year appraisal period. If the project continues to perform at the current level, it will more than achieve the predicted reduction. Figure 30 shows the full breakdown of severity of PICs by project year.

[53] We have tested the results at 95% confidence interval.

Table 7 Number of PICs by severity within the wider area

	Before	After	Change	Change direction
Fatal	7	1	6	↓
Serious (average)	27.89	14	14	↓
Slight (average)	146.41	69	77	↓

Figure 30 Severity of PICs within the wider area



Source: STATS19 27 June 2013 – 30 March 2022.

A.2 What impact did the project have on casualties?

There has been a reduction in the FWI observed annually. An annual average of 2.4 FWI was observed after the project became operational. This is a reduction compared to the average 6.1 FWI observed before the project.

The combined measure showed an extra 57 million vehicle miles was travelled before an FWI[54].

A reduction of 12 KSI has been observed annually. Reducing from an average of 26 KSI before to 14 KSI after the project became operational. The rate of KSI per hmvm has reduced from an average of 14 to five for every hmvm travelled.

The observations for KSI suggests that the project is having a positive safety impact on the severity of casualties within the project extent.

A.3 Incident reporting mechanisms

Since 2012, many police forces have changed the way they collect STATS19 data (for more information see here). These changes mean casualty severity is now categorised automatically based on the most severe injury, rather than the judgement of an attending police officer.

[54] Before the project, 40 million vehicle miles needed to be travelled before a FWI (2 FWI per hmvm). After the project, this increased to 98 million vehicle miles (0.9 FWI per hmvm).

Police forces using the new systems, called injury-based severity reporting systems, (also known as CRaSH and COPA) report more seriously injured casualties than those which do not. These changes make it particularly difficult to monitor trends in the number of killed and seriously injured casualties over time, or between different police forces. In response to these challenges, DfT and the Office for National Statistics (ONS) have developed an approach to adjust the data collected from those police forces not currently using injury-based reporting systems.

These adjustments are estimates for how casualty severity may have been recorded had the new injury-based reporting system been used. These adjusted estimates apply retrospectively from 2004 and adjust historical data to show casualty severity 'as if' this was recorded under the new injury-based system. Until all police forces have started using the new systems, these historical adjustments will continue to be updated every year. Using these adjusted totals allows for more consistent and comparable reporting when tracking casualty severity over time, across a region, or nationally. While there is no impact on total casualties or collisions, and no impact on total fatalities, these adjustments do impact serious and slight casualties and collisions.

A.4 Unadjusted collision severity

The project extent is covered by Northumberland police constabulary, which transferred from Stats19 to CraSH in April 2016.

Table 8 shows the unadjusted collision severities on the project extent:

Table 8 Unadjusted collisions by severity for project extent

Observation Area	Observation Year	Fatal	Serious	Slight
Project Extent	3Yr Before	0	0	17
Project Extent	2Yr Before	0	0	15
Project Extent	1Yr Before	0	0	21
Project Extent	Construct Yr1	0	0	14
Project Extent	Construct Yr2	0	0	6
Project Extent	Construct Yr3	0	1	10
Project Extent	1Yr After	0	1	4
Project Extent	2Yr After	0	0	3
Project Extent	3Yr After	1	2	4

Source: STATS19 27 June 2013 – 30 March 2022

The wider safety area of the A19/A1058 Coast Road project is covered by Northumberland police constabulary who transferred from Stats19 to CRaSH in April 2016.

Table 9 shows the unadjusted collision severities on the wider safety area:

Table 9 Unadjusted collisions by severity for wider area

Observation Area	Observation Year	Fatal	Serious	Slight
Wider Area	3Yr Before	4	19	219
Wider Area	2Yr Before	1	20	242
Wider Area	1Yr Before	2	19	186
Wider Area	Construct Yr1	1	27	173
Wider Area	Construct Yr2	1	14	108
Wider Area	Construct Yr3	2	24	69
Wider Area	1Yr After	1	22	108
Wider Area	2Yr After	0	14	84
Wider Area	3Yr After	0	12	83

Source: STATS19 27 June 2013 – 30 March 2022

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Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ

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